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The measurement of mutual nonverbal coordination in the psychotherapeutic process : an exploratory study of the development of an index for clinical use.

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THE MEASUREMENT OF MUTUAL NONVERBAL COORDINATION IN THE
PSYCHOTHERAPEUTIC PROCESS: AN EXPLORATORY STUDY OF THE
DEVELOPMENT OF AN INDEX FOR CLINICAL USE

A Dissertation Presented

by

CARLOTTA J. WILLIS

Submitted to the Graduate School of the
University of Massachusetts in partial fulfillment
of the requirements for the degree of

DOCTOR OF EDUCATION

September, 1989

School of Education

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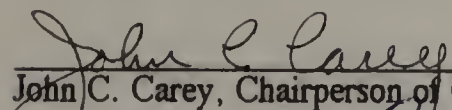School of Education

ACKNOWLEDGEMENTS

ABSTRACT

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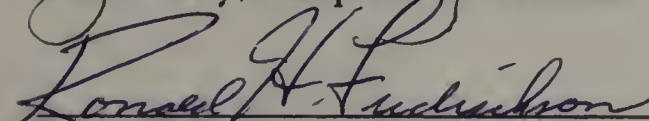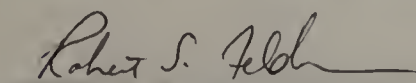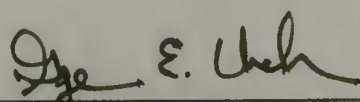
SEPTEMBER, 1989

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Mutual nonverbal coordination is the process through which two or more people adjust their body movements to one another's in a pattern of synchronous behavior. Psychotherapy includes specialized forms of human communication and relationship which will of necessity involve mutual nonverbal coordination between counselor and client. Even though there has been a long history of research into coordinated behavior, there has been little application to the supervision and training of clinicans. This study has explored the development and application of the Index of Nonverbal Coordination, designed for use by the practitioner.

12 minimally trained female graduate students rated 25-30 second clips of videotaped interaction between 3 counselor-client dyads in counterbalanced order. Eight categories of mutual nonverbal coordination were tested: Shared Positions, Rhythmic Coordination, Echoing, Dynamic Similarity, Similarity of Shape, Subtle Attunement, Heightened Synchrony, and Kinesic Coordination, a global category.

Seven of the eight categories had interrater reliabilities at .86 or above. Post Hoc comparison of means showed significant differences between the clips and levels. Intercategory correlations were high, except for Shared Positions.

A second phase of the study tested the correlation between ratings of nonverbal coordination using four of the eight original categories with ratings of alliance from verbal transcript in a single-case exploratory study. No significant correlation was found between the mean ratings of verbal alliance and nonverbal coordination.

It was concluded that, under the conditions of this study, the Index of Nonverbal Coordination is a reliable instrument which could have use in the training, supervision, practice and research of psychotherapy. The ratings of verbal and nonverbal collaboration between the counselor and client dyad showed no direct association, suggesting a need for more refined verbal measures for comparison, or use of the INC as a process-measure in its own right. Future research has been suggested to refine the scale and to develop procedures for use in research and clinical practice.

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CHAPTER 1

INTRODUCTION

Statement of Problem

Mutual kinesic coordination is the process through which two or more people adjust their body movements to one another's in a pattern of synchronous behavior. This phenomenon, an aspect of interactional synchrony, has been described by a number of authors using a variety of terms and definitions (Capella, 1981). It has been demonstrated, in varying degrees of strength, in pairs of mothers and infants (Beebe & Stern, 1977; Tronick & Gianino, 1985), nurses or doctors and their patients (Daubenmire & Searles, 1982; Fraenkel, 1986), teachers and students (LaFrance, 1982), counselors and clients (Mercier, 1983; Scheflen, 1973), friends (Fraenkel, 1983) and experimental subjects (Bavelas, Black, Lemery, MacInnis & Mullet, 1986). Recent research by Bernieri (Bernieri, Resnick & Rosenthal, 1988) has addressed the oft-leveled complaint that no baseline level demonstration of the random occurrence of the behavior had been established (Capella, 1981) and computerized replications of infant entrainment to human sounds have further supported the fundamental nature of this process (Kato et al, 1983).

These studies have suggested the existence of some sort of behavioral entrainment or synchronous movement patterns as an inherent part of the human communication process (Wylie, 1985), yet the exact nature and form of the process and how it may change or influence relationships is not yet determined. Most research in this area has used detailed, complex and time-consuming coding methods, often requiring extensive training of judges. In part due to the complexity of these methods, research and practical application in the area of movement coordination has been more limited than

would be expected considering the pervasiveness and potential importance of the process. Rosenfeld (1981) has noted the curious lack of replications of Condon's work, and, in particular, the absence of clinicial use of interactional synchrony as a diagnostic tool, when it seems to have so much promise.

Psychotherapy includes specialized forms of human communication and relationship which will of necessity involve aspects of mutual nonverbal coordination between counselor and client. However, the manifestation of movement coordination and possible influence on psychotherapeutic process and outcome are largely unknown. Application of the research into synchronous behavior from various disciplines into clinical practice and supervision has been limited by the complexity of the various coding systems used in these investigations (Boice & Monti, 1982). A simple, "real time" method of analysis of the nonverbal coordination will permit clinicians and supervisors to explore the potential meaning of variations in synchronous behaviors during review of video-taped sessions. Further research on clinical issues involving mutual kinesic coordination between therapist and client may be stimulated once observation and coding of the process are made accessible to the average practitioner.

Objectives

The primary objective of this study is to address the difficulties involved in the examination of the interactive kinesic aspects of nonverbal communication in the psychotherapeutic process. The first phase has been designed to determine if minimally trained observers can reliably code mutual nonverbal coordination between counselor and client from two viewings of videotaped interaction clips, using their subjective judgments of the overall level of synchronous behavior present. A range of mutual kinesic coordination behaviors have been selected and tested for reliability. The revised Index of Nonverbal Coordination (INC) was developed by selecting the most reliable

and distinct categories as determined by the Phase One study. The feasibility of clinical or supervisory use of the INC was examined through an exploratory study using a single therapy session and two groups of raters. The relationship between the four categories of nonverbal coordination behaviors and the ratings of therapeutic alliance during the session was examined.

Delimitations

The initial phase of the present study does not attempt to definitively answer the question of the meaning of mutual nonverbal coordination. It is felt that since the question of the level and method of observation has been unanswered, investigations into possible functions of the process must await improved observations systems. There is, however, a significant line of research indicating the possible function and meaning of the process which supports the theoretical basis of the study and which will be presented and discussed in the literature review.

The study is limited to the interactional variables selected as constituting the mutual kinesic coordination process and which may be observed under the conditions of the study. It is limited to the nonverbal parameters known as kinesics, after Birdwhistell (1970), and including "intentional and unintentional body behaviors including facial expressions, walking, bodily tension and relaxation, head positions and movements, and hand gestures" (Anderson, 1985, p.6). The author's long standing interest in movement qualities, dynamics, and analysis, derived from the study of the Labanalysis system (Bartenieff, 1980; Laban, 1950) is also be reflected in this study. The initial study does not include other nonverbal behaviors, nor verbal and vocal behaviors. It is acknowledged that the behaviors under study acquire much of their meaning when taken in context, that is, when examined in conjunction with the verbal text of the interaction

and the setting or other social variables, however, for the purpose of addressing the question of observation of aspects of synchrony, these factors are not included in Phase One of the study.

The initial study seeks to answer only the questions concerning the reliability of the judges observations. The behaviors included have been selected through review of the literature and thru preliminary observation sessions and the pilot study (Willis, 1988). The judges in the study have been limited to ratings based on these behaviors. The Phase One study has been conducted for the purpose of establishing salient parameters rather than relationships between these parameters and other factors.

The second phase of the study begins to approach the issue of context, meaning, and function, but does not attempt to provide definitive answers to these questions. It is limited to the exploration of relationships between the alliance ratings taken at periodic moments in a single therapy session and the mutual kinesic behaviors of the therapist and client. Although this exploratory study has provided some interesting insights as to the application of an Index of Nonverbal Coordination in supervision or in research, it is not extensive enough to determine widely generalizable functions or meanings of this behavior.

Assumptions

Whereas there have been several decades of research into nonverbal coordination (Capella, 1981; Coupland, 1984), the number of basic studies of kinesic mutuality has been more limited. At this point, therefore, it must be considered an assumption that nonverbal mutual coordination is a nonrandom behavioral event which is basic to human communication and essential to the psychotherapeutic relationship. The quality of this accomodation is assumed to have significance for the furthering of this relationship, although the exact form and nature of the process is unknown. It is

therefore believed that investigation into this phenomena may lead to a refinement of therapeutic theory and/or practice.

Following Bernieri (Bernieri et al, 1988), it is assumed that whereas nonverbal coordination "is not normally attended to", it is a "perceptual social phenomenon" (p. 244) that can be not only observed, as this study proposes to demonstrate, but it can be acted upon or altered, thereby providing an additional therapeutic tool. This assumption is also based on the research and clinical practice of Kestenberg (Kestenberg & Buelte, 1977), who has developed a method of preventive child psychotherapy based in part on the training of parents to more readily "attune" or move "in sync" with their children. Other therapeutic methods, such as Ericksonian hypnotherapy (Lankton & Lankton, 1983), Neurolinguistic Programming (Storms, 1982), and dance-movement therapy (Schmais, 1985) also use this pacing, or attunement method.

Rationale

The proposed focus on mutual nonverbal coordination is based on a view of counseling which suggests that the relationship between counselor and client is primary to the healing process (Lambert, 1983). This relationship is an interactive communication process which takes places on verbal and nonverbal levels (Kiesler, 1982). One aspect of the relationship includes the coordination of meanings and behaviors in order to provide a meeting ground for communication (Cronen, Pearce & Harris, 1980) as the therapist and client participate in a co-action of mutually determined patterns (Scheflen, 1982). The nonverbal manifestation of this mutual accomodation must be observed at the level of the dyad (Kiesler, 1982) and includes

the behaviors listed in the Index of Nonverbal Coordination (INC). These behaviors occur in most communications, but are of particular relevance in the psychotherapeutic relationship, within which the quality of the communication process is of central importance. Observation of these behaviors may lead to more precise information on how the process develops and changes, and to more exact methods of instruction for counselor trainees.

Another central aspect of the therapeutic relationship is the establishment and maintenance of rapport (Fiedler, F.E., 1950; Rogers, 1951) and several attempts have been made to link aspects of nonverbal coordination, such as posture sharing, with rapport (LaFrance, 1979, Trout & Rosenfeld, 1980). For the purpose of this study, rapport will be considered to be distinct from empathy, an interpersonal emotion (Willis, 1986), and to be the state of being "in sync" with one another, an "intrinsically interactional" quality of relationship (Tickle-Degnen & Rosenthal, 1987). Whereas rapport and mutual coordination are not synonymous, use of this broad definition of rapport highlights the importance of a more complete understanding of the underlying kinesic process. Being "in sync" can take place on both verbal and nonverbal levels, rapport may be measured in a variety of ways, and there may be yet untapped information about the nonverbal nature and process of developing rapport, which awaits an efficient method of investigation.

This study addresses the question of the feasibility of observation of mutual nonverbal coordination by clinicians and/or trainees in "real time" with limited repeat viewing. This attempt is supported by the rationale that such a method is needed in order to encourage both further research and clinical application, and by the notion that observation at this level may be more directly meaningful, that is, that the more readily observed level of movement interaction may contain aspects of behavior which are influential or highly salient. There may be subtle and interesting interchanges taking place at the microsecond level, but it is, perhaps, the more global aspects of our

behavior which affect us most readily. It is hoped that this research into mutual nonverbal coordination behaviors will ultimately inform clinical practice, therefore, these behaviors must be observable on at a "real time" level, and attention to the coordination process must not require hours of viewing using specialized equipment. Kinesic coordination must become alive and present with a relatively minor shift of attention and perception, otherwise the clinical usefulness will remain limited.

Conceptual Hypotheses

The methods and analyses of this study have been designed to address the problems and objectives detailed above and the following hypotheses have been tested. Minimally trained female judges, student volunteers enrolled in a graduate level course in counseling and guidance, will be able to consistently agree on the level of specified synchronous behaviors present in 30 second clips of interaction between a "counselor" and "client". Results of the analysis of their observations will suggest which of the aspects of mutual nonverbal coordination are most reliably observable under these conditions. Further analysis will determine what degrees of distinction between clips are possible under these conditions and what degree of independence between categories was present.

In the second phase, it is hypothesized that the ratings of nonverbal coordination, using the most salient of the categories from the Index of Nonverbal Coordination, will vary in significant patterns with the ratings of alliance between counselor and client as taken from the verbal transcript. This phase of the research is proposed as an exploratory investigation into the application of the Index of Nonverbal Coordination.

Significance of the Study

Mutual nonverbal coordination represents one aspect of the vital human communication process of behavioral entrainment. The methodological constraints involved in studying this process have been mentioned above, however, recently, Bernieri (Bernieri et al, 1988) has suggested that untrained observers can be used to obtain reliable ratings of global synchrony between mother and child. Bernieri (1988) has also applied his observation method to the study of synchrony between pairs of students in teaching sessions. The present study proposes to expand and extend Bernieri's research into the clinical realm by examining the feasibility of using minimally trained raters to rate mutual kinesic coordination between therapist and client, and by determining how many and which aspects of synchrony can be reliably seen. It is hoped that by establishing the feasibility of this approach, further research may be encouraged into the nature, process, and function of nonverbal coordination within psychotherapeutic relationships. Positive results in the intial judgment study should also further inform social psychological and communication research into the observability of the kinesic coordination process.

Also, the author has had a long standing interest in the field of dance-movement therapy. This psychotherapeutic method is founded on the belief that a nonverbal, movement relationship may foster physical, emotional, and cognitive growth for the client (Schmais, 1985). One of the basic methods in this form of treatment involves the mirroring of the client's body movements. This is basically an enlargement of the process naturally occurring in most positive interactions, that of coming into "sync" with each other. Dance-movement therapists believe in mirroring as the foundation of the communication of empathy. It has been demonstrated (Willis, 1986) that empathy and movement mirroring are not one and the same, yet it can be considered that

dance-movement therapists are involved in the process of rapport-building and are supporting the communication process which has so often been distorted or under-developed for psychotherapeutic clients. It is, therefore, significant that more efficient methods of investigation into the nonverbal coordination process be developed, so as to inform the theory and practice of dance-movement therapy.

Conceptual Definition of Terms

Mutual nonverbal coordination is here used to describe the process through which two or more people adjust their body movements to each other's, establishing a pattern of behavioral entrainment, or synchrony. This coordination produces a "gestaltlike harmoniousness or meshing of interpersonal behaviors" (Bernieri et al, 1988, p. 244). Coordination is an evolving process, described by Capella and Green (1984) as " 'mutual influence in human interaction' [which] refers to the tendency for persons to alter their verbal, vocal, and kinesic behaviors in response to the intensity, frequency or duration of those behaviors emitted by their partners" (p. 259). It is proposed that the process consists of a variety of observable behaviors, such as Shared Positions, Rhythmic Coordination, Echoing, Dynamic Similarity, Similarity of Shape, Subtle Attunement, Heightened Synchrony, and the more global term, Kinesic Coordination. Operational definitions of these aspects have been developed through literature review and during initial observation sessions and will be discussed in later sections. The Index of Nonverbal Coordination, which contains these definitions, may be found in Appendix A.

Alliance, as defined for Phase Two of this study, refers to the degree of collaboration or cooperation between the counselor and client pair. A strong alliance is characterized by a mutuality of goals and tasks, and the degree of bond present (Horvath & Greenberg, 1986). A description of the levels of alliance used in this study is found in Appendix J.

Outline of the Remainder of the Dissertation

The next section of the dissertation will include a brief literature review substantiating both the theoretical rationale and the specific focus of the study. An examination of the previous methods used to explore kinesic coordination will inform the design of the Index of Nonverbal Coordination and the study itself.

Chapter 3 presents the methods and results from Phase One of the study. Following a brief summary of the findings of this phase, Chapter 4 will detail the methods and results from Phase Two. The traditional separate methods chapter and results chapter have been organized in this fashion so that the reader may have the information on which Phase Two has been based in order to evaluate its design.

Chapter 5 will discuss the results of both phases in detail and will present and evaluation of the studies. Recommendations for future research will conclude the dissertation.

CHAPTER 2

REVIEW OF RELATED LITERATURE

All kinesic research rests upon the assumption that, without the participant's being necessarily aware of it, human beings are constantly engaged in adjustments to the presence and activities of other human beings. (Birdwhistell, 1970, p. 48)

Overview

In order to provide a framework for the present investigation into the feasibility of using minimally trained observers to measure kinesic aspects of mutual nonverbal coordination in psychotherapy, a review of the literature supporting the theoretical rationale and specific focus of the study will be presented. The discussion will begin with a review of the significant theoretical concepts underlying the process, as well as the history of the documentation of it's existence. A discussion of the relationship between behavioral accomodation and the constructs of empathy and rapport will lead into the presentation of the specific case of psychotherapy as an interactive communication process. The critical examination of the methods used to study mutual kinesic coordination and the particular studies which have directed the design of this study will conclude the review.

Coordination and Communication

Awareness of mutually influencing patterns of interaction was initially promoted by Chapple (1940) through his studies of speech patterns. Speech theorists developed a line of research based on what was variously called "convergence (Natale, 1975; Giles, 1977), congruence (Feldstein, 1972; Welkowitz et al, 1976), reciprocity (Aygyle, 1969; Capella, 1981), synchrony (Webb, 1972), symmetry (Meltzer et al, 1971), and pattern

matching (Cassotta et al, 1967)" (Street & Giles, 1982). A similar development occurred in nonverbal communication research, with the process being labeled mutual influence (Capella, 1981), interactional synchrony or coordination (Davis, 1982; Kendon, 1970), convergence (Daubenmire & Searles, 1982), echoing (Fraenkel, 1983), behavior matching (Bernieri & Rosenthal, in press), posture sharing (LaFrance & Broadbent, 1976; Navarre, 1982), mirroring (Schmais, 1985), microsynchrony (Condon, 1974) motor mimicry (Bavelas et al, 1986), nonverbal intimacy (Patterson, 1976), mutuality (Tronick, Als & Brazelton, 1977), and entrainment (Chapple, 1970). These terms all appear to refer to processes, or aspects of processes, through which interactants seem to link their behaviors, both verbal and nonverbal, into a joint pattern.

Scheflen (1979) proposed that the study of communication be seen not as a study of strings of individual behavior, but rather as the study of a process which occurs between people, "through the mutual use of coded behaviors" (p.9). He based his thinking on the trend away from the Aristotelian principles of "reductionism" (belief in some main part), "reification" (the tendency to conceive of an explanatory principle as a thing with some human traits), and "real truth" (a search for the answer), towards a more holistic, patterned approach to interaction. According to Scheflen, this trend was apparent and concurrent in physics (Maratyuma, 1963), biology (Bertalanffy, 1960), physiology (Pribram, 1971), anthropology, psychology, communication (Bateson, 1972), sociology (Cherry, 1961), and ethology (Lorenz, 1952). Scheflen (1982) has suggested that the discovery of interactional synchrony occurred in conjuction with this epistemological shift from individuals to interrelationships of events, behaviors, and movements, further supporting the development of the cybernetic models.

> Once we recognized that participants regularly, continually and generally act in synchrony, we could no longer entertain an action-reaction mode or any simpler Aristotelianism as a basis for our theory. We were forced to adopt an alternate epistomology. We were forced, as were Einstein and Weiner and others three generations earlier, to adopt a field epistemology.

The point can be put in less fancy language. There are occasions when all participants in a scene turn at the same moment to countenance an interruption or a noisy stimulus. In such cases we can say that they co-act in a common response. But in most kinds of interactional synchrony discussed in this volume there are no perceivable, external cues. One explanation of this is obvious and unavoidable. The participants have in common adopted the same tempo, and they are following in common an agenda, a script, a program, or a scenario that each has already internalized. Participants are not merely reacting to each other. They are not merely identifying or copying each other. They are co-acting in a common, prewritten, or culturally traditional drama. (pp. 19-20)

Scheflen's concept of participants co-acting according to shared scripts provides a simple and clear explanation for the seemingly pervasive occurrence of nonverbal coordination. It parallels speech accommodation theory whose proponents similarily proposed that "communicators are motivated to adjust their speech styles with respect to one another as a means of expressing values, attitudes, and intentions" (Street & Giles, 1982, p.205). Interactants may also become more dissimilar to express differences, although this aspect of the process has been less frequently addressed in speech theory (Street, 1982) or nonverbal research (Patterson, 1973).

The documentation of interactional synchrony and behavioral entrainment processes has occurred using a variety of methods and operational definitions. After a comprehensive review of the literature on mutual influence, Capella (1981) found:

The one incontrovertible conclusion derived from this review is that mutual influence in expressive behaviors is a pervasive feature of social interaction, found across a variety of behaviors. This pervasiveness extends not only across behaviors but across developmental time. Very young infants, in their 1st weeks of life, and their adult caretakers show the kind of compensatory and reciprocal influences that adults exibit later. I find such evidence striking testimony to the fundamental nature of mutual influence processes in human social behavior. One must be awed by the flexible yet patterned responses that social actors make to one another. Across most expressive behaviors, compensatory and reciprocal influences were observed and found to be mediated by relational factors, situational factors, and person-person factors. And in studies in which interactants were less controlled, individual differences between dyads were common. (p.123)

Whereas Capella found strong evidence for coordination in several dimensions of communication, his analysis found less conclusive evidence in support of nonrandom coordination of body movements. There are, however, some important studies which are highly suggestive of a concurrent coordination process in body movement and gesture.

Using a context analysis method for discovering the interactional patterns in psychotherapy, Scheflen (1972,1973) found patterns of congruency and change in body position and orientation fluctuating with relationship and social context. Using perhaps the most exhaustive of methods for synchrony research, Condon (1974, 1980) has spent more than twenty years in frame-by-frame analysis of linguistic-kinesic interactions. He has presented evidence of both self-synchrony and interactional synchrony through analysis of the relationship of change points in body parts. McDowell (1978) has questioned the significance of Condon's findings, but others (Davis, 1984; Gatewood & Rosenwein, 1981) have criticized his replications as partial and inaccurate. Kendon's (1970, 1982) detailed analyses of social events have led him to propose coordination of orientations between speakers. And more recently, Fraenkel (1983, 1986) has coded patterns of synchronous and echoed movements. None of these studies present expected baseline occurrences of coordination, but rather they note what occurrences appear to be present.

Daubenmire, Searles, & Ashton (1977) completed an in-depth, seven-year study of nurse-patient relationships from admission to discharge. From detailed codings of video recordings of one-second intervals of nurse-patient interaction in actual hospital rooms, they were able to distinguish significant patterns of synchrony and convergence using Marcov analysis. Kato (Kato et al, 1983) has developed a computer analysis grid system which with infant-adult synchrony levels beyond chance have been observed.

Most recently, Bernieri (Bernieri et al, 1988) presented data demonstrating that synchrony was perceived by untrained raters in actual interactions at a greater rate than in pseudointeractions.

Taken as a whole, these studies point to the validity of movement coordination as an inherent human communication process. It is true that further basic studies will improve the conclusiveness of these findings. As stated above, however, the question of methods and level of observation needs to be addressed before the topic becomes more readily researchable in broader application areas.

Empathy, Rapport, Alliance and Kinesic Coordination

Much research has centered around the suggestion of a relationship between kinesic similarity and empathy (Condon, 1980; Fraenkel, 1983; Hall, 1983). There appear to be many co-occurrences of these phenomena, yet it may be a conceptual leap to suggest that this co-occurrence establishes a meaningful function, or causality. One of the difficulties involved in equating the "sharing of form" (Condon, 1984) with the emotion of empathy was discussed by Willis (1986). Using Averill's (1986a) social constructivist definition of emotion, empathy was described as a complex syndrome of biological, social, and psychological processes, made meaningful by the context in which they occur. There is a danger in too closely "identify[ing] an emotional syndrome with some of its components, and then ...conclud[ing] that what is true of a component part is also true of the syndrome as a whole" (Averill, 1986b).

Movement coordination, or any of its aspects such as shared posture, is a component of the emotional syndrome of empathy and as such, has biological, social, and psychological roots. The occurrence of shared rhythmic patterns is seen in infants and mothers, casual groups of conversants, new acquaintances, intimate pairs, and ritual dances. On some occasions, moments of shared movement may be coincident with

moments of empathy. Shared movement may even encourage empathy. But shared movement, in and of itself, is not empathy, and may not, in all cases, communicate empathy. It is more likely that such shared movement will set the stage for interaction and is best interpreted as a process, rather than an outcome or specific emotional state.

Tronick (1985) has found it useful to distinguish between the process of mutual regulation and the resultant outcome. He found that:

> The process is a feed-back regulated control system, which
> primarily operates as an emotional process. [...the affective system
> underlies mutual regulation and both positive and negative affect
> are generated during a normal interaction (p. 4)] The goal is some
> state, e.g., intimacy, connectedness, sociality, oneness, love,
> attachment. 'Reciprocity', for example, focuses on the process,
> while 'mutual delight' focuses on the hedonic outcome. (p.3)

The same basic distinction between process and outcome, or between component and syndrome, can be made when examining much of the literature linking rapport and movement coordination (Bernieri, 1988; LaFrance, 1979; Navarre, 1982; Trout & Rosenfeld, 1980), though in many cases the rapport researchers were clearer about the fact that they were studying a process rather than outcome (La France & Ickes, 1981). Tickle-Degnen and Rosenthal (1987) have clarified their research by making the distinction between components of rapport.

> The three dynamic components of rapport are those features of an
> interaction that have a developmental and changing quality and
> that can be assessed in a 'state' or 'trait' manner: the degree of (1)
> mutual attention and involvement, (2) positivity, and (3)
> coordination among the participants of an interaction. An
> interaction involving a high state and trait rapport would, by
> definition, have a high degree of mutual attention, positivity, and
> coordination among the participants.   (p.118)

This definition closely parallels that used for alliance in Phase Two of this study, that is, the degree of collaboration and cooperation between the counselor and client. Nonverbal coordination may be seen as a reflection of the overall process of

coordination (3 above), and possibly, alliance, serving different functions at different stages in a relationship (Tickle-Degnen & Rosenthal, 1987). The specific fixed postures or shared positions may be moments within this process. It would be best to avoid equating nonverbal coordination with rapport, empathy, or alliance, all of which are more complex and comprehensive than a simple one-to-one comparison implies. One can, however, study the aspects of nonverbal coordination as indicators of aspects of the emotional syndrome of empathy and the process of developing and maintaining rapport and/or alliance, keeping in mind the various distinctions made above. These distinctions and the fact that the same behavior may take on different meanings within different contexts (Birdwhistell, 1970; Pearce & Cronen, 1980; Scheflen, 1979) contribute to the complexity of understanding the process of mutual nonverbal coordination in any relationship and, in particular, psychotherapy.

Interactive Communication and the Nonverbal Relationship in Psychotherapy

The suggestion of the importance of the study of mutual nonverbal coordination in psychotherapy is based, in part, on a recognition of the interactive, interpersonal aspects of the therapeutic process. This systemic view of the therapeutic relationship was initially proposed by Sullivan (1953) and was continued by Bateson (1958), Laing (1962), Watzlawick, Beavin, and Jackson (1967) and the systemic family therapists (Green & Framo, 1981). The basic premise from interpersonal psychology of significance here is that "the most pervasive and essential feature of human activity [is] namely its embeddedness in dyadic and other transactions" (Kiesler, 1982, p. 5). Adopting interaction as a basic state of human existence requires a dyadic focus as the smallest possible level of analysis. As Kiesler (1982) has suggested:

Older constructs such as "instinct", "habit", or "trait", as traditionally defined, do not adequately represent the transactional

feature of human behavior. Instead, we need explanatory concepts
such as "interpersonal style", "transactional positions",
"interactional synchrony", and the like, which reflect the
embeddedness of human activity in a social, interpersonal context.
As Laing (1964) observes, to understand human transactions we
need to study them at the level of the dyad, and not at the level of
the individual person within the dyad. The dyad is a system, a
two-person process, not one person at a time interacting with
another. (p.6)

Kiesler (1979) additionally reinforced the importance of studying the nonverbal aspects

of interaction, particularily in psychotherapy.

The most crucial place to search for relationship is in the
nonverbal behavior of the interactants. Nonverbal communication
is the language of emotion and relationship. Hence, the total
available methodology of assessment for paralanguage, kinesics,
proxemics, touch, etc., is centrally relevant for assessment of
client and therapist relationship factors. (Kiesler, 1979, p. 303).

Much of what has been written about kinesic communication in psychotherapy has

had an individual focus, either on the patient or on the therapist (Blanck, Buck &

Rosenthal, 1986; Davis, 1984; Waxer, 1978). Some of this work has focused on the

unconscious process as revealed through nonverbal behaviors, (Deutsch, 1952; Freud,

1938; Mahl, 1977), whereas others have investigated the use of nonverbal analysis for

assessment (Chapple & Lindemann, 1942; Davis, 1970; Kestenberg, 1977) or character

analysis (Lowen, 1971; Reich, 1949). In addition, research into the expression of

emotion in psychiatric patients and others, such as that done by Ekman and Friesen

(1968, 1975) , Buck (1984), and Rosenthal and Benowitz (1986) has provided valuable

insights into the meaning of nonverbal behavior. Excellent summaries of these

approaches to the study of kinesics within the psychotherapeutic context may be found

in Bahnson (1980), Davis (1984, 1985), and Waxer (1978).

If, however, an interpersonal and interactional perspective is adopted, the kinesic

behavior of the therapist and client must be considered as a unit, in which the behavior

of one not only has effects on the behavior of another, but also in which the participants

co-create their kinesic patterns. Whereas some earlier research suggested that forward leans, head nodding, and other behaviors (Hasse & Tepper, 1972; Ivey, 1978; Truax & Mitchell, 1971) may improve the therapeutic rapport, other researchers, such as Trout and Rosenfeld (1980) and Maurer and Tindall (1983), investigated the reciprocal process as described by Charney (1966), Condon & Ogston (1966) and Scheflen (1964). LaFrance and Mayo (1978), among others, have suggested that the degree of interactional synchrony seen in a dyadic relationship can provide one indication of the quality of that relationship. Hadiks (1987) has suggested that the nonverbal relationship will correspond to the "give and take" (p.33) of the psychotherapeutic process. "In other words, it is a dynamic rather than static achievement...[in which] the therapist nonverbally provides a structure which facilitates such movement by the client" (pp. 33-34).

As stated above, however, any one-to-one correspondences between such interactional or individual kinesic behavior and other constructs must await more complete research findings. And whereas these studies are often confirming of one's intuition, clinicians are generally left without clear guidance as to application of the findings into their clinical practice (Davis, 1985). This is partly due to the lack of generalizability of the fine-grained, single case studies necessitated by complex methods of kinesic analysis.

Methods of Investigation

As stated above, there has been a great deal of diverse research into the general phenomena of mutual influence (Capella, 1981). The specific research into the kinesic mutual influence has, however, been more limited. Rosenfeld (1981) and others (Bernieri et al, 1988; Capella, 1981; Davis, 1984) have speculated that extremely costly and time-consuming methods have contributed to this. There are, however, several

significant studies which directly inform the question at hand. Consideration of the studies will be limited to those exploring adult-adult mutual influence in kinesic behavior, that is, body movement coordination between adults, and in particular, those studies concerning mutual coordination between therapist and client. There are a number of excellent studies (Beebe,Stern & Jaffe, 1979; Condon & Sander, 1974; Tronick & Gianino, 1985) of the patterned influence between adult and child, however, these will not be considered for the sake of specificity. There are also a number of studies focusing on convergence and interaction of paralinguistics and semantics in psychotherapy following the seminal work of Lennard and Bernstein (1960,1969) such as the recent study by Mercier (1983,1984), whose significance for the understanding of kinesic interaction is not to be overlooked. Review of these studies, however, is outside the immediate scope of this paper.

Seminal Studies and Inclusive Methods

Scheflen's (1964,1965, 1973) extensive research into nonverbal interaction in psychotherapy primarily used a context analysis method based on Birdwhistell's (1970) approach to kinesics. The method involved the detailed and lengthy coding of multiple variables of posture, gesture, and verbal content. These behavioral events were then studied for recurrent patterns which were considered relative to their place in the overall context of the interaction. Through this method, Scheflen was able to discover an intricate matrix of posture relationships between the therapist and client. The three basic patterns described and illustrated in the text were:

1. Inclusiveness or non-inclusiveness of posture--defines the space for the activities and delimits access to and within the group.
2. Vis-a-vis or parallel body orientation--gives evidence about the types of social activities.

3. Congruence or non-congruence of stance and positioning of
extremities--indication association, non-association or dissociation
of group members. (Scheflen, 1964, p.239)

Once these patterns were observed and named, of course, the analytic process became

much easier, but it still required a great deal of effort per therapy session, and the

system did not include some of the other aspects of kinesic interaction, such as shared

dynamics. In fact, the system, although noting postural shifts, is primarily focused on

fixed positions and does not include actual <u>movement</u> aspects of interaction.

Charney (1965) began his in-depth analysis of a single psychotherapeutic interaction

with several viewings of the film of an entire session. He was able to notice a pattern

of mirrored postures which seemed to occur in regular patterns. Following the

hypothesis that the postures were indicative of significant moments in the therapy, he

completed a frame-by-frame analysis in which positions were noted as "either 'mirror'

congruent, 'identical' congruent or 'non'-congruent, separately for upper and lower

body" (p.308). The positions had to be synchronous for at least .4 second in order to

qualify as congruent. The duration requirement was based on his thinking that "body

movements of less than .4-sec. duration appear to have greater significance at the

intrapersonal level" (p.309). Charney then performed an analysis of the verbal context

and found that the congruent postures accompanied more positive and interpersonal

content than the noncongruent positions. His approach suffers from the same

limitations as Scheflen's when applied to the present concern, although the lengthening

of the duration requirement, minimal as it is, is an important contribution.

Condon and Ogston (1966), using a primarily linguistic-kinesic approach, noted

coordinated body movements between speakers. Their frame-by-frame method focused

on the occurrence of simultaneous changes in movement direction of 1/24 to

1/48-second duration. Capella (1981) has noted that this brief time frame would tend to

bias in the direction of occurrence of synchronous movements in the absence of baseline information. For the purposes of this study, the method is both too time-consuming and too fine-grained an analysis to be of use to the clinical observer.

Kendon (1968, 1970) has also been able to observe movement coordination between speaker and listener, especially during moments of engagement and disengagement. He found the coordination to occur in three recurrent steps: "a meeting of the eyes, a mutual adjustment of the speed of movement, and the establishment of a particular distance between the participants" (1968, p.65). Kendon (1970) observed mirrored positions between speaker and listener and synchronized postural shifts. He used a similar method to that of Scheflen in order to discover these patterns. Focusing on the greetings and leave takings in interaction, he viewed his stimuli repeatedly until patterns began to emerge and gradually decisions on units and levels of analysis were made (1982).

Daubenmire (Daubenmire, Searles, & Ashton, 1977a, 1977b; Daubenmire & Searles, 1982) devised a complex and comprehensive method for pattern analysis in nurse-patient interactions. The study produced 1,902 taped interactions, varying from ten seconds to one hour. Both verbal and nonverbal behaviors were coded in detail and analysed by a number of procedures such as Marcov pattern analysis. This method for the exploration and documentation of patterns of communicative interaction, although showing much promise for in-depth analysis, is much "too complex and expensive to be feasible for research in these hard economic times" (Davis, 1984, p. 213), and definately too time consuming for clinical application, as would be other related computer-dependent systems, such as that devised more recently by Hirsbrunner, Frey, and Crawford (1987).

However, Daubenmire's findings of distinct patterns of synchrony and convergence are of interest. Convergence was defined as "a process of increasing behavior similarity" (1977a, p. 52). Synchrony was defined "in terms of the intensity, frequency,

rate, or duration of one person's patterns rhythmically matching the pattern's of another person" (1982, p.316). Numerous patterns of convergence and synchrony were observed, although the study did not produce results of significance since its primary purpose was the development of the observation method. However, based on their seven years of qualitative observations, Daubenmire and her associates believed "both convergence and synchrony appear to be significant interactional phenomena" (1977a, p.139). Additionally, they suggested that synchrony is an outcome of convergence; that is, the process of coordination appears to result in moments of synchrony, which will be more frequent as the movers converge, or increase the similarity of their movements.

Another computer system developed to analyse multiple channels of verbal and nonverbal behavior is being developed by Allred, Harper and associates (Allred, Hansen, Harper, Poduska, & Wadham, 1985). The Harper Nonverbal Interaction Coding System (Harper, 1983), a detailed, computer-assisted method to record behavior, is combined with the verbal behaviors coded through the Allred Interaction Analysis for Therapists (Allred & Kersey, 1977). The verbal and nonverbal behaviors, in addition to heart rate and respiration rates if desired, can be printed out on a timeline. The nonverbal interactional variables are primarily space and action oriented and do not include dynamics. Preliminary applications in supervision sessions have produced interesting insights, such as the sensitivity of the nonverbal behavior to "unrest" in the session. The system is very detailed and cumbersome, however, and whereas it is promising for research, wide application in supervision or training is doubtful.

Davis (1983) has devised a system based on Labanalysis (Bartenieff & Lewis, 1980) which facilitates notation of two seated persons' movements in terms of relationships, positions, actions, and dynamics. The system is highly accurate and reliable, yet requires some twenty hours of training and takes two hours to code seven minutes of behavior, even when using several coders. Even Davis (1984) has admitted that "while

this is lightning speed compared to the time taken for comparable film or tape analysis done in the past, it is still too time-consuming and exhausting" (p.217). Her method, although more selective than Daubenmire's above, includes many bits of information which may be further analysed for pattern. She has, however, also included a coding of relationship behaviors, such as orientation of positions, mirrored, identical, synchronous (simultaneous change) or echoed (within 1-2 seconds) movements, which are simply marked across the vertical columns of coded behavior. This aspect of her system has shown a promising level of agreement in initial tests (Davis, 1983), although there were only a few instances of the behaviors in question in her sample. It remains to be seen whether or not observers could obtain such agreement under the conditions of the present study (i.e., two viewings only of thirty second samples, and within the context of selected moments of a complete psychotherapy session).

Taken as a group, these methods indicate that kinesic coordination is observable, given enough time. Additionally, the studies have provided the inspiration for a continued investigation into this process.

Methods of Observing Posture Sharing

A number of studies into interactive kinesic behavior have focused on posture sharing, following the discoveries made by Scheflen (1964). These studies follow the more restrictive approach to nonverbal analysis by using more limited and selected variables and have, in general, been able to achieve adequate interrater reliability. In Daubenmire's study, as in the work of the earlier researchers, the phenomena of mutual coordination, synchrony, and convergence were just being described. Their methods reflect the seminal nature of their studies. Later researchers could build on those initial discoveries and the methods used could more specifically focus on the target behavior, such as posture sharing, from the beginning of the research process. In several studies

(Dabbs, 1969; Trout & Rosenfeld, 1980) experimental manipulation of a shared posture was compared to a psychological construct, such as rapport or attraction. These studies tend to simplify movement coordination into discrete constructs, such as forward lean and congrugent limbs.

LaFrance (LaFrance & Broadbent, 1976, 1979; LaFrance & Ickles, 1981, 1982) has completed an number of studies concerning the posture sharing condition. In the first (LaFrance & Broadbent, 1976), a time-sampling procedure was used to code behavior in a classroom setting. Observers noted the body position of a professor using 9 possible torso positions and 16 arm positions. Mirrored or identical student positions were tallied. Using a similar system in a later study (1979), she obtained a .96 interobserver reliability on the judgment of posture sharing and through cross-lag analysis demonstrated a recipocal relationship between posture mirroring and self-reports of involvement.

For a study designed to test the relationship between posture sharing and positive interpersonal assessments, Navarre (1982) developed a observation method to assure that her experimental conditions were being met. Two observers, dance therapy students with specific training in movement observation and theory, were able to reach complete agreement on attainment of posture sharing or neutral conditions during 15 minute interviews. The task is relatively discrete, but Navarre's definition of posture sharing is more comprehensive than those above which only consider the shape of the body, or the body parts.

> Posture sharing was defined as the co-ocurrence between both participants of: 1) general postural mirroring (e.g., similar erectness in posture, general postural shape, crossing of same arm or leg, same hand gesture to head); 2) equivalent small movements (e.g., figeting, scratching, tapping); and 3) equivalent muscular tonus (e.g., muscle tension in gesture and posture) and quality, or effort. (1982, p.34)

This definition is, in fact, more similar to global synchronous behavior, or movement coordination, than it is to the more confined posture sharing definitions of LaFrance (1979) or Trout and Rosenfeld (1980) and as such, directly informs the present study which will investigate all three aspects under separately rated categories.

Dance/Movement Therapy Studies

Dance/movement therapists, who use movement coordination as a therapeutic technique, frequently make subjective judgments of synchronous behavior during their treatment sessions (Boettiger, 1968; Chaiklin, 1975) and as a group, they have found validation in the work of the researchers cited above. Two early designs for clinically usable instruments for rating synchrony were produced by dance therapists (Costonis, 1973; Hargadine, 1974) in an attempt to provide more concrete measures of the observed phenomena. Both of these studies are focused on synchrony, as compared to the present study, which more broadly examines movement coordination. Movement coordination is a more process-related variable than synchrony, which may be considered to be a product of the kinesic coordination. The dance therapists, however, are focused on the movement occurring in interactions, as contrasted with the more stationary posture sharing variable considered above.

Costonis (1973) considered synchronous movement to be an indicator of the degree of contact between the therapist and client. The "Synchronous Movement Profile" was designed to allow her to chart the progress in this area from session to session. Based on behavior analysis principles, her method required the observer to note occurrences of synchronous behavior for a five-second period out of every minute of interaction. Synchrony was defined in terms of angle of spatial concordance between body parts of

the therapist and client. Points were assigned based on degree of variation in hand, arm, head, torso, and leg position for each five-second period. Observations continued for ten minutes and the total score represented the rating for that period.

Costonis' limited study (two raters and a single case sample of eleven sessions) reported a high level of interrater agreement with very limited training. It may be that the use of the time-sampling procedure reduced the actual measurement of synchronous movement to a measure more similar to posture sharing. However, as the therapist and client were actively dancing and moving together, it seems that the observers would have to give a gestalt rating for each body part during the time period, whereas LaFrance's subjects would most likely have been much more stationary, as they were sitting in classroooms.

Costonis' definition of synchrony seems somewhat narrow, yet her focus on a clinically usable instrument and selected moments of observation are important contributions. The use of time-sampling techniques could be important in the observation of convergence, or the documentation of patterns of coordination over time, either during a psychotherapy session or over a series of sessions, although to capture a more representative picture of the movement, a longer observation period would be needed.

Intrigued by Costonis' results, Hargadine (1975) attempted to test the level of agreement possible to achieve using untrained observers, one-time multiple clip viewings, and five factors of synchronous movement. Hargadine's method of presentation of the stimuli had major flaws which most likely contributed to her failure to obtain significant agreement between her observers. For example, the raters observed all of the stimuli without pausing. Raters were forced to observe and rate simultaneously, often overlapping or loosing track of which segment was being rated. Also, as her encoders were asked to move with as much synchrony as possible, it is difficult to assess how much range her stimuli contained. The trend of agreement was

positive, although the movement task given the encoders would have biased the sample toward a high rating of synchrony. Taken together, these difficulties contribute to the inconclusive nature of her findings.

Hargadine's (1975) study is similar to the present study, however, with several key differences in design. Hargadine has used a more expanded definition of synchrony than Costonis, with ratings on synchrony "in body parts moved, in shapes, in space--direction of focus, in time--rhythm, and in motion quality" (p 157). Her selection of factors of synchrony, based on preliminary studies with dancers and physical education graduate students, is in agreement with the factors selected for this study, both of which were based on the general principles of movement analysis designed by Laban (1950) and Bartenieff (Bartenieff & Lewis, 1980). The encoders in Hargadine's study were dancers, who used a fuller range of movements than will be used for this study focused on the psychotherapeutic setting which prescribes a particular set of movement behaviors. Hargadine selected 30-seconds as the optimal length for the videotaped samples, as will this study, although two viewings will be standard and time will be allowed for rating between segments. Observers rated the amount of synchrony present on a 1-10 scale, rating all five components simultaneously. The present study will ask for separate ratings on each component, as it is believed that the task of making simultaneous ratings is too difficult and subject to cross-factor interference.

Schmais and Felber (1977) adapted Scheflen's (1973) method to the analysis of dance therapy sessions. They have reported a single-case study analysis using a selection of seven parameters, including synchronous movement. This variable was divided into three subsections and defined as follows:

> (a) Rhythmic synchrony--When the same rhythmic time was being kept by everyone, in some part of their bodies, not necessarily the same body part.

(b) Effort synchrony--When the entire group used the same effort
quality or dynamic at the same time.
(c) Spatial synchrony--When all the body parts of every member of
the group were moving in the same relative spatial direction at the
same time. (Schmais & Felber, 1977, p.21)

They did not report how long the coding of the entire session took, nor how many

observers they used, however, they reported a 77-percent inter-observer agreement on

the synchrony parameters. The amount of training needed was also not reported, but

most likely they were using fully trained movement analysts in their study.

Of interest is their analysis of the co-occurrence of the synchrony factors.

The type of synchrony most frequently noted during patient-led
movement was rhythmic, followed in decreasing order by spatial,
then effort, synchrony. This pattern parallels the synchronicity
frequently seen in the entire session. The three took place
simultaneously for only a few--and short--periods of time,
occurring primarily just after the mid-point of the session. It was
following this tri-synchronous activity that the group broke up into
small group formations. (p.22)

The meaning of the change in group formation in this session with hospitalized

psychiatric patients is difficult to ascertain, but the infrequency of the co-occurrence of

the three synchrony factors is informative. Rhythmic synchrony was the most

commonly noted factor at 37.5% of the total session time. Effort synchrony was

present 18.2% and spatial synchrony 15.9%. Although tentative, these findings suggest

that the various factors of movement coordination can be reliably observed and seem to

be distinctly occurring categories.

This division of synchrony into temporal, spatial, or effort (quality or dynamic of

movement) aspects was continued in the research of Fraenkel (1983, 1986). Fraenkel

also contributed the concept of echoing, similar movements separated by a second or

two between intiation by one member of the dyad and followed-up by the other. The

instrument created for her two studies, both of which seek to relate occurrences of

synchrony and echoing to empathy, rapport, and/or satisfaction and information

exchange, was the Fraenkel-Franks Index of Shared Behaviors, which was essentially a coding sheet for minute by minute behaviors of the interactants. The operational definitions of the key categories were as follows:

To be synchronous a pair of movements must begin and end simultaneously, and must move at the same rate.

Exact synchrony Simultaneous movements of like body parts, in the same direction, with the same point(s) of change, and of equal duration (Adler, 1968). Movements begin and end at equivalent locations.

Approximate synchrony. Simultaneous movements of like body parts in the same direction, with similar points of change, and of equal duration. These movements must be similar, but not identical (e.g., S1's and S2's hands travel in a downward motion from their foreheads; S1 rests hand on knee; S2 rests hand on arm of chair).

Rhythmic synchrony Simultaneous movement of like or unlike body parts which operate at identical rates. If like body parts, the direction or the quality of the movement must be different. If unlike body parts, the direction or quality of the movement may be the same or different. The correspondence is purely temporal (Schamis & Felber, 1977).

Echoed movements do not occur simultaneously; between the beginning of the first movement and that of the second movement, there is a delay.

Exact echoing. Like body parts, moving in the same direction, with the same point(s) of change, and of equal duration. The second mover seems to imitate or replicate the initial behavior.

Approximate echoing. Similar movements, though not exactly alike, of like body parts, moving in the same direction. The second movement may be abbreviated, extended, or entail intervening behaviors.

Rhythmic echoing. Like or unlike body parts which operate at identical rates. If like body parts, the direction or the quality of the movement must be different. If unlike body parts, the direction or qualtiy of the movement may be the same or different. As with rhythmic synchrony, the correspondence is again purely temporal. (Fraenkel, 1983, p. 38)

Her definitions are largely concerned with the temporal and spatial aspects, although movement quality is indirectly considered under rhythmic synchrony or echoing. In both her studies, Fraenkel was able to achieve an average .88 level of agreement between two or three raters, however, her raters were extensively trained and "in some instances it took as long as one hour to rate only one minute of videotape" (1986, p.72).

The raters were coding the behavior of each individual, which was later classified into the seven categories. Entire five-minute sections were coded, as opposed to a rating a gestalt impression of a smaller section. In attempts at discovering relationships between these factors and other constructs, such as empathy or information recall, it was necessary to collapse categories in order to find significance (1983, 1986).

The research of Costonis, Hargadine, Fraenkel, Davis, and to some extent Kendon suggest that movement coordination need not be observed at the micro-level of Scheflen and Condon, but can be observed at a mid-level, or, in the case of Costonis and Hargadine at a more global (in terms of nonverbal analysis) level. Although the micro level may contribute to initial understandings of the process, it is clear that the more enlarged view would be preferable for clinically oriented investigations, and in fact, may be able to produce significant correlations between movement interaction and psychological or relationship constructs. Two other studies, that by Boice and Monti (1982) and Bernieri, Reznick and Rosenthal (1988), further inform the discussion on the appropriate level of observation, and the resultant operational definitions, for movement interaction.

Mid-level Observational Approaches

Boice and Monti (1982) were seeking to design a "midi-level" assessment tool for nonverbal behaviors in clinical settings. Raters were requested to give an overall impression of each of nine variables, "not a mere summing up of various indicators" (p.83) and were rating entire sequences of interaction, not second-by-second coding. The categories chosen for study at this level ("extremity movements, self-manipulation, facial expression, posture, orienting, gestures, voice quality/tone, speech rate/pressure, and sense of timing") were mostly individually focused; that is, the raters only focused on the subject, not on the confederate as well. "Sense of timing" was, however, an

attempt at gathering some interactional information. "Sense of timing" was defined as "the appropriate synchrony of the subject's verbal and nonverbal messages and of his interactions with the confederate's movements (e.g., subject smiles while delivering a compliment; delays appropriately in responding)" (p.86). From this definition, one may assume that the raters were considering movement coordination as a part of the total rating. "Sense of timing" was shown to be a predictor of overall social skills ratings and was reliable at the .93 (Cronbach Alpha) or .89 (Pearson r) level, using extensively trained female raters. Boice and Monti concluded that the mid-level of observation holds much promise for clinical use, because of it's ease of use, adequate level of specificity, and "apparent face validity" (p.91).

Bernieri, Resnick and Rosenthal (1988) have proposed that synchrony (defined as "the coordination of movement between individuals in social interactions" (p.243) can be reliably rated using untrained raters viewing 50-second clips of mother-child interaction. It was also proposed that these raters could distinguish between genuine synchrony and pseudosynchrony, or mock-interactions, between mother and infant. (Whereas the rest of this review has been limited to studies focused on adult-adult interactions, this study is so relevant to the present study that it will be included even though it's encoders are dissimilar.) Judges were asked to rate on three types of synchrony simultaneously.

1. Simultaneous Movement--This reflects the quantity or degree of movement that appears to begin or end at the same moment. For example, if a mother begins to turn her head at the precise moment that a child lifts an arm off of a table, it is an instance of simultaneous movement.
2. Tempo Similarity--Assume that all people have built-in tempos or speeds at which their behavior is set (much like the tempo an orchestra follows at a concert). Rate the degree to which two people in the clip seem to be "marching to the beat of the same drummer."
3. Coordination and Smoothness--Assume you are viewing a choreographed dance rather than a social interaction. How smoothly does the interactants' flow of behavior intertwine, of mesh evenly and smoothly?   (p.246)

Bernieri found these three variables to be highly correlated and so collapsed their ratings to form a single "global synchrony" score. It does seem that the particular definitions used are highly related, with distinctions between ratings on simultaneous movement and tempo similarity being a matter of degree. In addition, requiring ratings on all three categories at once would tend to diminish whatever distinctions may have existed. Also, raters were presented with a 50-second clip to rate, which is a rather long segment for nonverbal analysis as there could be a variety of shifts during each period. This may have added to the overlapping of categories, as subtle differences would have been lost over the 50-second period. At any rate, the composite variable reliability score was .83 (using a Spearman-Brown effective reliabilty calculation) which demonstrates that untrained raters can, in general, consistently observe the level of synchrony present in an interaction. The raters were also consistent in giving lower ratings to the psuedo-interaction clips, establishing the validity of the concept, and indirectly contributing to an understanding of the functional basis of movement coordination.

Seen as a whole, the reviewed methods for investigating the various components and stages of movement coordination demonstrate the feasibilty of further investigations into this area. Clear operational definitions are needed to provide raters with distinguishable categories. It does seem that such distinctions can be made, however, it is not yet clear how readily observable they are. Schmais and Felber (1977) were able to observe three non-overlapping aspects of synchronous movement in a dance therapy session. Davis (1983) and Fraenkel (1983, 1986) have clearly noted synchrony and echoing as distinct categories. Both of these systems involve more training and observation time than would be recommended for clinical application. The research of Bernieri (Bernieri et al, 1988) and Boice and Monti (1982) indicate that observers can make reliable judgments of "global synchrony" and "sense of timing". Boice and

Monti's raters were trained for 20 hours, but Bernieri's were untrained, providing evidence that minimally trained clinical observers rating clear and distinct categories one at a time should be able to meet or exceed the reliability levels reported above.

Summary

In summary, the literature supporting the rationale and design of this research has been presented. It was shown that although further research is needed to document the exact nature and process of movement coordination between varying pairs of interactants, the validity of the concept as providing a description of an inherent facet of human communication is clear. The complexity of the interrelationships between this functional process and any psychological or emotional constructs was discussed, with conclusions awaiting the improved methods of observation suggested by this study. The importance of a dyadic, interactional focus for research in psychotherapy was defended primarily through the brief presentation of the interpersonal and communicative approaches to psychological theories. A more detailed tracing of the major contributions to the study of movement coordinations between interactants found substantial evidence for the methods used in this study. In the subsequent chapters, the design for the research, which is based on refinements made to the above methods, will be detailed.

CHAPTER 3

PHASE ONE: METHODS AND RESULTS

The purpose of this study was to develop an Index of Nonverbal Coordination (INC) and explore it's possible clinical application. The initial phase in which 12 female raters viewed and rated 25 30-second clips of videotaped interaction between a counselor and client was designed to test the reliability and interdependence of the eight categories of mutual nonverbal coordination described by INC. The method of investigation for Phase One will be presented, followed by the results of the reliability studies and post hoc and correlation analyses. Chapter 4 will present the methods and results from Phase Two, the design of which follows from the results from Phase One.

Research Questions and Hypotheses

1.1. Can minimally trained raters consistently rate the level of occurrence of the eight categories of kinesic coordination as defined in the Index of Nonverbal Coordination? It is hypothesized that within each category, raters will show an adequate level of effective and single judge reliability.

1.2. Are there significant differences between the mean ratings per clip within each category? What degree of difference between the total set of means within a category is significant? It is hypothesized that the mean ratings of the clips will differ significantly and that the "honestly significant difference" (Hays, 1981, p. 423) between the set of means will be near 1.

1.3. Are the eight categories independent of one another?   It is hypothesized that the correlations between ratings of the same stimuli on the eight categories will be in the moderate range.

Methods

Participants

12 female students in a graduate course in counseling and guidance volunteered to participate in the study in lieu of a class assignment. Female raters were used, as women have been shown to be generally superior in the judgment of nonverbal behavior (Rosenthal, 1979). Raters ranged in age from 24 to 43 years and had from 0-4 years experience in counseling and from 0-10 years experience in teaching. None had significant prior training in nonverbal analysis, although two had had exposure to basic theories of nonverbal communication and two described themselves as "people watchers".

Instrumentation

Index of Nonverbal Coordination. The Index of Nonverbal Coordination (INC) was designed to measure eight categories of mutual kinesic coordination: Shared Posture, Rhythmic Coordination, Echoing, Dynamic Similarity, Similarity of Shape, Subtle Attunement, Heightened Synchrony, and the global category, Kinesic Coordination. The selection and definition of these variables was based on the previous research discussed in Chapter Two, the author's experience and knowledge of basic parameters of movement as defined by the Labanalysis system (Bartenieff, 1980), consultation with Martha Davis and other expert movement analysts, and the pilot study conducted during

the proposal phase of this project (Willis, 1987). The INC was intended to be a comprehensive and exhaustive assessment of mutual kinesic coordination, therefore an attempt was made to include all aspects of mutual kinesic coordination which could be readily defined and which it was assumed could be observed under the conditions of the study. (Mutual gaze, for example, which could be considered a coordination behavior, was not included because it is difficult to observe at the camera distances used in this study.)

The eight categories and their definitions as presented to the raters are listed below. A copy of the Index of Nonverbal Coordination is found in Appendix A and the instructions for rating each category are found in Appendix B.

CATEGORY 1. SHARED POSITION: Counselor and client share similar or identical positions of their upper and lower bodies. They need not take the positions at the same time, they need only be in the same or similar positions during the same time period. The positions may be mirrored (i.e., right leg of one mirrors the left leg of the other), or with the same side of the body (right leg of one is in the position of the right leg of the other). The focus is on the basic body positions, not the gestures coming out of those positions.

CATEGORY 2. RHYTHMIC COORDINATION: Counselor and client seem to move in similar rhythmic patterns as if sharing the same tempo. Their movement need not be exactly alike, nor with the same body part, but rather it should have a complementarity or coordination, a similar tempo. The focus for this category is on the timing aspect of their interaction.

CATEGORY 3. ECHOING: A movement is initiated by one of the dyad and is then replicated either in exact, expanded, or abbreviated form within seconds of the original movement. It need not be with the same body part, but should have the same or similar rhythm, action, or quality.

CATEGORY 4. DYNAMIC SIMILARITY: The counselor and client move with a similar movement quality. They seem to match each other in dynamic style, or seem to be expressing the same energy, or feeling. Examples of movement quality might be forceful or soft emphasis, precision or vagueness of gesture, tight or fluid style.

CATEGORY 5. SIMILARITY OF SHAPE: The counselor and client make similar shapes in space. Their gestures could share similar curves, angles, straight lines, arcs, or twists. The shapes could be made with any body part, although most of the shapes will be made in hand gesture. They need not be made at the same time, as long as it is clear that the kinds of shapes are the same.

CATEGORY 6. SUBTLE ATTUNEMENT: The counselor and client have a similar subtle movement interchange with each other through breath and muscle patterns of holding and release. Their coordination can be seen on a muscular level or thru very tiny movements, such as small hand motions, breathing patterns, sighs, pauses, etc.

CATEGORY 7. HEIGHTENED SYNCHRONY: This is that moment when counselor and client move exactly alike at precisely the same time. The counselor and client move in simultaneous and identical patterns of gesture, postural shift, and/or action. Neither seems to lead or follow. The key is that the movement be virtually identical in timing, quality, and body part, although it need not involve the whole body. The movements may be very small or quick, but there will be the feeling of great togetherness of action.

CATEGORY 8. KINESIC COORDINATION: The counselor and client appear to be "in sync" with one another. Their movements are coordinated and interlinked, as if they were dancing together. This category takes into account all the previous aspects of shared position, rhythmic coordination, echoing, dynamic similarity, similarity of shape, subtle attunment, and heightened synchrony.

The choice a five level rating system was based on the findings of the pilot study (Willis, 1987), in which a five point rather than eight point scale was indicated by the rate of agreement. The levels are listed below.

Level 1. Very little similarity or none at all

Level 2. Somewhat similar

Level 3. Moderately similar

Level 4. Very much alike

Level 5: Completely similar, or virtually so

Heightened Synchrony was rated at level 1 (when no Heightened Synchrony was observed) or 5 (if any amount of Heightened Synchrony was observed), as it was not possible to find the complete range of this comparatively rare behavior in the sample. A sample of the 25-item rating form may be found in Appendix C.

Stimulus Material

4 male and 6 female students enrolled in an introductory course in counseling techniques volunteered to participate in conjunction with the completion of a class assignment. One additional male and female subject agreed to participate in order to assist in the project. The remaining encoder was the author.

Six pairs of encoders were videotaped enacting counseling sessions. The author and one of the encoders were also videotaped during a supervision session. Two female-female, two male-male, and three male-female pairs were obtained. Most of the participants were completing a course assignment involving demonstration of their ability to conduct a counseling interview. Those taking the role of the clients discussed real difficulties they were having, and in most cases, roles were exchanged after one-half hour. Participants were informed that the tape was being made for use in a study of nonverbal communication and that the audio portion would not be used.

Approximately six hours of stimulus material were videotaped. Both the counselor and client were in full body view at all times. Facial expression was visible, but not particularily distinct. The setting was identical in all cases, including the position of the chairs and distance from the camera. A plain blue background was used and no other furniture was present. A tracing of the video image is found in Appendix D. Encoders were told that the behavior under study was normally occuring and that they should not attempt to alter their normal patterns.

<u>Selection of Rating Clips</u>.   Each of the videotaped sessions was viewed without sound in order to establish a general familiarity with the movement interactions of the dyad. At this point, four pairs were selected to be a part of the training stimulus material and three were chosen for the rating tape. Selection was based on providing a mix of gender in both samples and on the variability of the movement behavior present. The three pairs used for the rating material consisted of male-male, male-female, and female-female pairs. As the role of counselor or client is not readily apparent when viewing 30-second of tape without sound, it was not necessary to balance gender and role.

The tapes were logged to indicate sections of each session which might be used to represent the entire range of the eight categories of behavior. The clearest 12-15 minute-long segments representing a mix of high, medium, and low coordination levels were then selected from each session. Segments from each of the three sessions were subsequently reduced to 30-seconds to represent a balanced mix of the five levels of coordination. An attempt was made to find 30-seconds during which the level of coordination fluctuated as little as possible. These 36 segments were rated by the author on each of the eight categories. The final 25 clips were selected to assure the even distribution of the five levels for each category and to assure that each pair demonstrated each level for almost every category.

The 25 clips were then edited into four randomized orders. Each clip was shown twice, with 10-seconds of video blank screen between clips. The randomized orders presented the clips in sequences which were balanced for the level of coordination and the counselor-client pair. That is, no pair was presented more than four times in a row (in most cases the pairs alternated) and there was variation of level represented. This process produced four tapes (Orders A, B, C, D) of approximately 35 minutes length each.

Selection of Training Clips.   Three of the counselor client pairs, one male-male, one female-female, and one female-male and the author-participant pair (female-male) were selected to be used as training examples. A similar process to the one used in selection of the rating clips was used in selection of the clips representing each level of each of the eight categories. In most cases, one pair was used for each category, but for three categories (Kinesic Coordination, Heightened Synchrony, and Dynamic Similarity) two pairs were necessary to demonstrate the five levels.

The clips were edited onto one tape with 10-seconds between clips. Each example was shown twice, in the same fashion as the stimulus tapes.

Training

For each category, a definition and instruction sheet was provided. These included the basic definition for the category as listed above, plus an explanation of the videotaped examples of each level of the behavior. Raters were instructed to view the clip representing a level, read the description of the salient features of behavior demonstrated, and then view the clip as it repeated. After seeing all five levels, raters were allowed to repeat the training sample, however, they rarely found it necessary. The instructions for the eight training sessions are found in Appendix E.

Procedure

Order of Presentation. A modified Latin square design (Fisher and Yates, 1949) was used to establish a counterbalanced order of presentation of the categories (1-7) to be rated and the order of the clips (Orders A,B,C,D) for each of the twelve raters. All twelve raters viewed Category 8 last, as Kinesic Coordination was defined as a global, comprehensive variable. On occasion the established order had to be shifted to

accomodate another rater. This was infrequent, and only pertained to the order of the clips, not to the order in which the raters were presented the categories. The order of presentation as carried out is found in Apppendix E.

Rating Instructions. Raters were given an instruction sheet which briefly explained mutual kinesic coordination. They were told that they would be participating in a study investigating various aspects of this phenomenon, including the development of a rating system with which clinicians might note the rate of occurrence of this interactional behavior in order to begin to understand it's effect and meaning. They were asked to give their overall impression of the level of behavior present in each clip and were told that most people were better at assessing this phenomena than they might think. As the raters were all students in one course, they were instructed to not discuss the study with the other raters until all were finished with the project. Instructions included viewing each clip twice before rating. A complete copy of the written instructions is found in Appendix G.

Rating Sessions

Following viewing the training tape, participants were given one of the four orders of the 25 30-second clips to rate. Raters were scheduled individually for four separate sessions. Each session consisted of the training and rating of two categories and lasted about 1 1/2 hours. In most cases, the raters had one rating session a week, but 2 raters had two of their sessions in one week.

Data Analysis

Interrater reliability was calculated for each category using the Repeated Measures ANOVA method, recommended by Rosenthal (1987) and Beck (1979) as the best method to "offer the precision, comprehensiveness, and flexibility required to deal with the complexity of reliability assessment" (Beck, 1979, p. 460). This method allows computation of the effective reliability (R), or the reliability of the group of raters, by using the mean square of the variance between sampling units (clips) minus the mean square of the raters' disagreements (residual), divided by a standardizing quantity (MS clips) (Rosenthal, 1987, p.14). Computation of the single rater reliability (r) uses the same procedure while additionally controlling for the number of raters employed.

The Tukey multiple comparison method (Hays, 1981) was used to determine which clips could be distinguished from one another for seven of the eight categories. The post hoc analysis also indicates the degree of discrimination between levels for the stimuli as presented. The procedure was not used for Heightened Synchrony as the occurrence /nonocurrence rating format was not suited for this type of analysis. Interdependence of the categories was determined through Pearson correlational analyses.

Results

Effective Reliability

The essential question of this study is the level of consistency obtainable by the minimally trained raters using the Index of Nonverbal Coordination. Reliability has been assessed using two methods. Effective reliability, or overall consistency of the

raters over the entire item by item (clip by clip) rating session, has been calculated per category. High reliability coefficients from these analyses would suggest that a comparable group of judges would be able to attain the same degree of consistency in their observations (Rosenthal, 1987). Table 1 (p.53) contains the repeated measures ANOVA summaries for all eight categories.

Effective reliabilities, those representing the consistency of the entire set of judges over the entire set of stimuli were calculated from the data presented above. The resultant reliability scores range from a low of .69 on Heightened Synchrony to a high of .94 on Echoing. The results are presented in Table 2 (p.54). The effective reliabilities are all in a range acceptable for research and training purposes (Davis, 1987), although Heightened Synchrony is much lower than the others. Due to the rareness of the behavior in the sample, some raters most likely overestimated it's occurrence. Further refinement of the category instructions and of the stimuli for rating would produce better consistency.

The scores above inform the question of the generalizability of the ratings within each category, or the degree to which the rating obtained depended on who was doing the rating. Effective reliability coefficients as high as the ones above, near or above .90, indicate that there was only a small amount of individual variation. These results do not indicate the level of accuracy of the ratings, only the level of agreement between raters. However, as stated above, this study is not concerned with the precise mechanical measurement of mutual kinesic coordination, but with the perception of the social behavior. Effective reliability coefficients near or above .90 are a very clear indication of the high degree of consistency in the perception of this social phenonmena, under the conditions of this study.

Single Rater Reliability

The second method (single judge reliability) is more stringent and assesses the likely performance of any single judge. Both reliabilities are reported to avoid misunderstandings of the above results which are based on twelve judges. The INC is not intended to be a system which would be usable by a single observer in isolation. There is too much individual variability in perception (McCoubrey, 1987) to hope that what is basically a qualitative system could function in that manner. The reporting of single judge reliabilites will provide indications of the advisability of such use. And while the consistency of the total set of raters is the most commonly cited statistic, it is important to note that any single judge may not be operating at that standard. Rosenthal (1987), therefore, has suggested that a calculation be made accounting for the variability of the individual observer. Table 3 (p.55) presents the single judge reliabilities for the INC categories.

As seen in the reported coefficients from Table 3, any one individual rater may be operating at a consistency rate of from .16 to .57. Single rater reliability coefficients in the range of the best above (.48-.57 r) are acceptable, however, this implies that, as proposed above, the INC should not be used in isolation. If, for example, a single rater were to observe Rhythmic Coordination, he or she may not be operating at a .86 level of consistency with another hypothetical rater, but might, in fact, be operating at the level above, or .33. As will be discussed later, the single rater reliability coefficients inform the feasibility of use of the Index of Nonverbal Coordination in a clinical, supervisory, or training setting, where group of 2-5 raters are more likely than groups of 12.

Post Hoc Comparison of Means

The Tukey multiple comparison method (Hays, 1981; Myers, 1972) was employed to ascertain whether or not there are significant differences among the mean ratings per clip within each category and what degree of difference between the total set of means within a category is significant. An "honestly significant difference" (HSD) between the set of means for any category near 1 will indicate whether the raters could make discriminations at the 5-point scale as requested, or whether they were only able to consistently agree on levels of high, medium, and low, for example. The range of means within a category is also reported to indicate the variability of the clip ratings TTable 4, p. 56). The procedure was not used for Heightened Synchrony as the occurrence/nonocurrence rating format used for this category was not suited for analysis with this method. Tables 5-11 (pp. 57-63) display the difference between the rank ordered means for the categories. Those differences which are significant are greater than or equal to the "honestly significant difference" based on the mean square of the residual obtained through ANOVA procedures taken at a 95% confidence interval level. The MS (residual) and range for each category is reported in Table 4 (p.56). Whereas all five rating points were used for each scale, the range of clip means and the "honestly significant difference" obtained through the Tukey procedure indicates that the raters may not have been able to clearly differentiate at that fine of a level. The results of the comparison of pairs of clip means, as displayed in Tables 5 through 11 (pp.57-63), further informs this question. The pair comparisons values listed are those which exceed the critical difference for the category. These clips are those which have been significantly distinguished from each other. For Shared Positions, therefore, raters could differentiate between 86 of the 300 possible pairs of clips, or 29%. With an HSD of 1.21, and a range of 4.25-1.33, there are three distinct levels perceived in this stimuli.

The results of the post hoc analysis demonstrate that a percentage of the clips pairs have been distinguished by the raters and that, in general, distinctions greater than 1 scale point were being made in each category. This, however, may be a factor of the stimuli used, as well as a comment on the abilities of the raters or the clarity of the category definitions and examples.

Category Interdependence

The independence of the categories as rated for this stimuli was investigated using the Pearson r correlation procedure. The correlation coefficients obtained for the INC categories and the respective levels of significance are summarized in Table 12 (p.64). Shared Positions has the lowest number of significant intercorrelations. The only sizable correlation (.43) was with Kinesic Coordination. This degree of correlation would be expected given the composite nature of Kinesic Coordination.

Moderate correlations are found between between Rhythmic Coordination and Similarity of Shape; Echoing and Similarity of Shape; and between Heightened Synchrony and Echoing, Dynamic Simililarity, Subtle Attunement and Kinesic Coordination. Significant and substantial correlations are found between the remaining categories.

Interpretation

The reliability coefficients reported above give an indication as to the stability and consistency of the ratings on the eight categories as tested. Levels at .90-.99 are generally considered excellent; .60-.89 are fair to good. Below that, though greater than expected by chance, reliability levels would not be usuable for research or clinical assessments (Davis, 1987).

Effective reliabilities for Shared Position, Echoing, Similarity of Shape, and Subtle Attunement are all excellent, ranging from .91-.94. Reliabilities for Rhythmic Coordination, Dynamic Similarity, and Kinesic Coordination are also high, all in the upper .80's, but do not show the same degree of consistency. Heightened Synchrony, while still technically at an acceptable level, is much lower at .69. The lower reliability on this category may be explained by the rareness of the behavior. Some observers were apparently more comfortable with their judgments of non-occurrence, while others tended to force perception of simultaneity.

These reliabilities are similar to or better than those obtained by other researchers, although most of the studies cited in Chapter 2 used very different methods including intensive training and multiple viewing of stimuli. Bernieri's (1988) results, however, are more directly comparable to the present findings, as his raters were untrained, rated 50 second clips, and were allowed only 2 viewings. Raters were asked to make assessments on 3 categories of synchrony, although the reported results are of a composite reliability because of high intercorrelations. This composite, or "global synchrony" rating was reported at a Spearman-Brown effective reliability coefficient of .83.

The single rater reliability scores, while much lower than the effective reliabilities, are greater than expected by chance. These are reported to advise the potential user of INC of the variability of any single judge, and the advisability of the use of multiple judges for any research or diagnostic purposes. With single rater reliabilities of .48-.57 for the best of the categories, however, small groups of raters could be reasonably certain of the reliability of their ratings. Any single rater would have to consider the subjectivity of his/her perception of the levels present, and would most likely want to either confirm ratings with others, or at least, take multiple ratings of the same behavior to assure the most accurate judgments possible.

Whereas it is not certain that the raters were accurately rating the described behavior, it is certain that they consistently selected approximately the same level of mutual coordination. Shared Positions requires a focus on the more fixed body posture, Echoing measures reciprocal interaction, Similarity of Shape addresses the three-dimensional aspects of movement, and Subtle Attunement draws the observer's attention to the smaller movement interactions which underlie dynamic and rhythmic coordination. Since there are significant, but not complete intercorrelations between these categories, it is likely that at least some measure of the observational processes described were being used. The accuracy and precision of the minimally trained raters' judgments could ascertained by comparison with meticulously measured assessments of the amount of synchronous behaviors present, but that is beyond the scope of the present study.

A range of 18-39% of the clips could be significantly distinguished from one another in terms of the behavior described by the INC. This is below what would be expected if all five levels could be clearly distinguished in these clips. The critical difference range of 1.21-1.50 implies that the raters may not have been able to consistently rate the clips at the 5-point scale, that is, they may have been perceiving 3-point, or high-medium-low, distinctions. It is important to note, however, that the above reliablities are not based on the tendency toward the mean rating (3, in this case), but on a full use of the scale, even if finer distinctions were reduced overall. Also, the results could be partially due to the stimuli itself and could be an accurate representation of the distinguishable levels found in these interactions, even though an attempt was made to include a full range for each category. However, the results of the Tukey procedure indicate that a trial of the INC with a 3-point scale with the same stimuli could lead to refinement in the system. Without such studies and given the high reliability of the current system, however, the 5-point scale will be retained for Phase Two.

In an effort to reduce the number of categories needed to obtain as comprehensive a record of the mutual nonverbal coordination process as possible, the relative uniqueness of the categories was evaluated through the findings of the correlational analyses. The consideration of uniqueness is balanced with the reliability of the ratings to determine which categories should be retained in a reduced version of the Index of Nonverbal Coordination.

Shared Positions was clearly a unique category, with all correlations except that with Kinesic Coordination being nonsignificant. Shared Positions is a measure of the more fixed aspects of kinesic relationships. The range of possible shared positions, in most cases, is also less variable; that is, there are only a few basic body positions which are culturally and socially acceptable for the seated psychotherapist and client (i.e., legs crossed or uncrossed; arms held open or closed, etc.), whereas there are any number of possible dynamic, shape, or rhythmic movement patterns which may vary more on an individual basis. Also, Shared Positions is a measure of the similarity in overall fixed body shape (matching leg, torso, and arm base positions out of which gestures are made), an aspect which, while in part the result of the other coordination factors, is not measured by the other categories. Shared Positions, at a .94 effective reliability, was, therefore, included in Phase Two.

Rhythmic Coordination was significantly related to all other categories except Shared Positions. There was a particularily strong correlation between this category and Echoing (.83 r), which could be explained by the consideration of the degree of coordination of timing involved in both ratings. The rhythmic aspects of coordination were also apparently being observed under Subtle Attunement, as there was a .79 r relationship between ratings. Therefore, whereas, Rhythmic Coordination is a reliable category (.86 R), is may be somewhat redundant to ask for observation of timing in three separate instances. In addition, Echoing and Subtle Attunement also seem to

encompass a greater number of kinesic qualities, and are more reliable, supporting the deletion of Rhythmic Coordination if a reduced version of the INC were desired.

Dynamic Similarity, while highly reliable at .89, seems to be subsumed by other, even more reliable, categories, such as Subtle Attunement Similarity of Shape, and Echoing. Attention to dynamics in movement might be desired in some studies, for example, those focused on the emotional aspects of a session. In those cases, inclusion of this category would be advised, although in most instances, Subtle Attunement ratings may be highly intercorrelated.

Similarity of Shape measures a mutuality of the moving shapes in gesture, an aspect which is conceptually distinct from the other variables. The intercorrelations showed, however, that to the minimally trained rater, there may be less distinction than assumed. Whereas there are significant relationships with all but Shared Positions, the correlations are lower than, for example, those of Subtle Attunement. This would suggest the advisability of inclusion of Similarity of Shape, especially since it is also one of the least researched of the movement variables. Inclusion may encourage research into the significance to reciprocal shape in clinical process.

Heightened Synchrony was not as reliable as the other categories and whereas it was not as highly intercorrelated as those discussed above, it appears to be too rare a phenonmena to be of value in this type of rating system. In addition, because of the relative unreliability of the ratings, it is difficult to even assess the correlation coefficients as compared to more consistent ratings. Heightened Synchrony, therefore, will not be included in the second phase of this study. This does not imply, however, that there is no value to its observance, merely that more research would be necessary in order to support inclusion.

Kinesic Coordination was conceived as a global category, and raters were instructed to consider all previous categories when selecting the most appropriate level. With the exception of Shared Positions, the ratings are highly related. With an effective

reliability coefficient of .88, Kinesic Coordination might be adapted into a single rating for highly simplified uses of INC, however, the training procedure would have to be revised. The raters in this study had been exposed to all of the previous categories and had rated 25 clips on each. Therefore, by the time they were rating Kinesic Coordination, the last category rated in each case, they could no longer be truly considered "minimally trained". Results using this category in any other situation may vary considerably. Modifications would have to be performed in order to use it, without the support of the other trainings, so Kinesic Coordination will be elliminated from the present revision of INC.

As mentioned above, Echoing and Subtle Attunement are among the most reliable of the categories (.94 R and .92 R, respectively). They also are highly correlated with all other categories, except Shared Positions, and correlate with each other. There has been prior interest in echoing behavior (Fraenkel, 1983, 1986), but using much more complex notation. Subtle Attunement, too, has been researched using complex methods (Kestenberg, 1965; Sossin, 1987). The relative ease of training and application of the INC provides an opportunity to expand this research and investigate the patterns of echoing and subtle attunement in counseling sessions. Therefore, and for the reasons discussed above, these two variables should be considered valuable additions to a comprehensive observation of the mutual kinesic coordination process. Echoing and Subtle Attunement, in combination with Shared Positions and Similarity of Shape, therefore, would provide a reliable and comprehensive measure of the level of mutual kinesic coordination present between counselor and client. The findings of Phase One have suggested, therefore, that these four categories be used in Phase Two, of this study, the design and results of which are presented in the Chapter 4.

Table 1

Summary of Repeated Measures ANOVA

Category	MS Clips	MS Raters	Residual
1) Shared Positions	7.12	1.77	.62
2) Rhythmic Coordination	6.53	6.43	.93
3) Echoing	12.19	3.03	.72
4) Dynamic Similarity	6.70	3.19	.71
5) Similarity of Shape	11.51	1.93	.95
6) Subtle Attunement	7.78	5.05	.65
7) Heightened Synchrony	9.22	10.02	2.88
8) Kinesic Coordination	6.21	3.31	.76
df	24	11	264

Table 2

Effective Reliability of INC Categories

Category	Effective Reliability (est.)
1. Shared Positions	.91
2. Rhythmic Coordination	.86
3. Echoing	.94
4. Dynamic Similarity	.89
5. Similarity of Shape	.92
6. Subtle Attunement	.92
7. Heightened Synchrony	.69
8. Kinesic Coordination	.88

Table 3

Single Rater Reliabilities for INC Categories

Category	Single Rater Reliability
1) Shared Positions	.48
2) Rhythmic Coordination	.33
3) Echoing	.57
4) Dynamic Similarity	.41
5) Similarity of Shape	.48
6) Subtle Attunement	.48
7) Heightened Synchrony	.16
8) Kinesic Coordination	.37

Table 4

Mean Square (Residual), Range of Means and HSD

Category	MS (df 264)	Range	HSD
1) Shared Positions	.618	1.33-4.25	1.21
2) Rhythmic Coordination	.931	1.25-4.17	1.49
3) Echoing	.706	1.33-4.08	1.29
4) Dynamic Similarity	.719	1.25-4.42	1.31
5) Similarity of Shape	.950	1.25-4.50	1.50
6) Subtle Attunement	.647	1.58-4.33	1.24
8) Kinesic Coordination	.763	1.75-4.25	1.34

Table 5

Significant Differences Between Rank Ordered Means for Shared Positions

Rank Order	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Rank(Clip#)Mean															
1 (9) 4.25	1.25	*	*	*	*	*	*	*	*	*	*	*	*	*	*
2 (14) 4.0						1.33	1.33	*	*	*	*	*	*	*	*
3 (8) 3.83								1.25	1.25	1.25	*	*	*	*	*
4 (3) 3.67											1.25	*	*	*	*
5 (5) 3.58												1.75	*	*	*
6 (1) 3.5												1.67	*	*	*
7 (2) 3.25												1.42	*	*	*
8 (12) 3.17												1.34	*	*	*
9 (16) 3.17												1.34	*	*	*
10(13) 3.08												1.25	*	*	*
11(11) 3.0													1.58	*	*
12(4) 2.91													1.5	*	*
13(19) 2.91													1.5	*	*
14(23) 2.91													1.5	*	*
15(18) 2.83													1.41	*	*
16(7) 2.67													1.25	*	*
17(17) 2.67													1.25	*	*
18(6) 2.58															1.25
19(10) 2.58															1.25
20(15) 2.58															1.25
21(20) 2.42															
22(22) 1.83															
23(24) 1.42															
24(25) 1.42															
25(21) 1.33															

HSD ("honestly significant difference") = 1.21 at 95% confidence interval

* these values are greater than the preceeding value and are also significant

Values not listed or starred are not significant

Clips 1-8, 9-17, and 18-25 are from the same dyad

Table 6

Significant Differences Between Rank Ordered Means for Rhythmic Coordination

Rank Order	15	16	17	18	19	20	21	22	23	24	25
Rank(Clip#)Mean											
1 (9) 4.17	1.5/	1.5 /	1.5	*	*	*	*	*	*	*	*
2 (4) 3.92				1.58	*	*	*	*	*	*	*
3 (3) 3.83					1.5	1.5	*	*	*	*	*
4 (16) 3.83					1.5	1.5	*	*	*	*	*
5 (21) 3.83					1.5	1.5	*	*	*	*	*
6 (10) 3.5									1.5	*	*
7 (17) 3.42										1.59	*
8 (6) 3.42										1.59	*
9 (25) 3.33										1.5	*
10(24) 3.08											1.83
11(2) 2.83											1.58
12(5) 2.83											1.58
13(7) 2.83											1.58
14(14) 2.75											1.5
15(13) 2.67											
16(8) 2.67											
17(20) 2.67											
18(12) 2.58											
19(3) 2.33											
20(23) 2.33											
21(19) 2.25											
22(15) 2.08											
23(15) 2.00											
24(11) 1.83											
25(22) 1.25											

HSD ("honestly significant difference") =1.49 at 95% confidence interval

* these values are greater than the preceeding value and are also significant

Values not listed or starred are not significant

54 out of 300 possible pairs met or exceeded the HSD, or 18%.

Clips 1-8, 9-17, and 18-25 are from the same dyad

Table 7

Significant Differences Between Rank Ordered Means for Echoing

Rank Order	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Rank(Clip#)Mean																			
1 (16) 4.08	1.42	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
2 (21) 3.75						1.42	*	*	*	*	*	*	*	*	*	*	*	*	*
3 (10) 3.50							1.3/1.3		*	*	*	*	*	*	*	*	*	*	*
4 (9) 3.42										1.4/1.4*		*	*	*	*	*	*	*	*
5 (4) 3.00															1.33	*	*	*	*
6 (17) 3.00															1.33	*	*	*	*
7 (25) 2.67																		1.34	
8 (14) 2.58																			
9 (8) 2.58																			
10(1) 2.50																			
11(6) 2.42																			
12(7) 2.33																			
13(13) 2.25																			
14(2) 2.17																			
15(5) 2.17																			
16(3) 2.00																			
17(23) 2.00																			
18(12) 1.92																			
19(18) 1.75																			
20(20) 1.75																			
21(15) 1.67																			
22(11) 1.50																			
23(19) 1.50																			
24(24) 1.50																			
25(22) 1.33																			

HSD ("honestly significant difference") =1.29 at 95% confidence interval

* these values are greater than the preceeding value and are also significant

Values not listed or starred are not significant

66 out of 300 pairs are significant, or 22%.

Clips 1-8, 9-17, and 18-25 are from the same dyad

Table 8

Significant Differences Between Rank Ordered Means for Dynamic Similarity

Rank Order	14	15	16	17	18	19	20	21	22	23	24	25
Rank(Clip#)Mean												
1 (16) 4.42	1.33/1.34		*	*	*	*	*	*	*	*	*	*
2 (4) 4.33			1.41/1.41		*	*	*	*	*	*	*	*
3 (1) 4.33			1.41/1.41		*	*	*	*	*	*	*	*
4 (5) 4.25			1.33/1.33		*	*	*	*	*	*	*	*
5 (21) 4.17					1.34	*	*	*	*	*	*	*
6 (9) 4.00						1.5	*	*	*	*	*	*
7 (13) 3.92						1.42	*	*	*	*	*	*
8 (6) 3.92						1.42	*	*	*	*	*	*
9 (10) 3.83						1.33	*	*	*	*	*	*
10(7) 3.67							1.75	*	*	*	*	*
11(23) 3.50							1.58	*	*	*	*	*
12(17) 3.42							1.5	*	*	*	*	*
13(14) 3.17								1.34	*	*	*	*
14(3) 3.08									1.33	*	*	*
15(8) 3.08									1.33	*	*	*
16(19) 2.92										1.33	*	*
17(24) 2.92										1.33	*	*
18(15) 2.83											1.41	*
19(2) 2.50												
20(25) 1.92												
21(18) 1.83												
22(12) 1.75												
23(20) 1.58												
24(11) 1.42												
25(22) 1.25												

HSD ("honestly significant difference") =1.31 at 95% confidence interval

* these values are greater than the preceeding value and are also significant

Values not listed or starred are not significant

117 out of 300 pairs are significantly distinguishable, or 39%

Clips 1-8, 9-17, and 18-25 are from the same dyad

Table 9

Significant Differences Between Rank Ordered Means for Similarity of Shape

Rank Order	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Rank(Clip#)Mean																	
1 (13) 4.50	1.58	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
2 (5) 4.42	1.5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
3 (16) 3.83					1.5	*	*	*	*	*	*	*	*	*	*	*	*
4 (14) 3.67								1.58	*	*	*	*	*	*	*	*	*
5 (6) 3.58									1.50	*	*	*	*	*	*	*	*
6 (4) 3.33											1.67	*	*	*	*	*	*
7 (21) 3.17													1.58	*	*	*	*
8 (23) 3.17													1.58	*	*	*	*
9 (10) 2.92														1.58/1.58		*	*
10(8) 2.83														1.5 /1.5		*	*
11(9) 2.75																1.5/1.5	
12(7) 2.67																	
13(1) 2.33																	
14(17) 2.25																	
15(15) 2.25																	
16(24) 2.08																	
17(3) 2.08																	
18(19) 2.00																	
19(20) 1.67																	
20(25) 1.58																	
21(18) 1.50																	
22(11) 1.33																	
23(2) 1.33																	
24(12) 1.25																	
25(22) 1.25																	

HSD ("honestly significant difference") =1.50 at 95% confidence interval

* these values are greater than the preceeding value and are also significant

Values not listed or starred are not significant

95 out of 300 pairs are significantly distinguishable, or 37%

Clips 1-8, 9-17, and 18-25 are from the same dyad

Table 10

Significant Differences Between Rank Ordered Means for Subtle Attunement

Rank Order	14	15	16	17	18	19	20	21	22	23	24	25
Rank(Clip#)Mean												
1 (1) 4.33	1.33	1.33	*	*	*	*	*	*	*	*	*	*
2 (10) 4.33	1.33	1.33	*	*	*	*	*	*	*	*	*	*
3 (4) 4.25	1.25	1.25	*	*	*	*	*	*	*	*	*	*
4 (16) 4.25	1.25	1.25	*	*	*	*	*	*	*	*	*	*
5 (5) 4.00						1.33	*	*	*	*	*	*
6 (6) 3.83							1.33	*	*	*	*	*
7 (9) 3.75							1.25	*	*	*	*	*
8 (21) 3.75							1.25	*	*	*	*	*
9 (13) 3.58								1.25	*	*	*	*
10(2) 3.50									1.33	*	*	*
11(10) 3.50									1.33	*	*	*
12(23) 3.42									1.25	*	*	*
13(25) 3.33										1.25	*	*
14(3) 3.00												1.42
15(8) 3.00												1.42
16(14) 2.92												1.34
17(24) 2.83												1.25
18(17) 2.83												1.25
19(15) 2.67												
20(19) 2.50												
21(20) 2.33												
22(12) 2.17												
23(11) 2.08												
24(18) 1.83												
25(22) 1.58												

HSD ("honestly significant difference") =1.24 at 95% confidence interval

* these values are greater than the preceeding value and are also significant

Values not listed or starred are not significant

98 out of 300 pairs are significantly distinguishable, or 33%.

Clips 1-8, 9-17, and 18-25 are from the same dyad

Table 11

<u>Significant Differences Between Rank Ordered Means for Kinesic Coordination</u>

Rank Order	15	16	17	18	19	20	21	22	23	24	25
<u>Rank(Clip#)Mean</u>											
1 (1) 4.25	1.42/1.42	*	*	*	*	*	*	*	*	*	*
2 (16) 4.17			1.42	*	*	*	*	*	*	*	*
3 (9) 4.00					1.5	*	*	*	*	*	*
4 (10) 3.83						1.5	*	*	*	*	*
5 (5) 3.83						1.5	*	*	*	*	*
6 (23) 3.75						1.42	*	*	*	*	*
7 (4) 3.58								1.42	*	*	*
8 (14) 3.50									1.42	*	*
9 (6) 3.42										1.42	*
10(7) 3.33											1.58
11(13) 3.33											1.58
12(8) 3.17											1.42
13(21) 3.17											
14(17) 3.00											
15(25) 2.83											
16(3) 2.83											
17(2) 2.75											
18(19) 2.67											
19(18) 2.50											
20(24) 2.33											
21(11) 2.25											
22(20) 2.17											
23(12) 2.08											
24(15) 2.00											
25(22) 1.75											

HSD ("honestly significant difference") =1.34 at 95% confidence interval

* these values are greater than the preceeding value and are also significant

Values not listed or starred are not significant

55 out of 300 possible pairs are significantly distinguishable, or 18%.

Clips 1-8, 9-17, and 18-25 are from the same dyad

Table 12

Pearson Correlation Coefficients for INC Categories

	SP	RC	E	DS	SS	SA	HS	KC
SP		.06	.09	.28	.29	.18	.25	.43***
RC			.83*	.70*	42***	.79*	.67*	.71*
E				.68*	.53**	.72*	.49**	.71*
DS					.80*	.88*	.55**	.86*
SS						.68*	.35	.73*
SA							.52**	.87*
HS								.53**

* p≤ .001   ** p ≤ .01   *** p ≤ .05

SP=Shared Positions
RC=Rhythmic Coordination
E=Echoing
DS=Dynamic Similarity
SS=Similarity of Shape
SA=Subtle Attunement
HS=Heightened Synchrony
KC=Kinesic Coordination

CHAPTER 4

PHASE TWO: METHODS AND RESULTS

The second phase examined a complete counseling session using the INC and provides information on possible applications of the most salient of these categories. This is an exploratory study in which mean ratings of working alliance between counselor and client were compared with the mean ratings of Shared Position, Echoing, Similarity of Shape and Subtle Attunement. The method of investigation for Phase Two will be presented, followed by the results of the analyses.

Research Question and Hypothesis

2. Do the ratings on the four categories included in the revised Index of Nonverbal Coordination have a relationship to the level of alliance between therapist and client as assessed by independent raters? It is predicted that mean ratings of Shared Positions, Echoing, Similarity of Shape, and Subtle Attunement taken at 28 points in a single counseling session will vary with the mean ratings of alliance at those same points in the session.

Methods

Participants

Two sets of raters were used. One group, that responsible for rating alliance from the typed transcript, were graduate students enrolled in a counseling practicum course. There were 10 raters in this group, 4 men and 6 women. The age range was from 22 to

44, with an average age of 32. Experience in counseling ranged from 4 months to 18 years, with an average of 5 1/2 years.

The nonverbal rating group consisted of 12 female graduate students enrolled in the second semester of a movement analysis course as a part of their training in a dance/movement therapy and counseling psychology program. The age range was from 23 to 37, with an average age of 28. All but one of the raters were in their first year of counseling experience; that one reported 6 years of experience as a therapist. The students had previously been introduced to Labanalysis (Bartenieff, 1980), the system upon which INC is conceptually based, and had intensive training in the Kestenberg Movement Profile (Kestenberg, 1965).

Instrumentation

Index of Nonverbal Communication-Revised.

The revised Index of Nonverbal Communication, which contained the most robust variables from the Phase One study, was used for the nonverbal ratings. As discussed in Chapter 3, the INC was reduced to four variables based on reliability levels above .90 and the degree of distinctness from or intercorrelation with the other four categories. Basic definitions were not changed from Phase One. The INC-Revised is as follows:

> **Shared Positions:** Counselor and client share similar or identical positions of their upper and lower bodies. They need not take the positions at the same time, they need only be in the same or similar positions during the same time period. The positions may be mirrored (i.e., right leg of one mirrors the left leg of the other), or with the same side of the body (right leg of one is in the position of the right leg of the other). The focus is on the basic body positions, not the gestures coming out of those positions.

Echoing: A movement is initiated by one of the dyad and is then replicated either in exact, expanded, or abbreviated form within seconds of the original movement. It need not be with the same body part, but should have the same or similar rhythm, action, or quality.

Similarity of Shape: The counselor and client make similar shapes in space. Their gestures could share similar curves, angles, straight lines, arcs, or twists. The shapes could be made with any body part. although most of the shapes will be made in hand gesture. They need not be made at the same time, as long as it is clear that the kinds of shapes are the same.

Subtle Attunement: The counselor and client have a similar subtle movement interchange with each other through breath and muscle patterns of holding and release. Their coordination can be seen on a muscular level or thru very tiny movements, such as small hand motions, breathing patterns, sighs, pauses, etc.

Rating was in five levels as in Phase One. Whereas results from the Tukey analysis indicated that a three-point scale might more accurately reflect the level of distinctions the minimally trained raters can make, further studies would be needed to test that format. Also, it was felt that the over .90 effective reliability ratings allowed for a continued use of the finer-grained level rating form. An example of the rating sheets used is found in Appendix I. The general instruction sheet from Phase One was revised and is found in Appendix H.

The Measurement of Alliance. The rating of alliance was based on both the Penn Helping Alliance Scales (Alexander & Luborsky, 1986) and the Working Alliance Inventory (Horvath and Greenberg, 1986), as well as definitions of alliance as commonly accepted by psychotherapists (Thompson, 1987). Whereas the truest sense of this alliance is perhaps best measured by the therapist and client themselves, the third party observer, particularily the trained therapist or supervisor, can provide a valid perspective of the collaborative efficiency of the therapeutic process (Alexander & Luborsky, 1986).

Alliance was defined as the degree of collaboration and cooperation between the counselor-client pair. A strong alliance is characterized by mutuality of goals and task and the degree of bond (Horvath & Greenberg, 1986) present. Five levels of alliance were described as below:

1. Very little or no apparent alliance between counselor and client: When there is very little alliance present the counselor and client may appear to be working at cross purposes, or may be expressing dissatisfaction or misunderstanding.

2. Some alliance appears to be present: At times, a pair will have only some degree of mutuality of task, goal, and bond. They may seem to have some disagreements in procedure or may not seem to have established a trusting relationship, but are collaborating in some small ways.

3. A moderate alliance has been established: A moderate amount of collaborative effort and feeling may be apparent at this phase of a session, even though they may not have reached complete agreement on the task for the session, for example.

4. The counselor and client seem very much allied: When a counselor and client are very much allied, they will seem to be almost agreeing on the goal of the treatment, the method of approaching it, and/or may express a good deal of mutual respect and caring. They will still be missing each other in some small subtle ways, however.

5. The counselor and client are completely (or virtually so) allied: When counselor and client show a complete alliance they will appear to share virtually the same goals for the session and the course of treatment, have similar views on the fruitfulness of specific tasks during the session, and appear to trust, like, understand, and care about each other.

Stimulus Material

A 28 minute initial counseling session between two male graduate students was originally videotaped for the first phase of this study. The therapist was a foreign student from Ghana, and the client an American native of Eastern European Jewish descent. Both men were in their thirties, married, and had children. Their videotaped

session was selected as it demonstrated a range of the behaviors in question. In addition, the therapist was more experienced than others in the Phase One sample, so the session is assumed to be more representative of the population of actual counseling sessions. The students were contacted to request permission to use the tape in the second phase of the study.

The seated vis-a-vis male-male dyad was videotaped in full body view for the entire session. A copy of this session was made with a time clock superimposed at the bottom of the image, so that the 30-second intervals at which ratings were to be taken could be easily noted.

A complete transcript of the session was obtained and 28 rating points were indicated, one at the end of each minute. Only the verbal content was included in the transcript, with paralinguistic or vocal utterances not transcribed. This was done to assure as pure a "verbal content" stimuli as possible for the alliance measure.

Since the INC was developed using 30-second stimuli to reduce variability of behavior and to assure that raters could remember the entire sample, a minute-by-minute rating procedure (essentially a time-sampling technique) was selected to include as much of the session as possible. It was thought that rating the entire session in 30-second chunks would have been too tedious a procedure, as the initial group of raters found the 35-minute periods to be the maximum they could attend to with alertness. By taking every other 30-seconds, it was assumed that most of the important movement changes would be captured by the raters (North, 1972). Also, the 28 rating points appeared to be the maximum number of cuts possible to be made in the transcript. Even at this, it was forcing the raters to assess changes in alliance with less information than would have been ideal. But by having both groups rating at the same points in the session, it was hoped that the data would be more directly comparable.

Procedure

Training. Training for the rating of mutual kinesic coordination was accomplished using the training tapes produced for Phase One. All 12 nonverbal raters observed the training samples and read the instructions for the four categories in the INC-Revised in a group. No discussion was allowed. While the mid-level observation technique was new to these raters, who were more used to fine-grained analysis, the general concepts involved in the categories were not novel, therefore it was decided that this method of training would not negatively affect the reliability of the ratings. Emphasis was placed on the fact that the raters were being asked for their overall impression, not a detailed analysis of each clip and a brief description of the difference between fine-grained and mid-level analysis was given.

Training for the rating of alliance consisted of the written definition of alliance and the examples of the five levels to be rated. As raters were graduate students in counseling, it was assumed that they had prior knowledge of this concept and it's behavioral manifestations.

Rating of Kinesic Coordination. As described above, the verbal and nonverbal stimulus material had been prepared so that ratings could be taken at approximately the same moment in the session. The nonverbal ratings were taken on 30-second periods from the unedited counseling session. This was accomplished by moving the tape to the .30 mark, for example, alerting the raters to begin observing, running the tape for 30-seconds up to 1 minute, and then stopping the tape. The videotape was then run fast-forward to the next marker (1:30) to proceed with the next 30-second rating period. 28 30-second ratings were taken in this manner.

The 12 nonverbal raters rated the stimuli in one session. In order to counterbalance for experience with the categories, inter-category influence, and for the order of the

30-second sections within the session, each rated only 7 times on each category, and each rated on all four categories. In order to avoid influence of the other raters, proximal raters were given different categories. Three raters per category rated any given section in counterbalanced orders. The order of the categories each group rated in found in Appendix J.

Rating of Alliance. The 10 alliance raters were instructed to read the transcript through once. They were then to reread the transcript, marking the level of alliance they determined was present. A copy of the instruction sheet with examples of the five levels in found in Appendix K.

Data Analysis

Interrater reliability for the rating of alliance was calculated by Repeated-Measures ANOVA as performed in Phase One. Single rater reliability scores were also calculated.

The mean of the total set of raters was obtained for each of the 28 alliance scores. Mean ratings were calculated for the 28 ratings in each of four categories of mutual kinesic coordination. A correlational analysis using these mean scores was perfomed.

Results

Alliance Ratings

Since the alliance rating instrument used in this phase was essentially created to meet the needs of this study, it was necessary to assess the level of consistency obtained by the raters. Reliabilities were calculated using the ANOVA method as described in

Chapter 3. Effective reliabilites, those representing the interconsistency of the entire set of judges, were calculated from the data, presented in Table 13 (p.75). The resultant reliability was .76 R (est.). Reliability at this level is generally considered acceptable for research purposes (Davis, 1987) and shows some consistency of rating, but the question of the validity of the mean ratings based on this level of reliability remains open.

Single judge reliability, that of any one rater, is calculated from the ANOVA data using a correction for the number of judges as recommended by Rosenthal (1987). The resultant single rater reliability for the alliance ratings was .24, which is just above a level expected by chance. Single judge ratings using this method cannot be considered to be generalizable to ratings which might be given by any other single rater.

Comparison of Verbal Alliance and Nonverbal Coordination

Relationships between the mean ratings of mutual kinesic coordination and the verbal alliance ratings were established through the Pearson r intercorrelation method. The mean ratings for each minute are presented in Table 14 (p.76). There is a wider range of mean ratings for the nonverbal behaviors than for the ratings of alliance taken from the transcript. This may be an indication of the greater sensitivity of the nonverbal scale, or perhaps the nonverbal and verbal ratings are reflections of different interactional processes. The correlational analysis will demonstrate what, if any, direct relationships are to be found. The correlation coefficients obtained are displayed in Table 15 (p.77).

There were no significant relationships between any of the nonverbal variables and the ratings of alliance. The correlation coefficients were, in fact, close to 0, indicating virtually no relationship between the variables at all. Significant correlations were found between nonverbal behavior categories for this sample of interaction between

counselor and client. A moderate correlation was found between Shared Positions and Similarity of Shape and Echoing (.62 r and .59 r, respectively). Echoing and Shared Positions (.49 r) also had a moderate degree of correspondence. Subtle Attunement showed less, but still significant intercorrelation with Similarity of Shape and Echoing at .38 and, 40, respectively.

Interpretation

The effective reliability for the group of alliance raters was acceptable at .76. The single rater reliability was not adequate for research purposes. The validity of these ratings had not been established, however, and it is not certain on what criteria each individual was basing the choice of level. The adequate level of consistency of the entire set of ratings does allow some sense of confidence in the raters' ability to select the features of the interaction described as representing the five levels of alliance. However, there appears to have been a lack of range in the alliance ratings, which may have been due to a lack of variation in alliance in this particular session as rated from the verbal transcript. While other researchers have found variation in verbal alliance (Alexander & Luborsky, 1986; Horvath & Greenberg, 1986), it may also be that the subtle variations in a counselor-client relationship may be more easily apparent through the nonverbal channels, and that the verbal behavior represents, especially in a first session, a middle ground for collaboration.

The degree to which Shared Positions covaries with Echoing and Similarity of Shape in this sample is greater than that found in Phase One. It may be that this group of raters was including more full body shape in their ratings of Echoing and Similarity of Shape, as they have been trained to under the Labanalysis and Kestenberg systems, whereas the Phase One raters focused only on the gestures. This may also be due to variations in the stimuli, for while some of the clips were from approximately the same

section of the session, Phase Two was of only one pair and Phase One included three dyads. Each dyad had it's own characteristic way of moving together, which would be reflected in the ratings and in the correlation coefficients.

Mean ratings of Subtle Attunement covary to a lesser degree with the mean ratings of Echoing and Similarity of Shape than in Phase One. Again, this may be due either to a greater precision of observation by the present raters or to the variations of the stimulus samples. The other intercategory relationships are similar to those found in Phase one.

The correlational analysis of the ratings of alliance from the transcript and the ratings of nonverbal coordination indicates very little discernible relationship between the two factors. There are both technical and theoretical explanations for these findings.

The ratings from INC reveal more variation in the interaction than is revealed by the verbal transcript. The transcript may not allow for observation of the finer distinctions or subtle interchanges in level of collaboration. These events may be nonverbal alone, and may not effect the verbal interchange, at least not immediately. Both ratings systems have been shown to have adequate reliability levels, however, there was a greater range of ratings for the nonverbal measure than for the verbal. Perhaps if there had been a wider range in the verbal alliance scores, some sort of association could have been observed, although no measurable association between these factors is clearly one outcome.

The lack of association between mean ratings of alliance from verbal transcript and mean ratings of kinesic coordination does not mean that nonverbal mutuality cannot be considered a facet of the process of alliance building. It does mean that in this session, there seems to be little association between the apparent nonverbal coordination and the verbal collaboration. It may be that the therapist and client were using parallel, but unrelated systems of coordination, one verbal and one nonverbal, or it may be that for this pair, there is no relationship between these variables. Kagan (1988) has observed that attempts at measuring what may be presumed to be similar concepts through

different observational systems often produce unrelated findings. He emphasized that "the meaning of a concept is influenced by its source of evidence" (Kagan, 1988, p.617). Therefore, while it may be said that the counselor and client were shown to be in varying states of relatedness during the session, the meaning and form of that relatedness as assessed from the verbal transcript and the video-only observations may be so different as to be unassociated. In addition, whatever association there may be may not be revealed thorough a correlational analyses. A comparison of the verbal themes at high or low moments of kinesic coordination, for example, might produce more usuable information. Chapter 5 will address this and other possible implications of the initial ratings.

Table 13

Analysis of Variance: Alliance Ratings

Source of Variation	SS	DF	MS
Between Clips	87.9	27	3.26
Between Raters	86.46	9	9.61
Residual	187.64	243	.77

Table 14

Mean Ratings of Nonverbal Coordination and Verbal Alliance

Clip #	SP	E	SS	SA	A
1	3.0	3.0	2.3	4.0	2.8
2	2.7	2.0	2.0	2.7	2.5
3	3.3	3.0	2.3	2.3	3.0
4	3.0	2.3	2.7	2.7	2.4
5	1.7	2.0	1.3	1.3	3.2
6	3.0	3.0	4.0	4.0	2.4
7	2.7	1.0	1.7	1.7	3.2
8	3.3	1.0	2.3	2.3	3.6
9	2.3	1.3	1.7	1.7	2.7
10	2.7	2.0	2.0	2.0	3.2
11	3.3	3.7	4.3	4.3	3.1
12	1.0	1.0	1.3	1.3	4.2
13	1.7	2.3	2.3	2.3	3.9
14	1.7	2.0	2.0	2.0	3.3
15	1.7	1.7	2.3	2.3	3.1
16	3.0	1.7	3.0	3.0	3.6
17	3.3	3.3	2.7	2.7	2.7
18	2.7	2.0	1.3	1.3	3.3
19	3.3	1.3	2.0	2.0	3.8
20	4.0	2.3	3.7	3.7	4.2
21	3.3	1.7	1.7	1.7	4.4
22	4.0	3.0	2.0	2.0	3.6
23	2.0	3.0	2.0	2.0	3.7
24	3.7	4.7	3.0	3.0	3.5
25	3.0	1.7	2.7	2.7	3.1
26	2.7	2.0	2.7	2.7	3.1
27	4.7	3.7	4.0	4.0	4.2
28	4.3	3.0	4.0	4.0	4.1
Range	1.0-4.7	1.0-4.7	1.3-4.0	1.3-4.3	2.4-4.4

Table 15

Pearson Correlation Coefficients for INC and Alliance Mean Ratings

	SP	E	SS	SA	A
SP		.49**	.62*	.14	.18
E			.59*	.40***	-.06
SS				.38***	.03
SA					.04

* $p \leq .001$ **$p \leq .01$ *** $p \leq .05$

SP= Shared Positions, E= Echoing, SS= Similarity of Shape,

SA= Subtle Attunement, A= Alliance

CHAPTER 5

DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

Summary of Literature and Methods

The purpose of this study has been to develop an improved method of observation of mutual kinesic coordination. This behavioral phenonmenon, defined as the process through which two or more people adjust their body movements to one another's in synchronous patterns, has been observed using a variety of complex and time-consuming notation systems (Bernieri et al, 1988; Capella, 1981; Davis, 1984). Using these systems, researchers have noted the occurrence of a nonrandom interlinkage of body movements in pairs of mothers and infants (Beebe & Stern, 1977; Tronick & Gianino, 1985), nurses and doctors and their patients (Daubenmire & Searles, 1982; Fraenkel, 1986), teachers and students (LaFrance, 1982), counselors and clients (Scheflen, 1973), friends (Fraenkel, 1983), and experimental subjects (Bavelas, et al, 1988).

Initially, content and pattern analyses methods revealed the synchronous postures and rhythms of interaction (Charney, 1965; Condon & Ogston, 1966; Kendon, 1968; Scheflen, 1964). These results were questioned (McDowell, 1978), partially due to the single-case study and highly subjective methods used. Later studies such as those by Daubenmire (Daubenmire, et al, 1977a, 1977b), Allred & Harper (Allred, et al, 1985) and Kato (Kato, et al., 1983), attempted to apply computer analytic method to highlight the underlying patterns of convergence and synchrony. Others simplified the task by reducing the variables observed and concentrating on the most fixed of variables, that of posture sharing (LaFrance, 1979; Trout & Rosenfeld, 1980). Even though the methods, ranging from detailed to simplified, all of which have produced noticeable

results, have provided conceptual support for the continued investigation of mutual coordination, the clinical application of the findings has been limited (Davis, 1985; Rosenfeld, 1981).

Dance/movement therapists, for whom there is a need to document the range of kinesic coordination patterns within therapy sessions, have applied the Labanalysis (Bartenieff, 1980) observation and notation system to their research. The Labanalysis system stresses the notation of movement, not just fixed postures; a different observational challenge, which requires a more qualitative assessment by the observers. Navarre (1982), Schmais and Felber (1977) and Fraenkel (1983, 1986) developed approaches to the assessment of synchronous or echoed movements, based on Laban's principles. All of these methods, as well as the more inclusive one described by Davis (1983), require intensive training and time-consuming rating periods.

Since the present study was concerned with the development of a system which could be used by clinicians and supervisors, a less detailed, more global approach to observation was selected. Design of the Index of Nonverbal Coordination was guided by previous investigations which used mid-level observation. Costonis (1973) and Hargadine (1975) used time-sampling techniques and movement-based conceptions of synchrony in highly flawed studies, which provide inspirational, but limited support. More systematic attempts at mid-level observation were made by Boice and Monti (1982) and Bernieri et al (1988). These studies have supported the practicality, validity, and reliability of mid-level systems. Bernieri's work has also documented that psuedo-interaction is consistently rated lower in terms of synchrony than true interactions. Bernieri used completely untrained raters and, although he had to collapse categories to reach a .83 reliability level, his results support this author's contention that mutual kinesic coordination is a readily observable and clinically viable phenomenon.

The present study was a two phased investigation into the design and application of the Index of Nonverbal Coordination. Review of the literature and the author's previous

study of Labanalysis informed the selection of eight basic categories of mutual

nonverbal behavior which were tested for reliability and association. 25 30-second

clips of psychotherapeutic interaction, taken from videotaped counseling sessions

between three pairs of counseling students, were selected to represent a range of kinesic

behaviors. 12 female students from a graduate level counseling and guidance course

rated the clips in counterbalanced orders following the observation of examples of the 5

levels of coordination for each of eight categories. Reliability, post hoc, and

correlational analyses were applied to the data. The four most reliable, distinct, or

encompasssing variables were selected for the second phase, in which 12 female

dance/movement therapy students rated a complete counseling session in 28 30-second

periods. Their ratings were compared with the judgments of level of alliance based on

reading of the transcript by 10 graduate students in counseling psychology.

Summary of Findings

Phase One

Question 1.1. Can minimally trained raters consistently rate the level of occurrence

of the eight categories of mutual kinesic coordination as defined by the Index of

Nonverbal Coordination?

The investigation of Question 1:1 was undertaken to establish which of the eight

categories are the most salient for future use. Effective reliability rates were above .85

for all but one (Heightened Synchrony at .69 R). Four categories had effective

reliabilities at above .90 R, Shared Positions, Echoing, Similarity of Shape, and Subtle

Attunement. Single rater reliabilities ranged from .57 for Echoing to .16 for

Heightened Synchrony, with the four best categories above at acceptable levels of

.48-.57. The four best categories from INC, therefore, can be reliably rated by groups

of minimally trained raters. For research purposes, groups of at least three raters would be recommended (Davis, 1987; Rosenthal, 1987), but for clinical or supervisory purposes 2 observers would suffice. This level of reliability would make the reduced version of INC, with Shared Positions, Echoing, Similiarity of Shape, and Subtle Attunement as categories for observation, a possible addition to the clinical, training, or supervisory tools of the counseling profession.

Question 1.2. Are there significant differences between the mean ratings per clip within each category? What degree of difference between the total set of means within a category is significant?

The Tukey multiple comparison method was performed to establish the "honestly significant difference" between the means per category. The HSD ranged from 1.21-1.50, suggesting that for the stimuli used, the raters were not quite making the 1-point discrimination required by the scale. Between 18-37% of the clips in each category (excluding Heightened Synchrony) could be distinguished from one another, which is below what would be expected if all five levels could be clearly distinguished.

Question 1:3. Are the eight categories independent of one another?

The correlational analyses were performed to indicate the strength of the relationship between the eight categories of mutual kinesic coordination. There were significant associations between all categories except Heightened Synchrony and Similarity of Shape, and between Shared Positions and all others except Kinesic Coordination. Examination of the pattern of correlations revealed that Shared Positions was the most distinct of the categories, and that Echoing, Similarity of Shape and Subtle Attunement were inclusive enough to encompass the bulk of the behavior considered as mutual kinesic coordination. Kinesic Coordination, which was defined as an inclusive, global

category, was also highly related to the other categories. The eight categories, therefore, are not to be considered completely independent of each other, but neither are they completely interchangeable.

Phase Two

Question 2. Do the ratings on the four categories included in the revised Index of Nonverbal Coordination have a relationship to the level of alliance between therapist and client as assessed by outside observers?

The correlational analysis has been used to determine the concomitant relationship between the mean ratings of nonverbal coordination and the mean ratings of alliance in a single counseling session. The near zero correlation coefficients indicate no discernible association between alliance and the nonverbal coordination ratings.

Limitations and Assumptions

Phase One

The design of the study was limited in sample size of both the raters and the encoders of the interactional movement. The results of the study are to be generalized to the population of psychotherapists and supervisors, so it is assumed that the selected sample of students is roughly representative of this population. In fact, their more limited training should decrease the likelihood of their obtaining reliable scores, not increase it.

The volunteer basis of the participant selection, however, does increase the possibility of bias in favor of reliable results. It may be that participants who feel they

are competent nonverbal judges have self-selected for this study. The granting of credit in lieu of a course assignment for participation should decrease the effects of volunteer bias somewhat.

There may be an effect from the error of leniency and error of central tendency often produced by the use of rating scales (Guilford, 1954). It is hoped that the presentation of a range of behaviors in each category has reduced the effect of these sources of error.

As stated above, interpretation of the results does not determine exactly on which behaviors judges are basing their ratings. The intercorrelation of the scales gives some indication of their ability to make distinctions, but it does not clarify which behaviors raters are actually using to determine the score. The relative strength or weaknesses of the relationships influences to what degree valid statements about category discreteness or acurracy of ratings can be made. From the author's experience in movement analysis and from previous reliability studies (Davis, 1987), it is assumed that expert raters could make distinct and accurate judgments in these categories, however, this study has been focused on minimally trained raters and clinical application, therefore the same assumptions may not hold. It will be assumed that raters have used some portion of the category definitions to guide their ratings, but the degree of halo effect present will remain partially unanswered.

The results of the reliability analyses of Phase One are limited to the rating of kinesic coordination as performed by raters using the system developed for this study. The videotaped examples of the five levels of each category provided the training necessary to ensure the consistent results. Whereas this training is minimal by standards of previous systems (Daubenmire, et al, 1977b; Davis, 1983; Fraenkel, 1983, 1986), it is nonetheless an essential part of the instructions for the raters. Reliability levels could not be assumed to be as high without use of these examples, or with use of only the written descriptions of the behaviors.

The Index of Nonverbal Coordination was developed using stimuli of 30 second in length. This limit was carefully chosen to reduce behavioral variability and to enhance memory of the entire interaction. Lengths of greater than 30 sections would have to be subjected to further testing before assuming similar consistency of ratings. The results of the reliability studies, therefore, should not be generalized to observations of entire sessions, or to parts of sessions longer than 30 seconds. Further studies will have to inform the feasibility of combining ratings, or the selection of certain 30 second clips for comparison with other factors.

The ratings of mutual kinesic coordination are based on the raters perception of the level of coordinated behavior present in the interaction. There has been no attempt to establish the accuracy of these perceptions, nor to measure precisely the relative amount of postural lean or head nods, for example. In this, the lead of Bernieri is being followed in defining the process under observation as "...the extent of gestaltlike harmoniousness or meshing of interpersonal behaviors as judged by a group of raters" (Bernieri, et al, 1988, p.244). That is, rather than comparing the raters' judgments to an external standard, the level of coordination present is being defined as the level of coordination perceived. And mutual kinesic coordination is assumed to have a communicative function (Beavelas, et al, 1986), so the level of coordination is assumed to be related to the level of communication between counselor and client.

The reliability coefficients may be inflated due to the selection of the video stimuli. The clips were selected to represent a range of coordination behaviors, but they were also selected to be as internally consistent as possible. That is, an attempt was made to provide the raters with clear examples, not 30 sections in which there was a great deal of variability. This may have made their observation task somewhat easier than for a complete session. Reliabilities for a different sample of interaction, therefore, may not be as high as the ones obtained in this study.

Phase Two

The design of Phase Two is subject to some of the same limitations and assumptions as Phase One. Those concerning the generalizability of the raters to the population of clinicians and superviors apply, although the raters in this phase were more experienced counselors than the Phase One raters. The nonverbal raters were also more experienced at movement analysis, even though the mid-level observation technique was new to them. This experience would tend to support the assumption that they may have been using the descriptions given for each category of behavior more precisely than the Phase One raters, as they have had additional training in the observation of body position, shape, and attunement. On the other hand, the novelty of the mid-level observation process may have balanced this prior training.

Although Phase Two has provided some information as to the feasibility of using INC for research, clinical, or training purposes, the exact form of application will not be determined by this study. The procedures which might be used in any actual clinical or training application of INC could be similar to those used in Phase Two, therefore, it would seem to provide adequate test conditions. However, since the raters viewed most of the session in context, there may have been some influence from assumptions about or impressions of the therapist and client that may not have interferred to the same degree in the first phase.

The rating of alliance as performed in Phase Two has been an attempt to find patterns of relationship between the nonverbal variables and a more global, verbally assessed concept. There is no attempt to establish a one-to-one correspondence between variables, nor should any be implied. Mutual kinesic coordination is assumed to be a component of the alliance process, as well as a component of empathy, rapport, and basic human communication patterns. The shifting contexts of personal variables such as culture, mood, psychodiagnosis, and stage of treatment, will strongly influence

the behavior, both verbal and nonverbal, of the therapist and client. As such, definitive predictions as to the levels of kinesic coordination and alliance may be possible only after extensive research, and then, may be possible only with multiple conditions.

This study, therefore, is best viewed as a single-case study on the relationship of mutual kinesic coordination and ratings of alliance during an initial session between two male graduate students of different cultural backgrounds. As a single case study, the results have limited generalizability and are meant as an initial attempt to investigate relationships between verbal and nonverbal behaviors, and as an initial exploration of the clinical application of the Index of Nonverbal Coordination. The findings are also limited to the association between verbal alliance as rated by counseling graduate students and may not be representative of a more holistic sense of alliance, or of therapeutic relationship.

Discussion

Phase One

A primary objective of this study was to address the question of the feasibility of using minimally trained raters for the assessment of mutual kinesic coordination. Most other methods of measurement (Daubenmire et al, 1977b; Fraenkel, 1983; Navarre, 1982), as discussed above, have used extensive training periods to establish accuracy and reliability. The present study enhances the results of Bernieri (Bernieri, et al, 1988; Bernieri, 1988), whose studies had untrained raters and defined the focus of analysis to be the consistency of the raters' perception of synchronous behavior, not accuracy of mechanical notation. In two of the previous studies (Costonis, 1973; Hargadine, 1975) in which observers rated, rather than notated, the behavior, the findings were too encumbered by methodological flaws to be of use and the raters were

students of dance notation. Boice and Monti (1982), who have advocated the use of ratings in clinical contexts since "ratings take advantage of the ability of observers to abstract and integrate relevant information and [because] ratings require less training than other direct observational methods" (p.81), trained their judges for some 20 hours to reach .95 Pearson r on "sense of timing". The positive results of the present present study, therefore, are a substantial contribution to the discussion of the validity of using untrained or minimally trained raters to assess nonverbal mutuality.

Another focus of this research was the question of the rating of aspects or categories of synchronous behavior, versus the composite or global synchrony ratings. The present findings indicate that distinctions between aspects of synchrony are possible, and that one need not resort to a global measure of synchronous behavior, given a modest amount of training. Bernieri et al. (1988) asked raters to rate all three of his categories at once, which would have diminished their ability to make distinctions. At least two of Bernieri's categories (Simultaneous Movement and Tempo Similarity) are conceptually very close, being separated only by a matter of degree, somewhat like Rhythmic Coordination and Heightened Synchrony in this study, which correlated at .67 r (the highest correlation coefficient for Heightened Synchrony, which was a more unreliable category). Bernieri's 3 aspects of synchrony did not have adequate reliability without collapsing into a composite, but the present categories of Echoing and Similarity of Shape were both reliable and distinct enough to warrant separate observation. Additionally, Shared Posture, a synchrony aspect which Bernieri included in his second study (Bernieri, 1988) and found to be distinct from the movement synchrony variables, was clearly a distinct variable in this study (correlations from .06-.43).

The categories considered "global" in this study, Kinesic Coordination and Subtle Attunement were, in fact, global, with average Pearson correlations of .78 for Kinesic Coordination and .76 for Subtle Attunement (not including Shared Posture and the less

reliable, Heightened Synchrony in the calculations). Dynamic Similarity was also found to be comprehensive, with an average correlation coefficient of .78 r. The Index of Nonverbal Coordination, therefore, was revised to include both global and distinct categories of mutual kinesic behavior.

In addition, the raters' ability to consistently perceive levels in each of the categories (with the possible exception of Heightened Synchrony, which proved too rare for consistent observation), supports Bernieri's (1988) finding of significant differences between synchrony ratings of true interactions and psuedo-interactions. The ratings indicate that the observers most likely could agree on occurrence (Levels 2-5) or nonoccurrence (Level 1) of coordinated behavior. This finding, given the minimal level of training, supports the assumption that mutual kinesic coordination is a readily perceiveable phenomenon, and that, with a slight shift of attention, the average clinician can consistently note its level of occurrence.

The essential focus of this study was the development of an instrument for the measurement of mutual kinesic coordination which could support clinical practice. Seven of the eight categories were found to have effective reliability rates at levels more than adequate for use in clinical settings. Whereas these results were obtained under conditions other than those typical of, for example, a supervisory session, given two or more raters, and limiting ratings to 30-second sections of videotaped interaction, the findings may support application in clinical settings. As stated above, however, raters would need to view the training tapes which provide examples of the five levels, unless further studies indicate the training to be unnecessary.

The results of the Tukey procedure indicated that the raters were able to distinguish between the levels of mutual nonverbal coordination as represented in the videotaped stimuli. The most range was seen for Similarity of Shape and the least for the category defined as global, Kinesic Coordination. The particular interactions shown on the stimuli would, of course, have a great deal of impact on the range observed, as much if

not more as the actual abilities of the observers to see the range. The Tukey procedure does allow speculation on the usefulness of the 5-point scale and the ability of the raters to distinguish between clips. In other words, the high reliability coefficients were not a result of the raters marking all the clips the same. There was variation in the stimuli, and the raters were making distinctions. Perhaps a three-point scale would have more clearly represented the types of distinctions they were able to make, but that conclusion will have to await further studies.

Phase Two

The results of the Phase Two exploratory investigation have indicated that the range of behaviors selected by INC are not necessarily associated with the ratings of verbal alliance taken at the same moments. It may be that mutual kinesic coordination and alliance as tested are very different constructs, one a perception of nonverbal similarity and the other a measure of verbal collaboration. It could also be that while conceptually they may be related, the greater degree of moment to moment fluctuations in the nonverbal behavior resulted in there being little observable relationship with the more stable alliance rating. It may be that the meaning of mutual kinesic coordination is not to be found in comparisons with verbally measured constructs. Rather, what the results have shown is that, in fact, these systems are measuring different things which, though they may be both a part of a larger process, are not related in any direct fashion.

Kagan's (1988) discussion of the interaction between source of evidence and meaning of terms and concepts may also help to explain the low correlation coefficients found in this study and those from Fraenkel (1986), who was assessing the relationship between synchrony and echoing and empathy. Whereas Fraenkel concluded that echoing was too encompassing to be related to empathy, and suggested exploring a more fine-grained observation, perhaps it is the attempt to relate different levels of

experience that is in error. Further exploration of finer and finer-grained analyses is not supported by the present findings. Rather, a shift to an acknowledgement of the meaningfulness of nonverbal behavior as a distinct source of information would appear to be the more fruitful path. Consideration of the nonverbal measures in their own right as indicators of relationship and collaboration would allow clinicians and supervisors to monitor process and progress within and between sessions.

Allred et al (1985) found that the nonverbal behaviors provided "valuable evidence" that there were further implications of the material being discussed verbally in a therapy session. During supervision, the therapist was able to question why the client was turning away from him when discussing certain topics. The methods employed in this study did not allow for such analysis of process, such as an examination of the thematic content occurring before, during, and after high or low moments of kinesic mutuality, however, there did appear to be thematic differences which may have corresponded to different levels of nonverbal mutuality. Further use of INC within a supervisory or training session may lead to a clearer sense of the best application.

The lack of range in the alliance ratings may have contributed both to the reliability of the alliance raters and to the lack of correlation with the more variable nonverbal measures. The 28 minute-by-minute ratings were forced in order to conform to the demands of INC as tested in Phase One, and each section may not have contained enough verbal variability to warrant a separate rating. An overall session rating, however, would not have provided enough cases for comparison. Again, the clearest finding from these tentative and single-case results is that the verbal and the nonverbal fluctuations in collaboration between counselor and client are most likely representations of distinct or possibly parallel processes.

Conclusions

The Index of Nonverbal Coordination has been shown to be a reliable instrument for the measurement of mutual kinesic coordination between counselor and client. This finding is limited to the conditions of the study, that is, to the rating of 30 seconds of videotaped interaction after some minimal training. The relative ease of use of INC should increase investigations into kinesic coordination, and will allow for tracking of nonverbal therapeutic process.

The reliability of the INC categories also reinforces the perceptibility of synchronous behavior. It has been the author's assumption that a minor shift in awareness would allow the observation of mutual kinesic coordination. The results of this study have supported that assumption. It is also clear that it is possible to make distinctions between levels of nonverbal coordination.

The intercorrelations between categories demonstrates that there are observable aspects of mutual kinesic coordination which are, at least in part, distinct from one another. In particular, the addition of Similarity of Shape as an aspect of synchony provides new areas of counselor nonverbal behavior for further exploration and the investment in training time for Shared Positions, Echoing, and Subtle Attunement as aspects of synchrony is a marked decrease from the previous systems.

Ratings of verbal collaboration, or alliance, did not show associations with the ratings of mutual kinesic coordination in a single case study analysis. Although any conclusions must be tentative, given the exploratory nature of the study, it may be that the type of analysis simply did not reveal the patterns of relationship, or that the verbal and the nonverbal collaborations are occurring in unrelated, but possibly parallel, tracks. Use of the Index of Nonverbal Coordination should simplify examination of the kinesic process in psychotherapy, with or without attempts to relate it to verbal process.

<u>Recommendations</u>

The Index for Nonverbal Coordination as proposed by this research has a number of possible applications. The revised form used in Phase Two contains the most reliable, distinct or comprehensive of the tested categories. As such, it could be used when a complete picture of the nonverbal coordination levels is desired. The individual categories, including those not applied in Phase Two, could be used alone or in any combination depending on the questions under study. A successful test of the INC using three levels could facilitate these applications.

Various clinical applications have been stimulated by this research process. One of the more interesting areas to this author is the apparent variations in the interactional style of the counseling dyads. While examining the raw stimulus material, it became clear that the INC could be used to look at how different therapists join with their clients and how different clients respond to these joining attempts. This merging of two individual movement styles is, in fact, what the Index of Nonverbal Coordination details. There appears to be a fascinating amount of information about differences in style and process which could be revealed by further application of the INC. In addition, the study of different phases of treatment could be enhanced by a closer detailing of the nonverbal process. It is also possible that psychodiagnostics could be improved through research using the INC.

A further understanding of nonverbal mutuality in counseling might improve the training of psychotherapists. The beginning therapist is often unaware of the effect his or her nonverbal behavior may be having on clients, or of the possible nonverbal indicators of a deteriorating or improving relationship. Training in the observation of

mutual kinesic coordination would provide a common language for student and supervisors with which they could note changes in the student's style, or in the therapeutic process.

It is clear for Phase Two that a considerable amount of further research is needed to understand the meaning and significance of the mutual behavior within a psychotherapy session. It is clear that there nonverbal coordination and collaboration is occurring in sessions at various levels, but it is not clear, beyond the coordination funtion, what meaning it has. Investigation of the relationship of various levels of nonverbal coordination to outcome might be possible, given the improved methods from this study.

As discussed in Chapter 1, the author has had a long-standing interest in the practice of dance/movement therapy and dance/movement therapists have had much interest in this topic. Just as the verbal psychotherapists in the stimulus material seemed to have different styles of joining their clients, and just as the different counseling dyads developed different levels and ranges of nonverbal mutuality, so do the dance/movement therapist and his/her client. Application of INC to dance/movment therapy sessions should prove to be most revealing of process and style. Dance/movement therapists may also find application of INC to their psychodiagnostic tools.

Summary

This study has shown that there are viable categories of mutual kinesic coordination, the reliable observation of which may be easily learned and applied to videotaped counseling sessions. Whereas the form of future applications is left unanswered, the use of the Index of Nonverbal Coordination should stimulate investigations into interactional nonverbal behavior in counseling, dance/movement therapy, and other social encounters.

APPENDICES

APPENDIX A

Index of Nonverbal Coordination

Index of Nonverbal Coordination

Category 1:SHARED POSITIONS: Therapist and client share similar or identical positions of their upper and/or lower bodies. They need not take the position at the same time, they only need to be in the same or similar position during the same time period. The focus is on the basic body positions, not the gestures coming out of those positions.

Category 2: RHYTHMIC COORDINATION: Therapist and client seem to move in similar rhythmic patterns as if sharing the same tempo. Their movement need not be exactly alike, nor with the same body part, but rather it should have a complementarity or coordination, a similar tempo. The focus is on the timing aspects of the interaction.

Category 3: ECHOING: A movement is initiated by one of the dyad and is then replicated either in exact, expanded or abbreviated form within seconds of the original movement. It need not be with the same body part, but should have the same of similar rhythm, action, or quality.

Category 4: DYNAMIC SIMILARITY: The therapist and client move with a similar movement quality. They seem to match each other in dynamic style, or seem to be expressing the same energy, or feeling. Examples of movement qualities might be: forceful or soft emphasis, precision or vagueness in movement, tight or fluid style.

Category 5: SIMILARITY OF SHAPE: The therapist and client make similar shpaes in space. Their gestures could share similar curves, angles, straight lines, arcs, or twists. The shapes could be made with any body part, although most of the shapes will be made in hand gesture. They need not be made at the same time, as long as it is clear that the kinds of shapes are the same.

Category 6: SUBTLE ATTUNEMENT: The therapist and client have a similar subtle movement interchange with each other through breath and muscle patterns of holding and release. Their coordination can be seen on a muscular level or thru very tiny movements, such as small hand motions, breathing patterns, sighs, pauses, etc.

Category 7: HEIGHTENED SYNCHRONY: This is that moment when therapist and client move exactly alike at precisely the same time. The therapist and the client move in simultaneous and identical patterns of gesture, postural shift and/or action. Neither seems to lead or follow. The key is that the movement be exact in timing, quality, and body part, but it need not involve the whole body. The movements may be very small or quick, but there will be a feeling of great togetherness of action.

Category 8: KINESIC COORDINATION: The therapist and client appear to be "in sync" with one another. Their movements are coordinated and inter-linked as if they were dancing together. This category takes into account all the previous aspects of shared position, rhythmic coordination, echoing, dynamic similarity, similarity of shape, subtle attunement, and heightened synchrony.

APPENDIX B

Instructions for Rating for the Eight Categories of INC

INSTRUCTIONS FOR RATING SHARED POSITION

Basic Description: Counselor and client share similar or identical positions of their upper and lower bodies. They need not take the postions at the same time, they need only be in the same or similar positions during the same time period. The positions may be mirrored (i.e., right leg of one mirrors the left leg of the other), or with the same side of the body (right leg of one is in the position of the right leg of the other). You will be looking at the basic body positions, not the gestures coming out of those positions.

Rate the degree to which counselor and client share positions.

INSTRUCTIONS FOR RATING RHYTHMIC COORDINATION

Basic Definition: Counselor and client seem to move in similar rhythmic patterns as if sharing the same tempo. Their movement need not be exactly alike, nor with the same body part, but rather it should have a complementarity or coordination, a similar tempo. Your focus for this category is on the timing aspect of their interaction.

Rate the degree to which overall the counselor and client appear to be rhythmically coordinated.

INSTRUCTIONS FOR RATING ECHOING

Basic Definition: A movement is initiated by one of the dyad and is then replicated either in exact, expanded, or abbreviated form within seconds of the originial movement. It need not be with the same body part, but should have the same or similar rhythm, action, or quality.

Rate the degree to which counselor and client echo each other.

INSTRUCTIONS FOR RATING DYNAMIC SIMILARITY

Basic Definition: The counselor and client move with a similar movement quality. They seem to match each other in dynamic style, or seem to be expressing the same energy, or feeling. Examples of movement quality might be: forceful or soft emphasis, precision or vagueness of gesture, tight of fluid style.

Rate how similar the counselor and client are in dynamics; how much their movement quality and energy are alike.

INSTRUCTIONS FOR RATING SIMILARITY OF SHAPE

Basic Definition: The counselor and client make similar shapes in space. Their gestures could share similar curves, angles, straight lines, arcs, or twists. The shapes could be made with any body part, although most of the shapes will be made in hand gesture. They need not be made at the same time, as long as it is clear that the kinds of shapes are the same.

Rate the degree to which counselor and client seem to move in the same shaped patterns.

INSTRUCTIONS FOR RATING SUBTLE ATTUNEMENT

Basic Definition: The counselor and client have a similar subtle movement interchange with each other through breath and muscle patterns of holding and release. Their coordination can be seen on a muscular level or thru very tiny movements, such as small hand motions, breathing patterns, sighs, pauses, etc.

Rate the degree to which the counselor and client seem to be subtly attuned to one another.

INSTRUCTIONS FOR RATING HEIGHTENED SYNCHRONY

Basic Definition: This is that moment when counselor and client move exactly alike at precisely the same time. The counselor and client move in simultaneous and identical patterns of gesture, postural shift and/or action. Neither seems to lead or follow. The key is that the movement be virtually identical in timing, quality, and body part, though it need not involve the whole body. The moments may be very small or quick, but you will get the feeling of great togetherness of action.

With this category you will be noting the occurrence or non-occurrence of the behavior. If you see a moment of heightened synchrony mark at Level 5, if there are no such moments in the clip, mark Level 1.
Rate whether or not a moment of heightened synchrony is present.

INSTRUCTIONS FOR RATING KINESIC COORDINATION

Basic Definition: The counselor and client appear to be "in sync" with one another. Their movements are coordinated and interlinked as if they were dancing together. This category takes into account all the previous aspects of shared position, rhythmic coordination, echoing, dynamic similarity, similarity of shape, subtle attunement, and heightened synchrony.

Rate the degree to which counselor and client seem to be overall mutually coordinated.

APPENDIX C

Phase One Rating Form

Rater Number_____

SHARED POSITION

Basic Description: Counselor and client share similar or identical positions of their upper and lower bodies. They need not take the positions at the same time, they need only be in the same or similar positions during the same time period. The positions may be mirrored (i.e., right leg of one mirrors the left leg of the other), or with the same side of the body (right leg of one is in the position of the right leg of the other). You will be looking at the basic body positions, not the gestures coming out of those positions.

Remember, you are being asked to give your overall impression of the level of mutual behavior present. Each clip will be shown twice with a 10 second break between. Do not mark the level chosen until you have viewed the clip twice.

****

Rate the degree to which counselor and client share positions. (Circle the number of the level chosen)
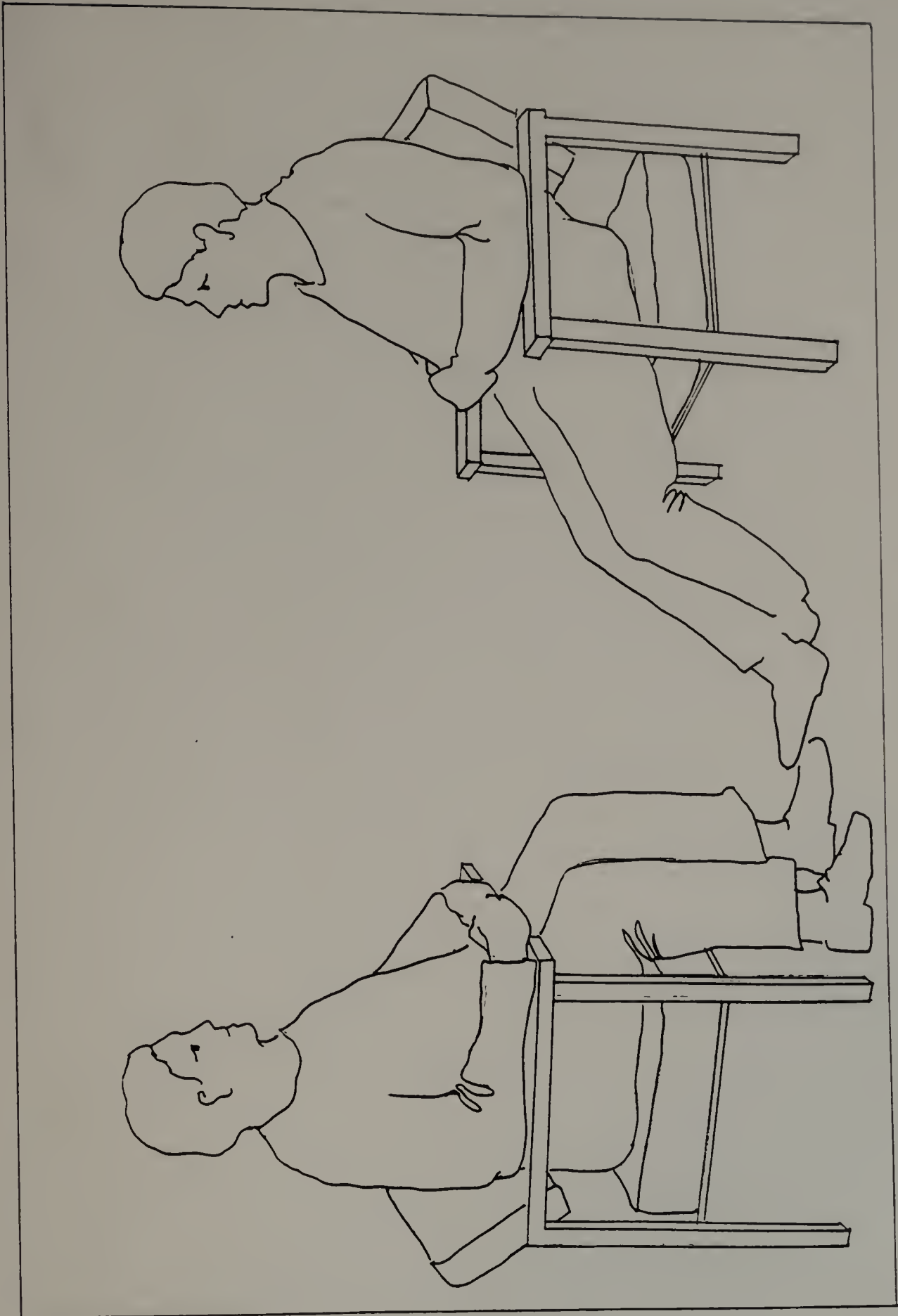
Clip # 1 (Shown twice)

1. Very little similarity or none at all

2. Somewhat similar

3. Moderately similar

4. Very much alike.

5. Completely similar, or virtually identical

Clip # 2 - Clip 25 (Shown twice)

1. Very little similarity or none at all

2. Somewhat similar

3. Moderately similar

4. Very much alike.

5. Completely similar, or virtually identical

APPENDIX D

Stimulus Image

Stimulus Image

APPENDIX E

Instructions for Training in the Eight Categories

TRAINING FOR RATING OF SHARED POSITION

You will now see a clip representing each level. The clip will be repeated before the next level is shown. Please watch the clip, then read the explanation of why this clip would be rated at this level, then watch the clip again. You may repeat this training session once.

Level 1. Very little similarity, or none at all: The two people in this example do not have any degree of similarity in position. He is leaning forward with uncrossed legs and clasped hands. She is leaning backward and to the side, with crossed legs and an open upper body position.

Level 2. Somewhat similar: Here they both have crossed legs, but the legs are crossed at different heights. The upper bodies are more different, her's is open, and his is closed. Both are slouched similarily in the chairs, however.

Level 3. Moderately similar: Here the legs are crossed in the same manner, but the arms are still held differently, her's open, his closed. They also have a similar slouched position in the chair.

Level 4. Very much alike: In this example, the only real difference between their positions is the height at which the legs are crossed. This difference does have a significant impact on the overall perception of similarity, however. The arm positions are identical. Both are leaning slightly to the side.

Level 5. Completely similar, or virtually identical: Here the two people have taken the identical positions, legs crossed in the same manner, and arms held the same. They could be mirrored (right side matching left side), as they are here, or using the same side(right side matching the other's right side) and still be at this level.

TRAINING FOR RATING OF RHYTHMIC COORDINATION

You will now see a clip representing each level. The clips will be repeated before the next level is shown. Please watch the clip, then read the explanation of why this clip would be rated at this level, then watch the clip again. You may repeat this training session once.

Level 1. Very little similarity or none at all: The two women are clearly moving to different rhythms. Except for a small moment when they seem to nod their heads at a similar time although in a very disjointed fashion, they seem disconnected and dis-synchronous. Their timing is off.

Level 2. Somewhat similar: Overall, there is a somwhat similar rhythmic pattern, particularily as seen in a small head shaking gesture, although their remains an awkwardness about the interaction. There is a little coordination between them. Each is holding her own basic tempo, but they appear to be somewhat more "tuned in".

Level 3. Moderately similar: Each still maintains some of her own rhythm, but they have coordinated much more closely, picked up some of the other's rhythms and interlocked in timing in several instances.

Level 4. Very much alike: Here they are much more coordinated. They are tightly interlinked in timing for much of the clip. They laugh together, shift together and nod their heads in synchronous rhythmic patterns. Their patterns are not completely interlocked, however, and particularily the characteristic head nod is still uncoordinated in timing.

Level 5. Completely similar, or virtually so: In this clip, the counselor and client are closely interlinked. Their rhythms are tightly choreographed, including the head nods. They seem to be dancing together to the same music and there are many moments when they are almost moving as one.

TRAINING FOR RATING OF ECHOING

You will now see a clip representing each level. The clips will be repeated before the next level is shown. Please watch the clip, then read the explanation of why this clip would be rated at this level, then watch the clip again. You may repeat this training session once.

Level 1: Very little similarity, or none at all: In this clip, there are no clear repeated patterns of movement between the counselor and client. You might be able to observe a small head nod echo, but it is not enough to make an impact on the overall degree of relationship.

Level 2. Somewhat similar: There is a more definate sequence of repeated head nod, passed between the counselor and client. (He nods, she nods, he nods, she nods, etc.) This sequence is responsible for the somewhat echoed rating for this clip.

Level 3. Moderately similar: Here the recipocal head nodding lasts much longer, so the behavior gives the impressions of a moderate degree of similarity in echoing.

Level 4. Very much alike: The echoed patterns in this clip are small movements of the feet. These are fairly consistent throughout the clip. There are also some echoed head movements. While the movements are small, the counselor and client are very much echoing each other.

Level 5. Completely similar, or virtually identical: This clip contains virtually complete patterns of echoing between the counselor and client. The patterns include repeated hand gestures, foot patterns, postural shifts, and echoed rhythms. Virtually every movement made by one is echoed in some way by the other.

TRAINING FOR RATING OF DYNAMIC SIMILARITY

You will now see a clip representing each level. The clips will be repeated before the next level is shown. Please watch the clip, then read the explanation of why this clip would be rated at this level, then watch the clip again. You may repeat this training session once.

Level 1. Very little similarity, or none at all: The man on the left seems anxious and constricted. He is moving abruptly and tightly with some force. The other man is softer, more calm and considered in his movement. Their dynamics are very dissimilar.

Level 2. Somewhat similar: In this clip, the man and woman somewhat share dynamic quality. They both have a tightness of style, however she is more lively and abrupt while he seems more confined.

Level 3. Moderately similar: Here the two men are moderately matched in dynamics. The listener is almost mirroring the speaker's dynamics, although in a more contained, gentle fashion.

Level 4. Very much alike: The two men share very similar dynamics. Both have strong, forceful, insistent and focused qualities. The man on the left is more passive than his partner, however, so they are not completely the same.

Level 5. Completely similar, or virtually identical: In this clip, the man and woman track each other's dynamics as if their moods are shifting together. At first, they are focused and precise, then the mood lightens before becoming more thoughtful again. The key is that they consistently are sharing the same dynamics.

TRAINING FOR RATING OF SIMILARITY OF SHAPE

You will now see a clip representing each level. The clips will be repeated before the next level is shown. Please watch the clip, then read the explanation of why this clip would be rated at this level, then watch the clip again. You may repeat this training session once.

Level 1. Very little similarity, or none at all: The man on the left makes open, wide and angular shapes, using flat hands. The man of the right stays curved and rounded in gesture. They have little or no similarity in the shape of their movements.

Level 2. Somewhat similar: The man on the right is basically making rounded, contained gestures. The man on the left is much more angular and spread out in gesture, although there is a slight roundedness in his hands and an inwardness or gesturing toward the self which he shares with the other man.

Level 3. Moderately similar: Both men make outward and inward flat gestures. Although the man on the left makes larger and more angular shapes, he joins his partner in a curved shape with small outward finger gestures at the end of the clip.

Level 4. Very much alike: This clip has less movement, but they are very similar in shape. They both basically use rounded gestures. The man on the left has a more flat type of gesture, but both have in and outward gestures which come from a curved or twisted base.

Level 5. Completely similar, or virtually identical: This section shows a virtually complete sharing of shape. Both men have slight downward curves in their hands. They both look downward with their heads and use curved shapes to gesture to their faces.

TRAINING FOR RATING OF SUBTLE ATTUNEMENT

You will now see a clip representing each level. The clips will be repeated before the next level is shown. Please watch the clip, then read the explanation of why this clip would be rated at this level, then watch the clip again. You may repeat this training session once.

Subtle Attunement may be underlying a larger, more apparent pattern of movement, or may be seen in very small gestures. These examples mostly demonstrate the subtle interconnection between the counselor and client.

Observing Subtle Attunement requires a lot of concentration, so pay particularily close attention to these clips. It may help to think of whether or not it would be possible to pace your breathing to both of the movers simultaneously or not.

Level 1. Very little similarity, or none at all: The two people seem basically unrelated to each other, almost as if he were not listening to her at all and she is not noticing his inattention. Their breathing patterns, pauses and shifts seem unrelated.

Level 2. Somewhat similar: In this clip, although there is little apparent connection between them, there are moments of breathing together(a small sigh, for example) and the pacing seems closer than the previous clip. They are somewhat related, or attuned to one another.

Level 3. Moderately similar: This clip shows a moderate amount of attunement. It would be more possible for you to breath with, or "stay with" both people at once. There are discrepencies between them, however, and they still seem to feel a bit separate from one another.

Level 4. Very much alike: Here they are very much attuned. They seem to track each other most of the time, except when he twists to the side. In that moment, he seems to pull away. Otherwise they are right together in breath and "muscle tension".

Level 5: In this clip, they stay attuned the whole way through. They match each other completely in breath and subtle movements of holding and release.

TRAINING FOR RATING OF HEIGHTENED SYNCHRONY

You will now see a clip representing each level. The clips will be repeated before the next level is shown. Please watch the clip, then read the explanation of why this clip would be rated at this level, then watch the clip again. You may repeat this training session once.

Level 5 About mid-way through this clip, there is a moment when the two people nod precisely together, while resting their chins on their hands. This is a moment of heightened synchrony and should be rated at Level 5.

Level 1: No moments of heightened synchrony are present. Rate this at Level 1.

Level 5: The moment of heightened synchrony in this example is a small mutual smile towards the end of this clip(right before she raises her hands). It is subtle, but it is a moment when the two people move as one. Rate this at Level 5.

Level 1. No moments of heightened synchrony are present. The movers never coordinated completely. Rate this at Level 1.

TRAINING FOR RATING OF KINESIC COORDINATION

You will now see a clip representing each level. The clips will be repeated before the next level is shown. Please watch the clip, then read the explanation of why this clip would be rated at this level, then watch the clip again. You may repeat this training session once.

Level 1. Very little similarity, or none at all: This clip shows a counselor and client who are dissynchronous in many ways. They do not share posture, rhythm, attunement, or shape and there are no apparent echoes. They seem to be basically "out of tune" with each other.

Level 2. Somewhat similar: This pair is only somewhat similar. Their postures and gestures are mostly dissimilar, but they are somewhat related rhythmically.

Level 3. Moderately similar: The two women in this clip are moderately similar. In the beginning, they are connected mostly through rhythm and dynamics. Towards the end of the segment, one joins the other more closely with a similar posture and shape.

Level 4. Very much alike: The counselor and client in this clip are very much alike in behavior. They are sharing posture, shape, rhythm and in general are highly inter-coordinated. There are also several echoed patterns. She has a more lively and involved attitude than he does, however, so their dynamics are not completely matched overall, accounting for the Level 4 rating.

Level 5. Completely similar, or virtually identical: The two women in this clip are very tightly coordinated in all categories. They echo each other, match in rhythm and dynamics. Their postures and gestural shapes are completely alike. They seem to be completely attuned to one another.

APPENDIX F

Order of Presentation of Clips and Categories

ORDER OF PRESENTATION

Session	1	2	3	4
Rater	Clip Order/ Category			
1.	A/1, B/2;	C/3, D/4;	C/5, D/6;	A/7, B/8
2.	B/3, A/7;	D/6, C/1;	D/4, C/2;	D/5, A/8
3.	C/7, D/1;	B/5, A/2;	A/6, B/4;	C/3, D/8
4.	D/6, C/5;	A/2, B/3;	D/1, A/7;	B/4, C/8
5.	D/4, A/6;	B/1, C/5;	D/7, C/3;	B/2, A/8
6.	B/2, D/4;	A/7, C/3;	A/5, B/6;	D/1, C/8
7.	C/5, A/3;	D/4, B/7;	B/2, D/1;	B/6, A/8
8.	D/4, C/7;	B/5, A/2;	D/1, A/3;	A/6, B/8
9.	B/5, C/2;	D/4, A/6;	C/1, D/7;	A/3, B/8
10.	B/7, A/1;	D/3, C/4;	B/5, C/6;	D/2, A/8
11.	C/1, D/6;	C/2, A/3;	C/7, D/4;	A/5, B/8
12.	D/2, B/3;	C/1, D/5;	A/4, D/7;	C/6, D/8

Letters A,B,C,D represent the order of presentation of the 25 clips

Category 1-8 are as below:

1. Shared Positions
2. Rhythmic Coordination
3. Echoing
4. Dynamic Similarity
5. Similarity in Shape
6. Subtle Attunement
7. Heightened Synchrony
8. Kinesic Coordination

APPENDIX G

Instructions for Rating Mutual Kinesic Coordination

Phase One

INSTRUCTIONS FOR RATING OF MUTUAL KINESIC COORDINATION

Mutual kinesic coordination is a process through which two or more people adjust their body movements to one another's in a pattern of synchronous behavior. As a specialized form of human communication and relationship, psychotherapy involves mutual coordination of nonverbal behavior between counselor and client. It is not known how this behavior effects the therapeutic process, nor whether or when it is desireable. This project is investigating various aspects of this phenomenon, including the development of a rating system with which clinicians may note the rate of occurrence of this interactional behavior and begin to understand it's effect and meaning.

You are being asked to rate a series of 30-second clips of video-taped interaction between a role-played counselor and client. Each clip will be shown to you twice, with ten seconds in between clips, after which you should select the level of coordination which you determine is present. There are eight categories representing different aspects of nonverbal coordination. You are being asked to give your global impression of the level of the aspect present in each clip. There are 25 30-second clips to be rated for each aspect, or category.

It is a basic premise of this study that mutual coordination is a readily observable phenomenon. The training segments will draw your attention to the behavior to be considered under each category. Try to keep the specific category to be rated in mind as you observe each clip.

You will see each clip twice, so that you may support your first impression. There may be very subtle differences between the first and second showings of a clip. This is a product of the editing process and not an attempt to trick you. Remember, you are rating the _overall_ effect of the segment. Most people are much more accurate then they anticipate.

It is important that you not discuss this project with others until you have completed all four rating sessions. Some of your fellow students are also participating in the project and their responses might be altered by prior knowledge. I will be happy to discuss the research in detail with you at the conclusion of your sessions.

Once again, thank you for your willingness to participate. I anticipate that you will find this to be a rewarding experience, as you will begin to observe movement behavior more carefully and may begin to think about your therapeutic interactions in a new way.

APPENDIX H

Instructions For Rating Mutual Kinesic Coordination

Phase Two

INSTRUCTIONS FOR RATING OF MUTUAL KINESIC COORDINATION

Mutual kinesic coordination is a process through which two or more people adjust their body movements to one another's in a pattern of synchronous behavior. As a specialized form of human communication and relationship, psychotherapy involves mutual coordination of nonverbal behavior between counselor and client. It is not known how this behavior effects the therapeutic process, nor whether or when it is desireable. This project is investigating various aspects of this phenomenon, including the development of a rating system with which clinicians may note the rate of occurrence of this interactional behavior and begin to understand it's effect and meaning.

You are being asked to rate a series of 30-second clips of video-taped interaction between a role-played counselor and client. The 30-second clips will be taken in sequence from a complete session. Each clip will be viewed once, after which you should select the level of coordination which you determine is present. You are being asked to give your global impression of the level of one of four aspects of nonverbal coordination present in each clip. There are 28 30-second clips to be rated, and you will be rating 7 on each category.

It is a basic premise of this study that mutual coordination is a readily observable phenomenon. The training segments will draw your attention to the behavior to be considered under each category. Try to keep the specific category to be rated in mind as you observe each clip. Remember, you are rating the <u>overall</u> effect of the segment. Most people are much more accurate then they anticipate.

Once again, thank you for your willingness to participate. I anticipate that you will find this to be a rewarding experience, as you will begin to observe movement behavior more carefully and may begin to think about your therapeutic interactions in a new way.

APPENDIX I

Phase Two Rating Form

INSTRUCTIONS FOR RATING SHARED POSITION

<u>Basic Description</u>: Counselor and client share similar or identical positions of their upper and lower bodies. They need not take the postions at the same time, they need only be in the same or similar positions during the same time period. The positions may be mirrored (i.e., right leg of one mirrors the left leg of the other), or with the same side of the body (right leg of one is in the position of the right leg of the other). You will be looking at the basic body positions, not the gestures coming out of those positions.

Rate the degree to which counselor and client share positions.

****

<u>Clip # 1 (:30-1:00)</u>   Rater #_____

1. Very little similarity or none at all

2. Somewhat similar

3. Moderately similar

4. Very much alike.

5. Completely similar, or virtually identical

<u>Clip # 2 (1:30-2:00)</u>

1. Very little similarity or none at all

2. Somewhat similar

3. Moderately similar

4. Very much alike.

5. Completely similar, or virtually identical

<u>Clip # 3 (2:30-3:00)- Clip # 28 (27:30-28:00</u>

1. Very little similarity or none at all

2. Somewhat similar

3. Moderately similar

4. Very much alike.

5. Completely similar, or virtually identical

APPENDIX J

Rating Order for Phase Two

PHASE TWO RATING ORDER

Shared Positions (SP); Echoing (E); Similarity in Shape (SS); Subtle Attunement (SA)

Group 1: SP/E/SS/SA

Group 2: E/SA/SP/SS

Group 3: SS/SP/SA/E

Group 4: SA/SS/E/SP

APPENDIX K

Alliance Rating Instructions

INSTRUCTIONS FOR ALLIANCE RATING PROJECT

The following is a transcript of an initial session between a male counselor and a male client. You are being asked to provide periodic ratings of the level of the therapeutic working alliance between the counselor and client.

Working alliance refers to the degree of mutual collaboration, cooperation, and caring between the pair. A strong alliance is characterized by mutuality of goals and task, and the great degree of bond present between the counselor and client.

Please read the entire transcript before making any ratings. Then reread the transcript and rate the level of alliance you feel is evident. We would like you to rate according to the scale below. Mark the number of the level chosen in the space provided on the transcript.

1. <u>Very little or no apparent alliance between counselor and client</u>: When there is very little alliance present the counselor and client may appear to be working at cross purposes, or may be expressing dissatisfaction or misunderstanding.

2. <u>Some alliance appears to be present</u>: At times, a pair will have only some degree of mutuality of task, goal, and bond. They may seem to have some disagreements in precedure or may not seem to have established a trusting relationship, but are collaborating in some small ways.

3. <u>A moderate alliance has been established</u>: A moderate amount of collaborative effort and feeling may be apparent at this phase of a session, even though they may not have reached complete agreement on the task for the session, for example.

4. <u>The counselor and client seem very much allied</u>: When a counselor and client are very much allied, they will seem to be almost agreeing on the goal of the treatment, the method of approaching it, and/or may express a good deal of mutual respect and caring. They will still be missing each other in some small subtle ways, however.

5. <u>The counselor and client are completely (or virtually so) allied</u>: When counselor and client show a complete alliance they will appear to share virtually the same goals for the session and the course of treatment, have similar views on the fruitfulness of specific tasks during the session, and appear to trust, like, understand, and care about each other.

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