

AN EMPIRICAL STUDY OF THE DOUBLE BIND

by

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CHAPTER 1

Introduction and Review of the Literature

Human communication may be said to consist of words and other deeds. It involves both the elaborate body of symbols expressed by the spoken word, as well as the non-verbal signs of laughs, shrugs, grimaces, varied vocal intonation, etc. It has been said that "words are also deeds" (Bambrough, 1980). While that may be true, it can also be said that deeds are also words.

(Even) when actions do not speak louder than words, they speak and mean, express and imply, and so can enter into logical relations with each other, and with other bearers of meaning and implication : thoughts, words, beliefs, hopes and expectations. (Bambrough, 1980, p. 107).

Nonverbal behavior has been defined as that other than verbal behavior which enables a human being to "increasingly understand and be understood by members of his or her social community" (Mayo and LaFrance 1979, p. 213). It has been said to include a wide variety of behaviors : interpersonal distance, gaze direction, body lean, facial expression, postural adjustments, hand and arm movements, leg and foot movements, grooming behaviors, pupillary dilations or constrictions, pauses, interruptions, speech duration, and others. Several functional categories have been suggested for such nonverbal behaviors. These include providing information, regulating interaction, explaining intimacy, exercising social control, facilitating service/task goals (Patterson, 1983). Ekman and Freisen (1969) have emphasized that nonverbal behaviors repeat, contradict, complement or accentuate verbal communications.

Besides being described as multi-channelled (verbal, nonverbal) communication has also been described as multi-levelled.

Every communication is qualified by another message, or by context, which may be congruent or incongruent; lack of congruence creates pathogenic ... double binds. (Nichols, 1984, p. 408)

It is the incongruent messages which have attracted the interest of researchers from a variety of disciplines. Besides being referred to as the double bind, the terms contradiction, inconsistency, incongruence and paradox have also been used to characterize such communication. Despite the interest and work of researchers, problems of definition, methodology, and ethical considerations which have beset the study of such communication, have been responsible for gaps remaining in our knowledge.

Double Bind Theory : Definition and Scope

Bateson, Jackson, Haley, and Weakland (1956), based their study of observable human communications, within the framework of Communications Theory, on the principles of Bertrand Russell's Theory of Logical Types. The basic tenets of Russell's theory are that there are "classes" and "members" of classes, and that each is an exclusive category such that a class cannot be a member of itself, and a member cannot be a class (except in a case of Russell's Paradox); and that there is a hierarchy of classes. Thus followed the conceptualization of all communications in terms of classes, levels, or types, and in terms of a hierarchy of types, or of increasing degrees of abstraction (for a fuller discussion, refer to Appendix C). From this new combined framework was deduced the now-famous concept of the "double bind", posited originally in the context of the communications of schizophrenics and their parents.

Subsequently, Bateson, Jackson, Haley and Weakland's (1962, p. 40) remarked that the double bind was "a general communicational approach to the study of a wide range of human (and some animal) behavior", which included schizophrenia as a major example. What followed were widespread applications of the double bind conception to diverse contexts including art, humor, creativity, religion, hypnosis, play and therapy (Bateson, 1955, Bateson et al, 1956; 1962; Ferreira, 1960; Fry, 1963; Haley, 1955; 1958; Watzlawick, Beavin and Jackson, 1967; Zuk, Nagy, Heiman, 1963; Zuk, 1964).

On the whole these developments came under harsh and repeated criticism from reviewers who held that the concept had been over-extended, and that this brought greater confusion than clarity (Schuham, 1967; Vetter, 1969; Pease, 1970; Olson, 1972; Gootnick, 1973). In addition there were discussions of the double bind being a class of phenomena with many different types (Sluzki, Beavin, Tarnopolsky and Veron, 1967) and of the possibility of different types of double binds characterizing different types of disturbed families (Vetter, 1969). But, there was no development of these ideas.

In 1978, Bateson added to all these previously deliberated extensions perhaps the most ambitious generalization of all, that "the double bind theory has been and is part of ... (a) ... general epistemology, not an induction or deduction from it" (p. 41). In other words, he held that the double bind was an epistemology. It was clearly an example of systemic, cybernetic epistemology. This was because it was based on a circular model, in which contemporary events were considered

within an open, interacting system maintained by positive and negative feedback loops. The need to declare it somewhat self-consciously as an epistemology in itself was not clear and seemed unnecessary.

Theoretical components

The double bind was said to contain certain necessary ingredients. Two or more persons needed to be involved, typically in a close relationship (e. g. mother/child), where one was seen as the "victim" (typically the child), and there had to be repeated experiences of it such that it eventually became a habitual experience. The double bind itself contained a primary negative injunction which took one of two forms : "do not do so or I will punish you", or "if you do not do so, I will punish you". Hence it was enforced by the incentive to avoid punitive consequences. There was also a secondary injunction which conflicted with the first at a more abstract or non-verbal level. It was also enforced punitively, and was free to conflict with any particular element of the primary injunction, and hence could take a variety of forms. For example : "do not see me as a punishing agent", or "do not think of what you must not do", or "do not submit to my prohibitions", or "do not question my love of which the primary prohibition is not an example".

Finally, there was tertiary negative injunction which prohibited escape from the field by demanding a response. Capricious promises of love were said to hinder escape in some cases. In others it was suggested

that the imposition of double binds from infancy, when there existed an unavoidable dependency on the part of the child to the parents, made escape naturally impossible. In this situation when an individual was faced with two messages denying one another, and was unable to comment on or correctly discriminate what order of message to respond to in an intense relationship where it is vitally important to do so, there was a breakdown of the ability to discriminate logical types or to meta-communicate.

With time and repetition of this sequence of injunctions, learning was said to occur. At this point the double bind became a characteristic part of the interactional patterns or rules of the family. Then the complete set of ingredients was no longer necessary to precipitate the response of "panic or rage". This response may also be referred to as fight or flight, or in its most common socialized form, stress (Elliott and Forker, 1976).

In the original paper, Bateson et al (1956, p. 14) presented several examples of the double bind from clinical data, one of which was as follows. A young schizophrenic man was visited in hospital by his mother. He was glad to see her, and as he put his arms around her shoulders she stiffened, whereupon he withdrew his arm. She immediately asked "Don't you love me any more?" which made him blush. To this she said "Dear, you must not be so easily embarrassed and afraid of your feelings." He was able to stay only a few minutes with her then, and assaulted an aide soon after.

Pease (1970, p. 538) provided another example from the speech of a schizophrenic's mother, which was as follows. "He was very happy. He

loved his repair work at Mr. Mitchell's shop in Lewiston.... He used to come home and say 'I can't stand it another minute'". Although this is an example of contradictory communication, it cannot qualify as a double bind. This is firstly because the conflict occurs between two elements of the same class or category, or between two verbal statements. Haley (1961) referred to this as "contradiction" to distinguish it from "incongruence" or "inconsistency" which represented conflicting statements of different classes, that is, verbal and nonverbal. Secondly, this particular example is not an illustration of direct on-going interaction between two people, but represents only two contradictory statements made by one person. Finally, there is no indication whatsoever as to whether this speech occurred in a close relationship or not.

And so it is not difficult to find misapplications of the concept repeatedly in the literature. It is not always simple to accurately see its application in appropriate situations, or to discriminate its inapplicability in inappropriate situations. As Sluzki and Ransom (1976, p. vii) have pointed out, it is perhaps that "the logical beauty of the concept has created an illusion of concreteness".

Reconsiderations and Reformulations

Since the early formulations, many parts of the double bind have been subject to reconsideration and reformulation. One among them is the concept of the "victim" which was discarded as not being particularly useful. This represented an effort to theoretically focus on the interactional process rather than the content of the double bind. The

early formulations, by concentrating on the various elements of the double bind, had failed to do so, and hence came up with a more unilateral term such as "victim". Papers following soon after the original one, moved swiftly to rectify the situation by including the basic elements of the double bind within a reciprocal interactional framework. Individuals involved in a double bind were seen to reciprocally give incongruent messages themselves, and respond to any or all communications as incongruent. Double binds resided in relations between people, not within them. In the words of Bateson et al (1962, p. 42), the most useful view would be "people caught in an ongoing system which provides conflicting definitions of the relationship and consequent subjective distress." The question of the involvement in double binds of two or more persons was concretely developed by Weakland (1960). In his paper on three-party interaction, he described how parents may jointly create a double bind for a schizophrenic child by each communicating a message incongruent with the other's. He also made mention of extending this approach to the field of social psychiatry wherein "the existence, handling and effects of incongruent messages in wider spheres of social and cultural organization," could be studied (p. 37).

Such a concept was presented by Wynne (1978) which he called "meta-binding". It referred to the binding that may occur in the broader social and cultural context where rules, values, and norms cannot be associated with a specific person or role. The single example he gave was of therapists feeling the need to unbind what lies beyond their designated area of responsibility as staff of an institution or licensees of a state. For example, when "emergency services are mandated to accept

patients for hospitalization who appear to be a threat to themselves or others" (p. 186), this may happen. This seemed to point to situations in the working world where ambiguous rules can lead to some individuals' uncertainty and frustration, and can result in the making of decisions which represent the creation of new rules to serve particular situations. While bearing only a vague resemblance to the double bind, it may be questioned whether such grand extensions as discussed earlier, were warranted or useful, at a point where ideas about the original concept were yet to be fully developed.

The question of tertiary negative injunction remains an unsettled one. How exactly it is effected or is effective is unclear. Weakland (1960) describes the primary and secondary injunctions as being "conflicting injunctions of importance, acting to forestall escape, inhibit notice and comment on inconsistency by the victim". Laing (1961, p. 72) comments on this in a similar vein by stating that "the situation is sealed off for the victim by a further unavowed injunction forbidding him to get out of the situation or to dissolve it by commenting on it. The victim is in an untenable situation." Haley's (1961, p. 68) statement that "the bind is complete when the victim cannot leave the situation or comment on the impossible situation", is representative of the same view.

These statements, however, do not make it clear as to how exactly the primary and secondary injunctions act to forbid escape, or inhibit explicit comment, thus creating the third injunction. Early exposure to inconsistent communications and capricious promises of love are the

earlier cited examples of the injunction. However, they are two completely exclusive categories, and one is left guessing as to how they mutually fit in as interchangeable examples of the injunction. In its present form, the tertiary negative injunction seems to be an intangible construct in that there is no systematic, predictable way of determining how it may be communicated. It could be operating on the basis of the assumption that communications, particularly in close relationships, are commonly made with the expectation that they are attended and responded to in some way. This, however, does not mean that the possibility of not doing so does not exist.

Perhaps a viable way of considering the tertiary negative injunction is in terms of its effectiveness. That is, in terms of whether a metacommunicative statement is or is not made by the receiver. In the former case, the double bind does not occur, and in the latter case, being caught in a snare is ensured, and the double bind comes into play. This allows the taking of an interactional view in that inconsistent communication does not result in the double bind unless it is received by a lack of labelling and comments for clarification. Thus both the inconsistent stimulus and the uncommon response to it are necessary for the creation of the double bind.

The work of Sluzki et al (1967, p. 223) has been on these lines. They elaborated on how disqualifications in interactions can serve to create double binds. They referred to this "transactional disqualification" as "the incongruity in response of one speaker in relation to the thesis (content) of the previous message of another".

Examples include four types of such disqualifications. One is "evasion", or change of subject when following a statement that does not clearly end the discussion of a topic, another person changes to a completely different topic without making any kind of note of this switch. "Sleight of hand" is another type, where a change of subject is presented as an appropriate response to an earlier message. "Status disqualification" is a third type where the response to a message implies that it was not valid either because of the status of the person who made it or the superior knowledge or right of the person who is responding to it. Lastly, there is the "redundant question" where a declarative statement is responded to by repetition of at least part of what is already said in it.

Comment on or withdrawal (physical or metaphorical) from such transactional disqualification, Sluzki et al (1967) contend offsets the double bind. It is not clear, however, whether or not this withdrawal includes individual metacommunication. To be consistent with earlier positions it would have to include at least silent metacommunication. Acceptance of the disqualifier's redefinition or counter disqualification results in the double bind. Berger (1978) has pointed out that, in addition, increased abilities for objectification, abstraction, and options for individuating without abandonment, are ways to avoid the double bind snare.

Weakland (1960) wrote on metacommunicative responses resulting in the avoidance of the double bind. These included overt labelling, giving a manifestly dual message in reply, and making humorous response exposing

the inconsistency. However, he held that making such responses may be difficult because of the subtle nature of the inconsistency as seen by him on three dimensions. First, he said that there was "concealment" because there was no clear confrontation of injunctions, as they were from different classes, that is, verbal and non-verbal. This is a theoretical claim, and calls for empirical verification to see whether this type of inconsistency particularly raises problems of detection. Secondly, he said following the inconsistent messages there may be explicit "denial" of the inconsistency by the sender, and attempts to suppress meta-communicative statements by the receiver. This can be done by discarding any such accurate statements as being misunderstandings. This is different from all that has been said before about responses to inconsistent messages that create the double bind, as it involves some preliminary metacommunicative response. Finally, there is "inhibition" or strong ignoring, or acting as if inconsistency in the message was out of the question, by the sender.

It is unclear at this point as to whether it is sufficient to internally metacommunicate about the perceived inconsistency in communication or to make an explicit comment representing the fact of such metacommunication in order to offset the double bind. Abeles (1976) speaks of the absence of explicit comment on the inconsistency as tantamount to the absence of metacommunication. Wynne (1969), on the other hand, complained about the unnecessary emphasis on overt statement. He held that either recognition or action could transform the "insolubility of the bind in its own terms" (p. 120). At any rate, the

question of whether individual or interpersonal metacommunication is required to offset the double bind is not a sufficiently discussed or resolved one.

Finally, the criterion of an intense relationship (mother/child; husband/wife; therapist/client; triads of family-members) within which double binds repeatedly occur, needs to have been included in a set of necessary ingredients of the double bind. It is an essential part of the authors' conceptualization, but has not been separately specified as such.

Pathological Implications

There has been some discussion about what in particular in the double bind can be considered pathological. Starting with the example of schizophrenia, Bateson et al (1956) saw in schizophrenics a breakdown of the ability to correctly classify or metacommunicate about, at most times, the messages he or she gave, the messages he or she received, and the thoughts, sensations and perceptions that he or she had within the self. This resulted in free floating, unlabelled, individual and interpersonal experiences, which was likened to a "self-correcting system which has lost its governor; (and which) ... spirals into never-ending but always systematic distortions" (Bateson et al 1956, p. 10). This distortion, the authors said, was a result of long-term experience of exposure to and consequent adaptation to double binding messages in close

relationships. In this view of things, the schizophrenics' unconventional communicational habits could be seen in his or her circumstances to be in some sense appropriate.

It was said that when a victim making a metaphorical response does not know that he or she is doing so, or cannot say so, it is pathological (Bateson et al, 1956). It has also been said that when this pattern of response of relinquishing the practice of labelling communications becomes learned, it is pathological (Abeles, 1976). Weakland (1960) has pointed to the cumulative tendencies of double binds, or the progressive creation of one from another as being pathological. Moreover it may be said that the stress precipitated by the double bind (Bateson et al, 1956) is of a negative type. With time and repetition of double binding sequences in close and stable relationships, this stress may yield dysfunction in the family-system, of which schizophrenia may be one extreme example.

Empirical Inquiries Of the Double Bind

As has been discussed earlier, the double bind conception has remained less than fully clarified theoretically. This has resulted in problems of operationalization and the use of various operational definitions of it by experimenters. In this section all studies which have claimed to have looked at the complete double bind will be reviewed, as a representation of the diverse manner in which double bind research has in fact taken place.

Early Studies

One of the first empirical studies was conducted by Ciotola (1961). The experiment involved auditory discrimination of two tones. A schizophrenic and a non-schizophrenic psychiatric group of subjects were first presented two tones from which they had to identify the higher. They were neither rewarded nor censured for their responses. In a second condition, the same task was given, but half their responses at random received the reinforcement of the verbal statement "good", and the other half also at random received the censure "bad" accompanied by 5 cents payment. In a third condition, these two reinforcements, the positive and the mixed were given in response to correct and incorrect discriminations respectively. The hypotheses that schizophrenics would respond with greater tension, longer reaction times and greater concreteness were not supported. The study has been criticized on several grounds. Schuham (1967) argued that the task required an impossible discrimination. Vetter (1969) complained of an insufficiently representative clinical sample, given the double bind's claim to a more general pathogenicity, besides schizophrenia. Olson (1972) has questioned the equation of a failure of discrimination with the double bind. Abeles (1976) has pointed out that it was not the discrimination that was central to the conception of the double bind in this case, but the pairing of reward and censure. If this is the case, then a further condition with reward or censure, each being dependant on performance, should have been included to allow a complete set of comparisons of conditions and responses to them.

Potash (1965) compared the performance of schizophrenic and normal males in a two-person, three-choice prisoner's dilemma game. It was predicted that schizophrenics would exhibit greater withdrawal (one of the three choices), in keeping with the expectation that they tend to withdraw frequently from conflicting parental demands. This was not supported by the results. Schuham (1967), Vetter (1969) and Olson (1972) have argued that the prisoner's dilemma is mainly a measure of interpersonal trust, and is not an appropriate simulation of the double bind. Abeles (1976) has disagreed with this and has said that trust is indeed an important ingredient of the double bind, but where this simulation failed is in not providing the context of a vital relationship, another important ingredient of the double bind. Vetter (1969) has also pointed out that the double bind precludes escape from the field, and hence the hypothesis of schizophrenic withdrawal or escape has been inappropriate. This misunderstanding has been perhaps the most crucial in invalidating this as a viable study of the double bind. The severe conceptual and methodological shortcomings of these earliest studies were responsible for the lack of any further development of these particular approaches.

Double Bind in Relationships

Beavers, Blumberg, Timken and Weiner (1965) compared the mothers of schizophrenics and non-schizophrenics on their communicational styles.

They interviewed them about their child's birth, socialization, development, their feelings about the interview, and so on. They found mothers of non-schizophrenics to make significantly more definite statements, and mothers of schizophrenics to make significantly more evasions of meaning. Olson (1972) and Abeles (1976) have lauded this work as providing empirical evidence that mothers of schizophrenics and non-schizophrenics may be differentiated on the basis of communicational patterns associated with the double bind.

Berger (1965) developed a questionnaire of thirty double binding statements from clinical materials. The items were judged to be appropriate by experienced clinicians familiar with the double bind theory. Schizophrenic patients, non-schizophrenic patients, ward-attendants, and college-students were asked to recall the frequency with which their mothers had made such statements to them. It was predicted and found that the schizophrenics recalled higher frequencies than the other groups. Item analysis revealed twelve items which discriminated between schizophrenics and college students. Five of these items also discriminated between schizophrenics and the other two groups, and these contained verbal and non-verbal conflict in communications, or mother/father conflict. Schuham (1967) and Olson (1972) have criticized the use of a retrospective approach. Abeles (1976) questioned the relevance of some of the questionnaire items to the double bind theory. Most importantly, it seems that such a study using the tentative

measure of long-term recall is substantially lessened by the absence of a reliability estimate of the subjects responses.

Sojit (1969, 1971), in a pair of companion studies, investigated the family-interactions of schizophrenics, delinquents, patients with ulcerative colitis, and normal controls. In both studies, the families were given two tasks, each of which involved reaching a decision on the meaning of a proverb. In the double binding task, they were instructed that there would be two reasonable, exclusive and possible interpretations, while in the other task they were instructed that there was only one interpretation. Parents of schizophrenics made metacommunicative signals (a comment on contradictory interpretations) significantly less often than the control group. They also made more frequent incongruous interpretations, false abstractions, and inappropriate qualifications. The responses of the two other clinical groups were similar to the schizophrenic group and different from the normal control. This finding showed support for the universal pathogenicity hypothesis of the double bind (Bateson et al, 1962; Sluzki and Veron, 1971). The schizophrenics' interaction on both tasks, however, was similar, making a strong claim for the behavior being independent of the nature of the task (Abeles, 1976). Olson (1972) has raised some questions about the type of statistical analyses used for the small sub-samples as well.

Weakland and Fry (1962), on the basis of some letters and verbal communications of schizophrenic patients, stated that the written communications to schizophrenic offspring contained double binds. There was no comparison with letters from mothers to non-schizophrenic offspring.

Ringuette and Kennedy (1966) collected forty letters from mothers to hospitalized schizophrenic children, hospitalized non-schizophrenic children, and from volunteers writing as if to hospitalized children. Five groups of judges (including an expert group constituted by some of the original authors of the double bind), rated the letters. The inter-judge reliability regarding the presence of double binding material was as low as 0.19 for the expert group, and ranged from 0.13 to 0.44 in the other four groups. This was considered to be a big blow to the concept by the experimenters and subsequent reviewers (Schuham, 1967; Pease, 1970; Vetter, 1969; Olson, 1972). Abeles (1976) pointed out on a more optimistic note that analysis of such letters may not be an appropriate methodology in the empirical study of the double bind. Moreover, if used at all, letters not only from mothers to their children but also the replies to these should be studied. This last-mentioned point is perhaps crucial for a complete conception of the double bind requires the acknowledgement and study of such reciprocity. As has been said before, both or all parties concerned are involved in and responsible for the double bind, it is not done by one person unilaterally to another.

Phillips (1970) studied normal high-schoolers who were considered extremely cynical or euphemistic, and their mothers. He developed a questionnaire called "DouBT" which consisted of 12 items each of which was a parent/child communication. Ten of these items were considered to be double binding. The questionnaire was presented to mothers and children in a forced-choice format which allowed options, including reflecting cynical, euphemistic and neutral responses. The hypothesis that the cynical mode would be positively related to ego and super-ego strength, and negatively to guilt-proneness; and the hypothesis regarding the relationship of child-rearing attitudes of mothers of excessively euphemistic or cynical children were not supported. Phillips thus questioned the validity of the double bind construct. Abeles (1976) considered this argument to be unwarranted. She argued, however, that while many of the items were good examples of potential double binds, there was ambiguity regarding whether the subjects were to respond to the items as hypothetical situations or in terms of how it applied to them. In addition, the study lacked an appropriate control-group.

Givens (1978) analyzed video-taped interactions of 14 mothers and their two to two-and-half year old children (half of whom had been physically abused, and half of whom were normal controls). The interactions were rated on the basis of a check-list of non-verbal behaviors developed earlier by the author. The scale included

distinctions between submissive or affiliative non-verbal performances and dominant or aversive non-verbal performances. It was found that the dominant, aversive, cold non-verbal behaviors were more frequently displayed by mothers of physically-abused children than the normal controls. Describing a characteristic pattern in the abusive mother-child relationship, the author said that frequently an aversive behavior by the mother (over-loud voice, for example) would result in a negative response in the child. This would result in a still exaggerated aggressive reaction in the mother and further crying or whining by the child. Givens likens the situation of coercion by the mother to aversive behavior in the child, followed by punishment for this behavior, to the double bind. This seems a fair analogy and a new and perhaps important application to another subgroup, that of child-abusers and the abused.

Gooblar (1978) compared 40 mother-child dyads (20 single and 20 two-parent families). Half of them were clinical and the other half were not. Communications between mothers and adolescents were compared in single and two-parent families, clinical and non-clinical groups, and in situations with a younger and older adolescent. Each dyad was asked to discuss the meaning of a proverb. The interactions were recorded. No differences were found between single and two-parent families or clinical and non-clinical mother-adolescent dyads. A higher state of instability was observed in the relationships of older than younger adolescents and their parents. In fatherless families higher frequencies of communicational maneuvers were found. These families continually avoided

the task of defining the parameters of their relationship, resulting in ambivalence on the part of the mother as to her authority over the adolescent, and the ambivalence on the part of the adolescent as to his/her independence from the mother. This study can be considered to be among those which have investigated the communicational style consonant with the double bind along with Beavers et al (1965) and Sojit (1969; 1971). It has the added application to different family-structures. The experimental task itself, however, being as brief as it was may have been a less than adequate discriminator.

Blotchky, Tittler, Friedman, De Carlo (1980) studied 16 families, each with an emotionally disturbed child, using assessment procedures at the beginning and end of the child and family intervention program. Trained coders recorded the frequencies of double binding messages in a videotaped family-interaction proceedings. These were taken to be the ones which reflected a message-channel discrepancy. Interpersonal distance was also measured in a projective figure-placement task. On both these criteria, three aspects of dyadic behavior in parent-child relationships were most amenable to change : father to child dyad and vice versa, and symptomatic child to mother dyad. Mother's relationship and behavior with the symptomatic child was the most resistant to change. While this study was not aimed at questioning the validity and/or the operational ease of the double bind concept, it provided evidence of the

clinical use of information regarding double binding interactions and their malleability. The operational definition of the double bind was that of a message giving discrepant information through different channels. This is indeed an incomplete definition. An incongruent message such as this is a necessary part of the double bind, but not sufficient for it. Reciprocity of interaction is essential for the double bind, and a message is not binding until one is bound by it.

Blotchky, Tittler and Friedman (1982) studied the interactions of 15 families participating in a family assessment project in a short term residential treatment program for emotionally disturbed, non-psychotic, acting out children. Each family was given a family interaction task (to decide five goals for changing their behavior in the family) and a projective task (felt figures task). This was videotaped and rated by a trained judge. It was found that the greatest prevalence of conflicting communication occurred between the symptomatic children and their mothers. The symptomatic children responded to their incongruous communication with more avoidance behaviors than their siblings. Extreme interpersonal closeness or distance between mother and symptomatic child was associated with greater occurrence of conflicting communication. Such data from a controlled study of the natural families' interactions is a powerful source of support for the double bind. It has the great advantage of providing the real relationship context where other experimental frameworks cannot. A control group, however, would have much enhanced the findings of this study.

Besides family relationships, the double bind has been studied in other relationships and contexts as well. Polyson and Maddux (1979) studied 60 male and 60 female college students. A first group of subjects were presented stereotypic double bind situations in an academic setting; a second group were presented stereotypic double bind situations in an employment setting; a third group was presented double bind situations along with insight regarding the cause of it; a final group was presented a problem-free situation. The subjects were asked to imagine themselves in the particular circumstances and their anxiety was measured by administering the State-Trait Anxiety Inventory. The hypothesis that insight would reduce anxiety in double binding situations was supported for the males but not for the females. The findings were interpreted in terms of gender stereotypes. The authors claimed this method of study was a creative and viable one by which ethical problems of putting subjects in double binds could be obviated. This can be seen to be a fair claim. However, the comparison between the males and females was done across two different settings (academic and employment respectively). This experimental design flaw leaves us with two sets of results which cannot be compared without other comparison groups such as situations for males in the work-setting and females in the academic setting.

Markowitz and Nitzberg (1982) studied the interactions within a psychiatric halfway house, and its interactions with other community services. They gave examples of the behavior of the staff and residents

in various contexts that they felt qualified as double binds. Some of the contexts they took into account were policy implementation, hierarchy vs. seniority problems, competition for love and power, and inter-agency communications. It was stressed that the use of double binding communication hindered goal-achievement, especially for clients in all spheres. Hence, training procedures were outlined to promote the greater use of clear and consistent communications in the interests of smooth functioning of the institutions concerned, and in the interests of facilitating greater client autonomy and re-entry into the mainstream. Such implications have to be taken to be speculative, for although the authors provide many good examples of observed potential double binds, they do not present the actual responses to such messages or the specific reasons for making the interpretations they did. The use of double binds within an institutional setting such as this can be especially informative, but studies of it have to be more rigorous, and provide a more complete set of information so that interpretations do not appear as speculative leaps.

Double Bind as Created by Experimental Instructions

Schreiber (1970) used normal college-students in a statistics course in an experimental study in which several tasks were assigned. These included TAT stories, an essay on statistics, and a visual discrimination task. The control group was given a routine set of instructions. In one

experimental condition, the instructions on selected tasks emphasizing the significance of performance on particular tasks for their overall insight, originality and diagnosis of serious underlying psychological problems. In another experimental condition, these instructions were repeated. In addition it was said that the task was simple and that the subjects should have no difficulty in completing them in the five minutes allotted. This was the double bind condition, based on Sluzki et al's (1967) definition of the double bind as transactional disqualification. Communicational disruption as measured by type/token ratio and the cloze procedure was found in the double bind condition only for the essay-writing task. Abeles (1976) has considered this to be an unsatisfactory conception of the double bind, and more a study of anxiety-arousal from evaluation apprehension. This seems a most appropriate distinction to have made. The investigator seems to have demonstrated a misunderstanding of the double bind, and has created an experimental situation where in addition to the generation of evaluation apprehension, a verbal contradiction has been made, rather than the more subtle incongruence (verbal/non-verbal) considered part of the double bind phenomenon.

Melowsky (1978) studied 40 college students, classified as either high or low on internal-external locus of control scale. The subjects were advised that the aim of the experiment was to see how psychology students rated a psychotherapist and a patient from a taped message. The

subjects were asked to rate the therapist from the tape. Thereafter, half of them were placed in double binds containing conflicting verbal and non-verbal injunctions. They then re-reviewed the tape and re-rated the therapist. Significant differences in response-times were found.

Internals reviewed the tape more often than externals. The Internals also had a greater amount of rating changes than the externals. In addition, those receiving the double bind information made more rating changes, showed higher self-reported anxiety, took longer to respond, and listened to the tape more frequently, than did the control group. It was concluded that the results supported the double bind theory, and that internals were more affected by double binding situations than externals. This is a study which is exceptional in its exploration of the double bind in some depth with a normal population, hence its information is valuable.

Double Bind as Punishment and Contradiction

Smith (1976) studied the double bind by breaking it into its component parts of punishment and contradictory material, and administered it to 4 groups of 39 female college sophomores each. There were two punishment conditions, 76 % variable interval white noise and no punishment; and two levels of stimuli material, contradictory and non-contradictory. These four factors were manipulated in a 2 x 2 factorial design over three levels of trait-anxiety, as measured by the Taylor Manifest Anxiety Scale three weeks prior to the experiment. The

criterion measure was change in anxiety as studied by the Mahl Speech Index, State-Trait Anxiety Inventory, Multiple Affective Adjective Check-List, 8 parallel form anxiety batteries and a modified version of the Taylor Manifest Anxiety Scale. These five tests were administered immediately before and after the 2-hour stimulus presentation. The interaction of the two components, that is the full double bind condition was significant. The group receiving both punishment and contradictory material experienced greatest amounts of anxiety compared to the other groups. Abeles (1976) has referred to this study as a reasonable operationalization, and one which offers much hope. Her only criticism has been that there is an absence of invalidation occurring in an important relationship. This can only be done in the experimental setting by novel and creative methods. Moreover, results like these obtained in a relationship that is non-vital, can allow us to inductively propose that greater and more exaggerated anxiety can only be expected if these conditions occurred in a vital relationship. Within the traditional experimental paradigm, this study was indeed a viable operationalization of the double bind, and gave hope for an empirical career for the concept.

Dush and Brodsky (1981) chose to study 45 male and 55 female undergraduates to replicate Smith's (1976) experiment. The subjects were exposed to two levels of punishment (present and absent) and contradiction. Additional procedures included in the double bind

situation were that the metacommunication regarding the inconsistency and withdrawal from the field were disallowed. Pre-test and post-test anxiety measures, a digit span task, a modified similarities test, and a self-disclosure test were administered. Significant effects were found with respect to digit span. Forward recall was impaired by contradiction, and enhanced by punishment. Contradiction or punishment alone lowered reverse recall. However, in the fully double bound condition which included contradiction and punishment reverse recall was elevated relative to forward recall. This was interpreted as consonant with earlier findings of greater reverse rather than forward recall of digits in schizophrenics. This implied that normals in double binding situations behave similarly to schizophrenics with regard to digit span tasks. Further findings such as this can lend support to the etiological hypothesis of the double bind with respect to schizophrenia.

Double Bind as Verbal/Non-Verbal Inconsistency, and as Verbal Paradoxical Injunctions

Kingsley (1969) set up an experimental task in which 20 pieces of a jigsaw puzzle had to be completed with the help of an experimenter who was overtly helpful and covertly hostile, in the experimental group, and completely helpful in the control group. Good and poor schizophrenic subjects were studied, and experimenters of both sexes were used. Predictions regarding disruption of conceptual functioning and impairment of performance on a visual discrimination task, were partially supported.

Abeles (1976) has stated that Kingsley's experimental situation is not equivalent to the double bind. The covert hostility, by invalidating its earlier referent in the behavior of the experimenter, that is, overt helpfulness, seems to qualify as a paradoxical structure. What is wanting in the study, however, is a normal control group, as well as a vital relationship in the context of which the consistent and inconsistent messages were given. Perhaps it was this latter condition which failed to make the verbal/non-verbal inconsistency fully double binding.

Abeles (1976) studied 20 male hospitalized schizophrenics, 20 male hospitalized alcoholics, and 20 male ward attendants. She divided them into high and low groups on the basis of their scores on the WAIS Similarities Test and the Schipley-Hartford Abstract Reasoning Test. Four potentially double binding items with relationship content that posed paradoxical alternatives were presented. The situation was intensified by the context of role and status differences, and the evaluation apprehension created by the differences between the experimenter and the subjects in the hospital. The response to the items failed to differentiate between the diagnostic groups. However, the following trends were seen. The schizophrenics showed greater incongruent and entangled responses, the alcoholics greater disengagement of attitude, and the normals and schizophrenics often a literal, concrete and superficial approach. Abeles commented that perhaps her instrument was

too literal or explicit. In addition, she pointed out the extremely short length of the task as being responsible for the lack of differentiation. This was perhaps critical, for four items are generally insufficient for any kind of adequate discrimination.

Guindon (1971) developed two types of double binding items. One type he called the channel-discrepant type (verbal/non-verbal inconsistency) and another type which he called paradoxical injunction (verbal only). He studied 20 undergraduate women whose MMPI profiles reflected schizoid, schizoid-obsessive-compulsive, obsessive-compulsive and optimal functioning. He used dependent measures of reaction-time, and ratings of the degree of congruence between voice and content, sincerity and four other semantic differential scales. The obsessive-compulsive schizoid subjects had the most difficulty of all groups with both types of message. It was concluded that there was greater difficulty among schizophrenic rather than non-schizophrenic subjects in interpreting double binding messages. It was noted, however, that it was not clear whether the reason for this difference was due to early childhood experience or a predisposition to confuse confusing items. Abeles (1976) has commended such cautious and considered conclusions. Guindon has also argued that message-channel discrepancy must be included in formulations of the double bind as the paradoxical injunction requires perhaps too great a verbal sophistication to be always applicable. The argument seems

to be a correct one but for the wrong reasons. Channel-discrepancy should be included in double bind formulations not because they are simpler than paradoxical injunctions, but because they are examples of precisely the type of paradox the original double bind authors specified. This type of paradox represents an invalidation of the referents of a particular communication by itself, or in other words, the invalidation of the verbal component by the non-verbal component, and vice versa.

It needs to be stressed in the case of this study, as in the case of Kingsley's, that inconsistency between verbal and non-verbal behavior is itself part of the double bind and not the double bind. The latter occurs only when inconsistency is responded to by lack of metacommunication, counter-evasion, and so on. Guindon's use of ratings as dependent measures represents the subjects' evaluations of inconsistent messages, not spontaneous responses of word or deed that could be classified either as double bound or not. Reaction-time as the other dependent measure is an indication of the complexity of task, and provides supportive evidence in terms of the cognitive complexity demanded by inconsistent communications. It can serve the same purpose perhaps for double binding interactions, if necessary. The vital missing component in the study is an example of a double bound interaction.

However, inconsistency between verbal and non-verbal information, conveyed by the primary negative and secondary injunctions is at the heart of the double bind formulation. It is this inconsistency occurring

across levels of communication that made it of so subtle a nature that it was argued (Weakland, 1960) that it was more difficult to comment on, and easier to conceal, inhibit or deny, thus leading to the double bind. It will hence be useful and important to review the existing empirical data on verbal/non-verbal inconsistency itself.

Verbal/non-verbal inconsistency and psychopathology. Verbal/

Non-verbal inconsistency was studied in terms of its relation to psychopathology in a couple of studies. Beakel and Mehrabian (1969) studied the interactions of disturbed adolescents and their parents. From a pool of 21 videotaped sessions of such families discussing a family problem, three clinical psychologists rated the five least and five most severe cases. These were judged by four men and four women, between the ages of 20-30 years. Judgement of attitude from posture, from verbalization, and global judgements were obtained by rating scales. The hypothesis that greater inconsistency would be found in the communications of parents with more disturbed adolescents was not supported. It was found that they gave more negative messages than parents of less disturbed adolescents. Positive versus negative attitude of parents was thus a better discriminator of degrees of pathology than the frequency of inconsistent messages. The study had the limitation of a very small sample, i.e., one interactional sequence each of ten families, and it did not have a normal control group. This could be an explanation for the obtained results.

Bugental, Love, Kaswan and April (1971) took account of both these factors in their work. They studied the presence of evaluation conflict (approval vs. disapproval, friendliness vs. unfriendliness) between verbal, vocal and visual aspects of communication between parents and normal as well as disturbed children. Twenty families with children between 8-12 years referred by their schools to a Department of Psychology clinic for behavioral/emotional problems were studied. In addition, a matched control group of 10 normal families was studied. All families were videotaped, during a 5-minute free interaction period. Subsequently, 13 pretrained judges rated the communications. A general trend for higher proportion of conflicting messages between parents and disturbed children were found as compared to the control group. Partitioning groups by sex of parent revealed a significant difference. Mothers of disturbed children compared to mothers of normal children produced a much greater proportion of conflicting messages, including conflict between verbal content and facial expression, and verbal content and tone of voice. In addition, disturbed children showed greater aggressiveness than normal controls. This study provided partial support for the double bind hypothesis as the particular kind of inconsistency which is constituted in the double bind and discriminated between normal and clinical parent/child groups.

McCluskey and Albas (1981) studied normal and disturbed male, second, fourth, and sixth graders, in groups of ten each. They were presented audiotaped messages in which there were both consistent (verbal and tonal congruence) and inconsistent (verbal and tonal incongruence) messages. Subjects rated how happy or sad the messages made them feel. More negative reaction was found to inconsistent than consistent messages. Younger boys and disturbed boys reacted more negatively to the inconsistent messages than the older and normal boys. The messages used did not include the visual component, and hence provided a good comparison with studies that did. Once again, by the normal-clinical differences in responses, partial support for the double bind was found.

Verbal inconsistency : some empirical variables. Inconsistent communications other than the type designated as double binds may also be found to be more complex and possibly more stressful than consistent communications. Several studies have explored inconsistencies which are purely of a verbal and linguistic type. Mackay (1966) and Mackay and Bever (1967) have found that inconsistent sentences took longer to be completed than consistent ones in a sentence completion task. And that the length of time depends on the linguistic level (surface structure or deep structure) at which the inconsistency has taken place and the number of inconsistencies in a single sentence. The comprehension of lexical inconsistencies has been found to depend on simultaneous processing, while greater facility with successive processing has been found to aid the comprehension of surface and deep structure inconsistencies (Das, Kirby and Jarman, 1979; Kirby, 1982).

The role of incongruity in cartoon humor was explored by Schultz (1972). It was found that both the identification and resolution of incongruity were important for the appreciation of cartoons by 6th and 7th grade children. In a later study, Schultz and Pilon (1973) found developmental evidence for increasing abilities to identify linguistically complex inconsistencies, with age. Hence, in a group of subjects between the ages of 6 and 15, it was found that phonological inconsistencies were detected before lexical ones, which were in turn detected before surface and deep structure inconsistencies. In a study on the development of the appreciation of verbal jokes, Schultz and Horibe (1974) found 6-year olds appreciating inconsistency itself, and older children (8-12) appreciating inconsistency and its resolution. Since the type of inconsistency dealt with in these studies is not the particular type that the double bind is based on, they will not be discussed in further detail.

Interpreting inconsistency : a developmental framework. The question of how information from various channels of communication, that is verbal and several non-verbal (facial, postural, tonal, etc.) is used in order to identify or code the message has been studied rather extensively within a developmental framework. Studying infants can be very difficult in this regard. However, in a study by Volkmar, Honder and Siegal (1980)

it was found that 12-42 month infants were able to respond quite appropriately to visual and/or auditory messages when these were given singly. When they were given together in an inconsistent manner, auditory information was relied on rather than visual. It remains unclear as to whether this reflected a reliance on the words (verbal channel) or the tone (non-verbal channel) in which they were spoken.

Reilly (in press) in a study of preschoolers found that three-year-olds were able to correctly attribute meaning to positive and negative consistent messages in a mother/child framework. In the case of inconsistent messages, where the verbal and non-verbal information was inconsistent, there were two patterns of response. In the case of messages with a positive verbal message and a negative non-verbal one, there was a reliance on the verbal message in attributing meaning. In the case of the opposite message structure, no clear pattern of reliance was found. Possible psychosocial reasons for this were discussed. In a pilot study on preschoolers, Sawyers and Roy (unpublished manuscript) fully replicated Reilly's findings. In addition, it was found that inconsistent negative messages took longer to be responded to and resulted in greater muscle tension than consistent negative ones. The same was true of inconsistent positive messages relative to consistent positive ones.

Children between the ages of 6 and 12 have been found to rely on the verbal message over the non-verbal, in interpreting inconsistent messages in several studies (Dimitrovsky, 1964; Rosenthal, Hall, Dimatteo, Rogers

and Archer, 1979; Soloman and Yeager, 1969; Woolfolk, Woolfolk and Garlinsky, 1977). This age period coincides with the expected age for perceptual centration during the concrete-operational stage of development (Piaget, 1963). The dependence on verbal and literal information in the face of inconsistency has been attributed to the inability to decenter from one channel to another in a task requiring simultaneous processing (Volkmar and Siegal, 1982). This does not explain, however, why the particular channel focussed on should be verbal and not non-verbal.

Adolescents have been found to shift from a reliance on verbal information to nonverbal information (Depaulo and Rosenthal, 1978; Blanck, Rosenthal, Snodgrass, Depaulo, and Zuckerman, 1982). The Piagetian theory of cognitive development can be used in interpretation here as well. The shift to the formal-operational stage may be said to allow the handling and use of increasingly abstract information, as non-verbal information is relative to verbal. These findings are in keeping with the findings on adults (Mehrabian and Weiner, 1967; Mehrabian and Ferris, 1967; Soloman and Ali, 1972; Depaulo and Rosenthal, 1978; 1979; Zuckerman, Blanck, Depaulo and Rosenthal, 1980; Blanck et al, 1982). There is hence a developmental trend of moving from a possible reliance on non-verbal cues in infancy, or the pre-language stage, to verbal cues in childhood, and to non-verbal cues again in adolescence and adulthood, in attributing meaning to inconsistent communications. It has been said that with the increasing sophistication of information processing with age, the ability to use non-verbal information increases (Pascal-Leone, 1970; Case, 1978; Depaulo and Rosenthal, 1978).

Interpreting inconsistency : a normal and clinical comparison. This developmental issue has not been extensively studied in the context of normal and disturbed subjects. One of the earlier studies was done by Loeff (1966). Twenty-four "happy" and twenty-four "angry" statements which were varied in tone in one of three ways : neutral, appropriate, and conflicting, were used. They were shown to normal, delinquent and reactive schizophrenic adolescent girls. All three groups were able to distinguish the inconsistent messages from the consistent ones. In terms of focus, the normal group was found to rely more on the verbal message, and the pathological groups on the tonal quality or the non-verbal message. This has been acknowledged as providing contradictory evidence relative to that which could be deduced from the double bind formulation (Schuham, 1967; Vetter, 1969; Olson, 1972; Abeles, 1976). The findings are puzzling indeed for all previously cited work has shown evidence for a non-verbal reliance in inconsistent communications in normal adolescents and adults.

A methodological issue seems questionable in this study. The distinction between neutral and conflicting tones accompanying verbal statements is ambiguous. A "neutral" tone may be inconsistent too, though perhaps in a more subtle way relative to the "conflicting" one. The rationale for this distinction remains unclear.

Reilly and Muzekari (1979) investigated the responses of normal adults, disturbed adults, normal children and disturbed children to inconsistent messages. An inconsistent message was one in which the

verbal statement contradicted non-verbal features. Ten normal male adults were selected (mean age 30); 10 chronic male schizophrenics (mean age 39), 10 normal male children (mean age 8), and 10 disturbed male children (mean age = 8), were studied. Each of the forty subjects was presented with 5 inconsistent positive and 5 inconsistent negative messages. Following this each marked his response in a pictorial scale ranging from love to hate over 7 points. An interview focussing on a general reaction to inconsistent messages was also done. Significant differences were found in response to inconsistent negative and inconsistent positive messages. Significant interactions were also found between positive and negative messages and between child vs. adult, and normal vs. disturbed groups. Normal adults were mainly influenced by the non-verbal components of inconsistent messages, while disturbed adults, and normal and disturbed children relied mainly on the verbal message. The findings were as expected from most earlier studies for normal adults. The responses of normal and disturbed children were explained in terms of the Piagetian stage of concrete operational development. The responses of the disturbed adults were explained in terms of developmental regression. The main detraction from the study is the absence of consistent messages against which the responses to the inconsistent ones could be compared across the variety of sub-samples. However, it provided a good starting point for developmental inquiry across normal and clinical subjects on the issue.

Reilly and Muzekari (personal communication, January 1985) have since studied in groups of 10 each, normal and disturbed 7-9 year olds, normal and disturbed 10-12 year olds, normal and disturbed 13-15 year olds, and normal and disturbed 17-53 year olds. The 10 inconsistent messages developed by Reilly and Muzekari (1979) were used. In addition, 10 consistent ones were developed and included. Subjects were asked to rate the feelings of the woman in the tape towards a person she was speaking to (who was not in view). There were no significant differences in response to consistent messages across age-groups. However, with inconsistent messages, younger normal children showed a greater reliance on the verbal part of the message. With increasing age in the normal groups there was a reliance on the non-verbal part of the message. In the disturbed groups, regardless of age there was a greater reliance on the verbal part of the message, much like younger children. It was speculated that this could be attributed to hampered development.

A component that has been missing in all these studies, but which could be profitably included in the presentation of inconsistent and consistent communications in an intimate context. This was done by Reilly (in press) in her still photograph and audiotape presentations of inconsistent and consistent messages within a mother/child framework to normal preschoolers. But this framework has not been used for comparing clinical and normal groups. It would be important to do so for it would allow a more complete operationalization of a potential double bind.

Summary

The original formulation of the double bind was made in the context of schizophrenia, and as an etiological factor in schizophrenia. As a result there was immediate research interest in ascertaining the validity of the latter claim. None of the studies conducted, however, were of a longitudinal nature, and so were not really able to address the possible cause-effect relationship between double binds and schizophrenia. The empirical confirmation of the claim that double binds are a necessary, though not sufficient part of the etiology of schizophrenia has thus not occurred.

However, several observational studies have differentiated between schizophrenics and non-schizophrenics on the basis of double binding family interactions. These include Beavers et al (1965); Berger (1965) and Sojit (1969, 1971). Similar differentiations have been made on the basis of double binding family interactions between normals and more general disturbed populations (Bugental, Love, Kaswan & April, 1971; McCluskey and Albas, 1981); between physically abusive mothers and their children and non-abusive mothers and their children (Givens, 1978); and between single-parent and dual-parent families (Gooblar, 1978). Double binding sequences have been observed in staff interactions in a psychiatric halfway house (Markowitz and Nitzberg, 1982); and in the family interactions of emotionally disturbed children which in the process of therapy were significantly reduced (Blotchky et al, 1980).

Laboratory analogues of the double bind have in some cases provided partial support for the double bind theory (Schreiber, 1970; Guindon, 1971; Smith, 1976; Dush and Brodsky, 1981). In other cases they have failed to find support for the double bind theory (Ciotola, 1961; Potash, 1965; Phillips, 1970; Abeles, 1976). The overriding problem with these laboratory studies has been, however, their inability to include in each case, one or more of the necessary elements of the double bind. The focus in many cases has been on the primary negative and secondary injunctions, to the neglect of many of the others.

Another general problem with studies on the double bind has been the lack of appropriate control groups in many cases (Weakland and Fry, 1962; Kingsley, 1969; Phillips, 1970; Blotchky et al, 1982). This has disallowed the normal/clinical comparison in these cases, which is essential to empirically establishing the hypothesized dysfunctional nature of the double bind.

Moreover, there has been a strong anti-empirical approach to the evaluation and consideration of the double bind by many including Bateson (1966, 1970) himself. He has spoken of highly abstract theories being not particularly amenable to empirical test, and hence being self-validating. It has also been spoken of as a language, not a theory, which hence cannot be tested, as languages cannot be (Abeles, 1976). Consequently, its clinical applications have been encouraged, and have proceeded while its empirical investigations have been seen as a "device for avoiding the perception of pattern" (Bateson, 1978, p. 42), and have lagged behind. Proofs at the conceptual level have been asked for instead (Sluzki and Ransom, 1976).

This is a troubling lag, for empirical study and theoretical progress are in fact inseparable (Lakatos and Musgrave, 1970). If something about human interactions is deduced or induced, for it to be taken as scientifically valid, it has to stand up to the test of systematic empirical observations. A theory without testability may either find the scientific community lose interest in it or it must be reformulated to increase testability (Popper, 1972). In the case of subtle and elusive concepts such as the double bind, unusual imagination, care, and ingenuity are called for in translating its various components into operational terms. It poses a greater challenge than many other subjects to the experimenter, who as Schuham (1967, p. 415) said, "believes in the validity of the double bind hypothesis ... (and) ... cannot expect others to accept it on the basis of clinical evidence alone it". Its wide intuitive appeal is enticing and encouraging, but not sufficient for the inquiring mind to put it to rest. In the end, a concept without clear, consistently identifiable, replicable, and verifiable components is of questionable value by the yardstick of commonsense, let alone science.

The Present Study : Rationale and Research Questions

With the exception of the specific question of verbal vs. non-verbal focus in inconsistent communications, the role of such inconsistency in normal communications and normal development has not been thoroughly investigated. This is an unfortunate neglect, for such study besides

being an important base-line for comparing clinical groups, would provide an opportunity to investigate the question of whether double binds are necessarily pathogenic. Theoretically, this question remained undecided in the minds of the original authors, and besides having applied it to clearly non-pathological contexts such as play and humor, Bateson in his later days commented as follows : " If this pathology can be warded off or resisted, the total experience may promote creativity" (1978, p. 60).

The proposed study was not developmental in scope. However, within the confines of an often unstable stage of development, adolescence, the empirical variables, cognitive and emotional, of consistent and inconsistent messages will be studied, in normal and clinical groups in the first phase. With the findings of studies such as Bugental, Love, Kaswan & April (1971) and McCluskey and Albas (1981), where normal and disturbed populations were distinguished by their frequencies of inconsistent communication, and their appraisal of them, it was felt that finer, differentiation by cognitive and emotional variables would increase our understanding of the issue.

The cognitive variable that was studied was reaction-time (RT). It is a function of stimulus and organismic factors, and represents the sense-organ time, brain-time, nerve-time, and muscle-time. Hence, it is an index of the complexity of the inner process required to respond to a particular stimulus. The longer the RT, the more complex the process (Woodworth and Schlosberg, 1954). It serves as a response measure that will be compared across type of message (inconsistent and consistent) and group membership (normal and clinical). Ciotola (1961) used the measure

in his study on the double bind without finding it to differentiate between type of group or message. His design however was flawed by the lack of provision for all necessary control conditions within the framework of his operationalization, as discussed earlier. Melowsky (1978) used it profitably to distinguish between type of task (double binding and non-double binding).

The emotional variable studied was stress. It was measured in two ways, through the heart-rate response and through non-verbal behavioral responses. Anxiety as a variable has been used in previous studies and has been found to be a useful discriminator between double binding and non-double binding tasks in a normal group (Smith, 1976; Melowsky, 1978). In Ciotola's (1961) study, which was methodologically flawed, it failed to distinguish between group or task. All these studies use self-reported measures of anxiety which have their own problems related to idiosyncrasy of perception and social desirability. Psychophysiological measures have been found to be effective indicators of stress (Lennart, 1972). In a pilot study for this project, Sawyers and Roy (unpublished manuscript) used a psychophysiological measure of anxiety which prevents such problems. The measure used was one of muscle tension, as it was readily available, and it allowed the type of differentiation that was being sought. It also yielded very large standard deviations, however.

It was thus decided to move to the most widely used autonomic measure of stress, the heart-rate (Master, 1979). Heart-rate rise has been found in response to emotionally stressful stimuli (Schiffer, 1978; Pasternac, 1980); and in psychiatric patients with depression and anxiety

(Forbes and Chaney, 1980). The rise in heart rate in response to emotionally stressful stimuli has been interpreted as a defensive or startle response. It is characterized by a catabolic sympathetic dominance in the autonomic nervous system (Carruthers, 1979). Some researchers have debated though that it is due to the moderating action of the vagus nerve, whose rapid action can better explain the rapid heart rate increase than can the slow responses of the sympathetic system (Whitehorn, Kaufman and Thomas, 1935). Hence a comparison of the heart-rate response as a measure of stress will be made across type of message, and group of membership.

The second measure of stress was a rather unusual one. It was a comparison across type of message and group of membership of the frequency of arm and leg movements to the messages. In the pilot study (Sawyers and Roy, unpublished), these two categories were found to discriminate between inconsistent and consistent, and positive and negative messages. Birdwhistell (1952; 1970) reported slight head nods, eyeblinks, small lip movements, arm and hand movements, thorax thrusts, chin movements and leg and foot movements to be useful indicators and verbal complements of kinetic stress. McGrew (1972) in an ethological study described arm movements to be characteristic of the startle reaction, and leg and foot movements to be characteristic of situations of ambiguity, uncertainty, and feelings of nervousness.

By these various investigations in this first phase, two questions were addressed. These were whether inconsistent messages are experienced as more complex and stressful than consistent ones, and whether this was

more so with clinical than non-clinical groups. Since inconsistency is an essential part of the double bind, and indeed lies at its very heart, this exploration had the aim of determining whether inconsistencies presented repeatedly in a simulated intimate framework can themselves provide the kind of differentiation one could theoretically expect from the complete double bind. If they do then this may indeed have been an expedient experimental method to study double binds. If not then the argument that the whole is greater than the sum of its parts would hold true and demonstrate the need for more complete operationalizations to effectively study the double bind.

In addition, the question of interpreting consistent and inconsistent messages was studied between clinical and non-clinical adolescents. The messages were presented for the first time in the study of this question in a format that represents mother-child interaction in keeping with the double bind formulation. The question whether meaning is correctly attributed to consistent messages, positive or negative, by both groups was studied. It was also explored whether in interpreting inconsistent positive or negative messages, the clinical group would show a verbal focus, while the non-clinical a non-verbal focus. Developmentally, the latter is more age-appropriate, and the former represents arrested development. Reilly and Muzekari (personal communication, January, 1985) found such a discrimination between normal and hospitalized adolescents. The question of whether a similar differentiation can be made between normal and outpatient clinical adolescents was studied here. It was deemed that the verbal/non-verbal

focus comparison between the two groups would vary with the positive or negative structure of the inconsistency. This was found with normal preschoolers (Reilly, in press; Sawyers and Roy, unpublished manuscript) where there was non-verbal focus in interpreting inconsistent positive messages and no clear focus in interpreting inconsistent negative messages.

In the final phase of the experiment, the subjects were presented with the same consistent and inconsistent messages in the mother-child framework. They were asked to respond to them as if to their mother. Their responses were categorized as double bound or not, i.e. whether they showed evidence of metacommunication or not, and were compared across type of message and group of membership. The question whether more double bound responses were found to inconsistent than to consistent messages, and whether this was more so with the clinical than the normal group, was studied. In this phase, an experimental simulation of the reciprocity condition, so vital to the complete double bind situation was made to determine whether it proves to be a viable method.

CHAPTER 2

Methodology

The Sample

A sample of 20 adolescents (13-19 years) were selected from the Montgomery Clinic of the New River Mental Health Services in Blacksburg. They were an outpatient sample demonstrating emotional or behavioral problems, and they did not have a mentally deficient classification. Demographic data including age, race, sex, educational level and family composition, were collected.

The data on age, race and sex was used to find a matching normal sample (i.e., with no psychiatric history). This group was chosen by contacting some adolescents in the Middle and High Schools in the Blacksburg-Christiansburg area, and through them access was found to their interested peers. Both samples contained members ranging from 13 to 19 years in age, and from 7th to 12th grade. Eighty percent of them were white and twenty percent were black; thirty-five percent were male and sixty-five percent were female; and eighty percent came from intact homes and twenty percent from single-parent homes in each sample.

Inpatient samples of adolescents had been sought to provide a third sample. The Roanoke Valley Psychiatric Hospital's adolescent program and the Roanoke Mental Health adolescent program were contacted in this regard. Due to problems of getting parental consent for a residential sample, and a long administrative process to get permission from the institutions themselves, this could not be further pursued.

Instruments

To present the consistent and inconsistent messages, an instrument consisting of eight messages, two of each of the four types : inconsistent positive and inconsistent negative, and consistent positive and consistent negative developed by Reilly (in press) was used. Black and white 8" x 15" photographs of a mother and child interacting were presented simultaneously with audiotaped verbal messages representing the mother's part of the interaction. In the consistent messages, the verbal message, tone of voice, facial expression and gesture of the mother were congruent. In the consistent positive messages the verbal and non-verbal components were positive, and in the consistent negative messages they were both negative. In the inconsistent messages, the verbal and non-verbal components were discrepant. In the inconsistent positive messages, the verbal statements were positive and the non-verbal negative. In the inconsistent negative messages, the verbal statement was negative and the nonverbal positive. The instrument was viewed as a projective measure of consistent and inconsistent mother/child communication.

The inconsistent messages in this instrument presented the partial or potential double bind. They represented the verbal/non-verbal inconsistency brought about by the primary negative injunction and the secondary injunction. The particular structure most commonly used theoretically in this regard, is that of the inconsistent negative message structure, which was compared with the inconsistent positive message structure in this experiment. The messages were presented

projectively in the context of a close relationship, and particularly in the the context of the mother/child interaction, for it has been found to have higher frequencies of double binding messages than others in clinical groups (Bugental et al, 1971; Blotchky et al, 1980). The messages were repeated, i.e. each message type was presented twice during the experiment.¹

Reilly (in press) used the unanimous opinions of judges to develop the messages from a message pool thus establishing face validity. In her study of preschoolers, she asked her subjects if they thought the mother was happy or angry with the child. Quite inexplicably, she did not actually compute a reliability measure. In the pilot work by Sawyers and Roy (unpublished manuscript) on preschoolers, a follow-up round was used and the responses were found to be reliable. Moreover, the results fully replicated Reilly's study. In this experiment, the reliability was calculated by the split-half method in that the responses of each subject to half the messages were compared with the responses to the other half. This was done in the following manner. The number of "agreements" in response of "happy/angry" between each of the two messages of the same type, by each person was recorded. The total number of "agreements" was then divided by the number of possible comparisons. A reliability index

1. The application of only one theoretical component of the double bind did not appear to be fully clear. This was the elusive tertiary negative injunction, that forbids escape from the field, which itself remains to be theoretically specified. If there is something inherent in the conflict of the primary negative injunction and the secondary injunction in a close relationship that forbids escape, as Weakland (1960) suggested, then it could have been expected it to operate in this situation. Moreover, there may have been be a certain obligation felt within limits, by a subject who had come for the experiment voluntarily to respond to the experimental tasks. This could have acted to forestall escape in the face of an inconsistent message.

of a minimum of .80 was established as a criterion prior to data collection.

Heart-rate was measured by a compact, portable physiograph made by Lafayette Instrument Co. It yielded hard copies of the Electrocardiogram with the responses to each message delineated by an event-marker.

The reaction-time was recorded from the videotape. It was the time between the end of the presentation of each message and the beginning of the subject's response to it of saying "happy" or "angry".

The nonverbal movement was coded in terms of frequency of occurrence in the time between the beginning of each message and the subject's response to it, for each message. The definitions used for coding the behaviors are as follows :

1) Leg and foot movement : this includes two types (McGrew, 1972) :

a) "partial leg extension without completion of the movement or without making physical contact with anything necessarily; the halted foot is reflexed to the starting position or moved backwards and lowered to the ground";

b) "the trunk is upright and the feet are moved respectively in various patterns, together and apart again, from heel to toe and back, from inside to outside edge of foot, pivoting on heel or toe ..." (p. 75-76).

2) Arm movement : this also includes two types :

a) the forearm is raised to a horizontal position over or in front of the head; the elbow is partially fixed at approximately 90 degrees";

b) the forearm sweep in which "the arm is extended horizontally or

obliquely (hand down), between waist and shoulder level, away from the body; the forearm precedes and the hand is open; the trunk is upright" (McGrew, 1972, p. 90; p.92).

Two trained observers used these definitions to code the behaviors. The experimenter trained the coworkers such that there was a minimum inter-rater reliability of .80. Periodically spot checks were made by the experimenter to ensure that this level of reliability was maintained.

Procedures

The subject was seated in a testing room, and during the brief rapport-formation period, his/her demographic information was obtained. Thereafter, the skin preparation for the EKG recording was done by the experimenter. Two electrodes were placed on the shoulders, and one on each side of the stomach.

The experimenter was seated across the table from the subject, and presented the subject a warm-up task consisting of a large black and white picture of a mother and child interacting along with an accompanying audiotape story about it. After the presentation the subject was asked if the mother was happy or angry with the child.

Then the subject was instructed that he/she would be presented with similar pictures and taped messages and after each presentation, he/she must say whether the mother was happy or angry with the child. The eight messages were then given in one of three random orders, at one minute intervals each, to control for a possible carry-over effect for the heart-rate. Verbal responses were recorded. In addition, the hard copy of

the EKG for the first exposure was obtained. The EKG machine was switched off at this point. The messages were presented a second time, and the subject was asked what about the mother made him/her think that she was happy or angry with the child, and these responses were recorded.

The messages were presented a third time and the subject was asked to respond as he/she would if he/she were the child and it was his/her mother who had given the message. These responses were recorded.

Scoring

The heart-rate was recorded and scored as an average rate per minute, during the time between the beginning of each message and each response of "happy" or "angry". The reaction-time was recorded in seconds. The nonverbal behaviors were scored as absolute frequencies of occurrence during the designated period.

The verbal responses to the messages in the first round reflecting the attribution of meaning to them, were considered in the following way. The response of "happy" was given a score of "1", and the response of "angry" was given a score of "2".

The verbal responses from the second round were used to score the stated verbal/non-verbal focus in the interpretation of the messages. Responses revealing a focus on non-verbal cues (tone of voice, facial expression or physical gesture) were given a score of "1", and responses revealing a focus on verbal cues (the actual verbal statement) was given a score of "2".

Finally, the verbal responses from the third round were categorized

in terms of a double bound response or a non-double bound response. In order to be considered the former, a response had to fall under one of the following categories : "counter disqualification" or "acceptance of disqualification" (Sluzki et al, 1967), or "lack of metacommunicative comment" (Bateson et al, 1956). On the other hand, to be considered a non-double bound response, a response had to fall under the following categories : "overt labelling or comment" (Bateson et al, 1956; Weakland, 1960), "dual response" or "joke about inconsistency" (Weakland, 1960). A double bound response was given a score of "1", and a non-double bound response was given a score of "2". This categorization was made by the experimenter and a trained coder, and a minimum inter-rater reliability of .80 was considered acceptable.

Statistical Analysis

As can be seen in Figure 1, the design used for each of the three sections of the study was a Repeated Measures Design. Three independent variables were used. These were group of membership (clinical/nonclinical), type of message (consistent/inconsistent), and meaning of message (positive/negative), with the latter two repeated across subjects. In the first section of the study, the dependent variables of Reaction-Time, Heart-rate and Non-verbal movement were studied. In the second section, the dependent variables attribution of meaning to messages, and verbal/nonverbal focus in attributing meaning to

messages were studied. In the third section, the dependent variable, double bound/non-double bound response was studied. For each dependent variable, there were three possible main effects on the three independent variables, and four possible interaction effects (group x consistent/inconsistent message; positive/negative message x consistent/inconsistent message; positive/negative message x group; group x consistent/inconsistent message x positive/negative message) that could be considered.

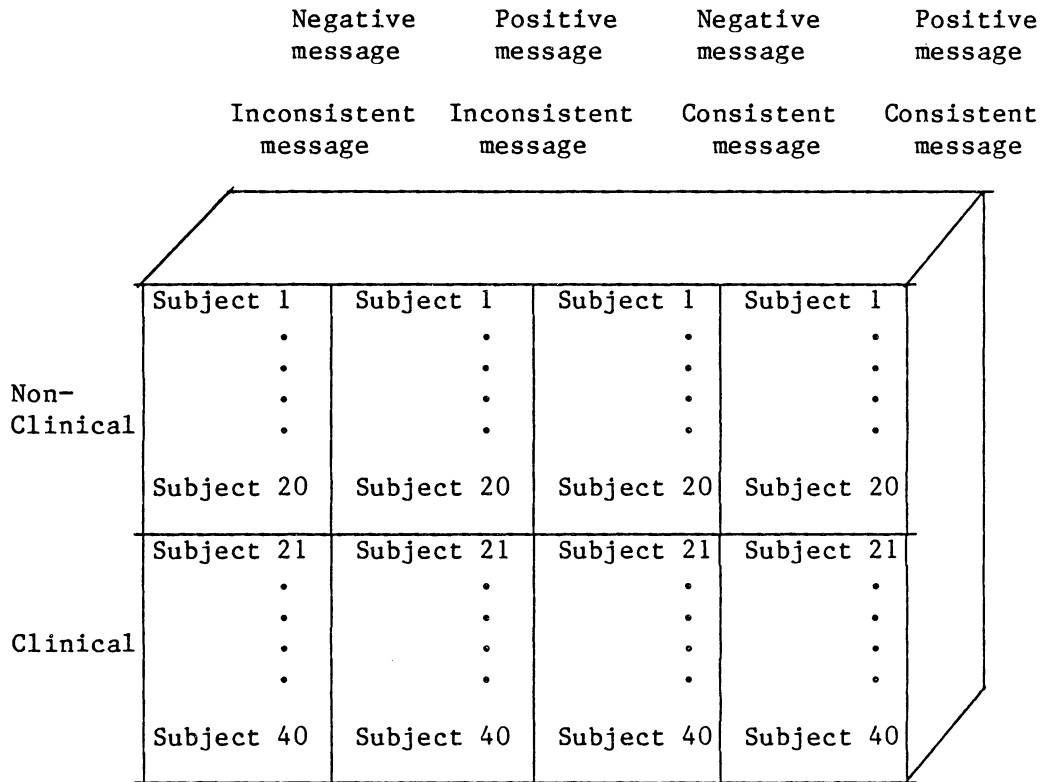


Figure 1. Repeated Measures Design

To address the first question of experienced stress and complexity of consistent vs. inconsistent messages, a 2 x 2 x 2 Repeated Measures MANOVA was conducted. There were two groups (clinical/non-clinical), two message-types (consistent/inconsistent) and two message meanings (positive/negative), with the latter two repeated, and three dependent measures (heart-rate, reaction-time, non-verbal movement). As three Wilkes λ s were significant, the univariate F 's, simple effects and the strength of association (ω^2) were computed.

The null hypotheses addressed were as follows :

There will be no difference in complexity (R. T.) between consistent and inconsistent messages.

There will be no difference in complexity (R. T.) between positive and negative messages.

There will be no difference in complexity (R. T.) between clinical and non-clinical groups.

There will be no difference in stress (heart-rate and non-verbal movement) between consistent and inconsistent messages.

There will be no difference in stress (heart-rate and non-verbal movement) between positive and negative messages.

There will be no difference in stress (heart-rate and non-verbal movements) between clinical and non-clinical groups.

To address the questions of the interpretation of the meaning of messages and the verbal/non-verbal channel of focus in doing so, as it relates to developmental studies, two Repeated Measures Factorial ANOVAs

with alpha divided by two, were conducted to see if there was a difference between clinical and non-clinical groups on consistent (positive and negative) and inconsistent (positive and negative) messages. As significant F's were obtained for main effects and interaction effects, the interactions were plotted, and the simple effects and strength of association (ω^2) were computed.¹

The specific null hypotheses were as follows :

There will be no difference in the attribution of meaning to consistent and inconsistent messages.

There will be no difference in the attribution of meaning to positive and negative messages.

There will be no difference in the attribution of meaning to messages by clinical and non/clinical groups.

There will be no difference in the verbal/non-verbal channel of focus in interpreting consistent and inconsistent messages.

There will be no difference in the verbal/nonverbal channel of focus in interpreting positive and negative messages.

There will be no difference in the verbal/non-verbal channel of focus in interpreting messages between clinical and non/clinical groups.

To address the question of double bound/non-double bound responses made to potential/partial double-binds, a Repeated Measures Factorial ANOVA was conducted. Whether or not there was a difference in the

1. Though at first, the categorical nature of the data would lead one in the direction of chi square analysis, in this case the repeated measures factor made a Repeated Measures Anova analysis more appropriate.

responses to inconsistent and consistent messages by clinical and nonclinical groups was studied. As significant main effects and interaction effects were found, the interactions were plotted, and the simple effects and the strength of association (ω^2) were computed. The specific null hypotheses tested were as follows :

There will be no difference in double bound/non-double bound responses made by clinical and non-clinical groups.

There will be no difference in double bound/non-double bound responses made to inconsistent and consistent messages.

There will be no difference in the double bound/non-double bound responses made to positive and negative messages.

For the Repeated Measures Manova and the Repeated Measures Anovas, the Manova and Anova programs with PROC GLM in SAS were used. The model statement used in each case was based on the requirements for a three-way repeated measures design as specified in Kirk (1982).

CHAPTER 3

Empirical Results

The split-half reliability of Reilly's instrument was calculated. The reliability index was found to be .89. This exceeded the predetermined level of .80, and was therefore considered acceptable.

For the first question, namely, the experienced complexity and stress of consistent vs. inconsistent messages, by clinical and non-clinical groups, three Wilks λ s were significant. These were the Wilks λ for Consistent vs. Inconsistent messages (CIC), $F(3, 36) = 26.10$, $p = .0001$; CIC x Positive/Negative message (PN), $F(3, 36) = 8.77$, $p = .0002$; and Group x PN x CIC, $F(3, 36) = 3.03$, $p = .0417$.

The univariate tests revealed a significant main effect from CIC with the dependent variable Reaction-Time (RT), $F(1, 38) = 18.69$, $p = .0001$. As Table 1 on the following page indicates, the RT for inconsistent messages ($M = 2.68$) was higher than for consistent messages ($M = 2.11$). The RT scores ranged from 1.1 seconds to 7.5 seconds. In addition, there was a significant interaction for CIC and PN, $F(1, 38) = 8.11$, $p = .0071$. As Figure 2 shows, this was due to inconsistent positive messages taking longer to be reacted to than inconsistent negative ones, whereas no difference was found between consistent message types.

The simple effects revealed a significant effect for CIC with positive messages, $F(1, 38) = 5.27$, $p < .05$, with inconsistent positive messages ($M = 2.94$) taking longer to be reacted to than consistent positive ($M = 2.06$) ones. Moreover, the ω^2 for CIC and CIC x PN were .08 and .02 respectively, i.e. the treatment CIC and the interaction CIC x PN accounted respectively for 8% and 2% of the variance in the dependant variable, RT.

Table 1.

Means (M) and Standard Deviations (SD) for Reaction-Time in seconds

<u>Group</u>	<u>Type of Message</u>							
	<u>Inconsistent Negative</u>		<u>Inconsistent Positive</u>		<u>Consistent Negative</u>		<u>Consistent Positive</u>	
	M	SD	M	SD	M	SD	M	SD
Non-Clinical	2.55	0.89	3.12	1.65	2.05	0.57	2.02	0.42
Clinical	2.35	0.84	2.76	1.14	2.27	0.77	2.11	0.57

Main effect for CIC = $F(1, 38) = 18.69, p = .0001$

Interaction effect for CIC x PN = $F(1, 38) = 8.11, p = .0071$

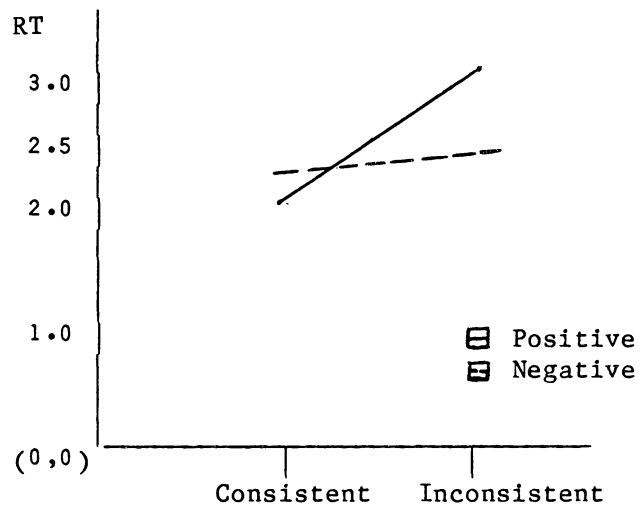


Figure 2. Interaction of CIC and PN on Reaction-Time

With the dependent variable, heart-rate, there was a significant main effect for CIC, $F(1, 38) = 67.56$, $p = .0001$. As Table 2 shows, inconsistent messages gave a higher mean heart-rate ($M = 86.13$) than consistent ones ($M = 80.27$). No other main effect was significant. The range of scores on heart-rate were from 60 beats per minute to 111.15 beats per minute. There was a significant interaction effect for CIC x PN, $F(1, 38) = 7.03$, $p = .0116$. As Figure 3 shows, this was because the difference in heart-rate between consistent negative and inconsistent negative messages was greater than the difference in heart-rate between consistent positive and inconsistent positive messages. There was also a significant interaction effect for Group x CIC x PN, $F(1, 38) = 8.13$, $p = .007$. As Figure 4 shows, this was due to the greater difference in heart-rate between consistent and inconsistent negative messages relative to consistent and inconsistent positive messages found for the clinical but not the non-clinical group.

The simple effects revealed significant effects for CIC with negative messages, $F(1, 38) = 12.18$, $p < .01$, and positive messages, $F(1, 38) = 5.4$, $p < .05$. This shows that the heart-rate was higher for

inconsistent positive messages ($M = 85.5$) than for consistent positive ones ($M = 80.57$), and for inconsistent negative messages ($M = 86.99$) than consistent negative ones ($M = 79.97$).

Moreover, ω^2 for CIC, CIC x PN, and Group x CIC x PN were .09, .003 and .004 respectively, that is, they accounted for 9%, .3% and .4% of the variance in the dependent variable heart-rate.

With the dependent variable, non-verbal movement, a significant main effect was found for CIC, $F(1, 38) = 19.09$, $p = .0001$. As Table 3 indicates, there was more non-verbal movement on responses to inconsistent messages ($M = 2.72$) than consistent ones ($M = 1.71$). The frequencies of non-verbal movements ranged from 0.00 to 16.5. No other main effect was significant. The ω^2 for CIC was .06, that is, treatment CIC accounted for 6% of the variance in the dependent variable, non-verbal movement.

Table 2.

Means (M) and Standard Deviations (SD) for Heart-Rate in beats per minute

<u>Group</u>	<u>Type of Message</u>							
	Inconsistent Negative		Inconsistent Positive		Consistent Negative		Consistent Positive	
	M	SD	M	SD	M	SD	M	SD
Non-Clinical	85.5	10.87	85.16	10.73	80.23	9.11	79.71	9.33
Clinical	88.5	8.93	85.34	8.95	79.71	8.27	81.43	7.49

Main effect for CIC = $F(1, 38) = 67.56, p = .0001$

Interaction effect for CIC x PN = $F(1, 38) = 7.03, p = .0116$

Interaction effect for Group x CIC x PN = $F(1, 38) = 8.13, p = .007.$

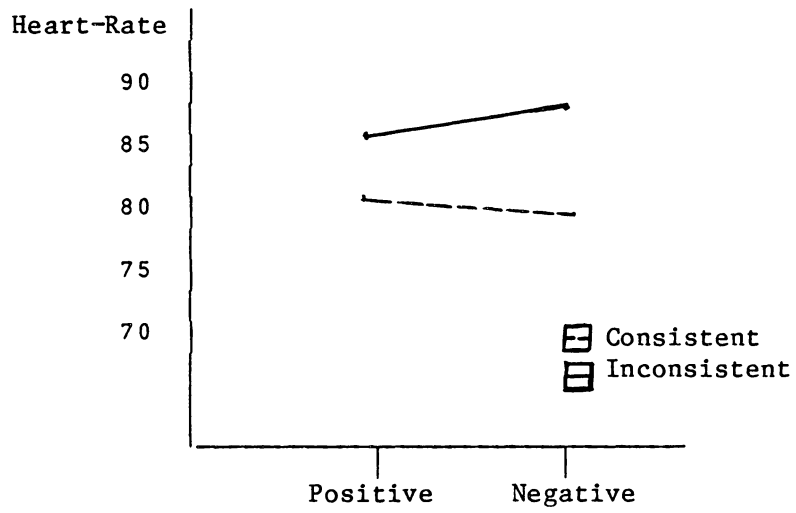


Figure 3. Interaction of CIC and PN on Heart-Rate

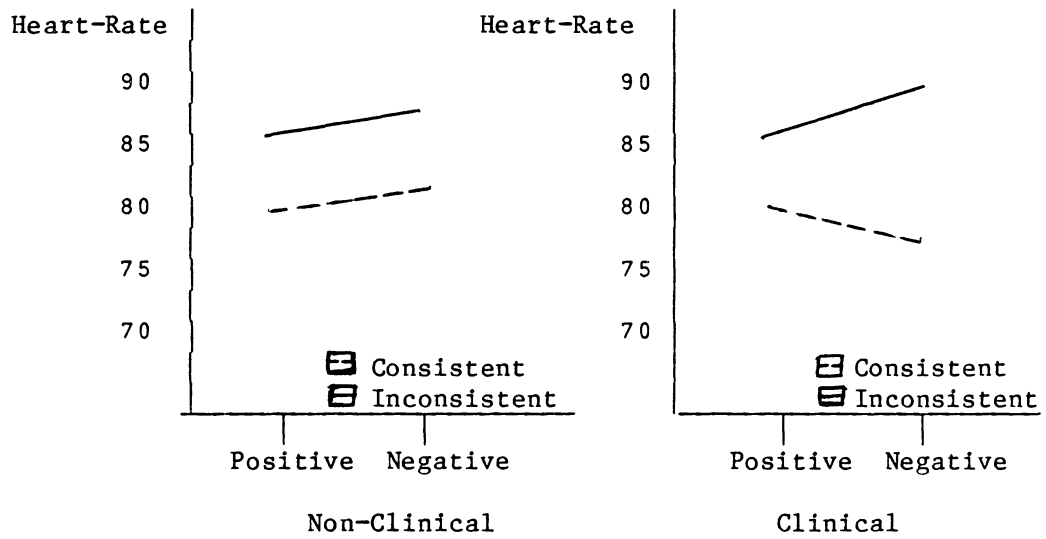


Figure 4. Interaction of Group x CIC x PN on Heart-Rate

Table 3.

Means (M) and Standard Deviations (SD) for Frequencies of Non-Verbal Movement

<u>Group</u>	<u>Type of Message</u>							
	Inconsistent Negative		Inconsistent Positive		Consistent Negative		Consistent Positive	
	M	SD	M	SD	M	SD	M	SD
Non-Clinical	2.25	1.33	2.25	1.93	1.38	1.35	1.70	1.81
Clinical	3.68	3.44	2.70	1.97	1.70	1.13	2.05	1.98

Main effect for CIC = $F(1, 38) = 19.09, p = .0001$

For the first part of the second question, namely the interpretation of the meaning of messages by the two groups, a significant main effect was found for Positive/Negative nature of message (PN), $F(1, 38) = 927.78$, $p = .0001$. No other main effect was significant. As Table 4 indicates, there was general consensus on the response "happy" for positive messages, and "angry" for negative messages. There was a significant interaction for CIC x PN, $F(1, 38) = 23.58$, $p = .0001$. As Figure 5 indicates, there was greater consensus on the 'happy' interpretation for positive messages than there was on the 'angry' interpretation for negative messages.

The simple effects revealed a significant effect for PN with consistent messages, $F(1, 38) = 156.25$, $p < .01$, with consistent positive messages being interpreted uniformly as 'happy' ($M = 1.0$), and consistent negative messages being uniformly interpreted as 'angry' ($M = 2.0$). A significant simple effect was also found for CIC with negative messages, $F(1, 38) = 5.33$, $p < .05$, with consistent negative messages being interpreted uniformly as 'angry' ($M = 2.0$), and inconsistent negative messages being interpreted mostly as 'angry' and sometimes as 'happy' ($M = 1.83$). Moreover, ω^2 for PN, and CIC x PN were .84 and .02, that is, they accounted for 84 % and 2 % of the variance respectively in the dependent variable, the attribution of meaning to messages.

For the latter part of the second question, that is, the verbal/non-verbal focus used in attributing meaning to messages, a significant main effect was obtained for Group, $F(1, 38) = 11.08$, $p = 0.002$. As Table 5 indicates, the non-clinical group showed a greater tendency towards a non-verbal focus ($M = 1.07$), and the clinical group towards a verbal focus ($M = 1.21$). A significant main effect was also found for PN, $F(1, 38) = 12.22$, $p = .0012$. Negative messages were interpreted by more of a reliance on non-verbal information ($M = 1.13$) than positive messages ($M = 1.16$). A significant interaction was found for CIC x PN, $F(1, 38) = 5.59$, $p = .0233$. As Figure 6 indicates, this is because inconsistent and consistent positive messages were interpreted by a reliance on verbal information and consistent and inconsistent negative messages by a reliance on non-verbal information.

The interaction Group x CIC x PN was also found to be significant, $F(1, 38) = 7.08$, $p = .0114$. As Figure 7 indicates, this was because the non-clinical group relied on non-verbal information in interpreting all message types, and the clinical group relied on verbal information in interpreting consistent and inconsistent positive and inconsistent negative messages, and on non-verbal information in interpreting consistent negative messages.

The simple effects revealed significant effects for Group with positive messages, $F(1, 38) = 9.11, p < .01$; and with inconsistent messages, $F(1, 38) = 6.69, p < .01$. In addition, there were significant effects for CIC with negative messages, $F(1, 38) = 37.43, p < .01$; and for PN with consistent messages, $F(1, 38) = 17.97, p < .01$. This indicated that the clinical group ($M = 1.29$) relied more on verbal information in interpreting positive messages relative to the non-clinical group ($M = 1.12$). The clinical group ($M = 1.23$) also relied more on verbal information in interpreting inconsistent messages than the non-clinical group ($M = 1.08$). Moreover, more of a verbal reliance was used in the interpretation of inconsistent negative messages ($M = 1.24$) than consistent negative messages ($M = 1.02$); and in the interpretation of consistent positive messages ($M = 1.14$) than consistent negative messages ($M = 1.02$). Moreover, the ω^2 for Group, PN, CIC x PN, and Group x CIC x PN were .06, .05, .03, and .04, that is, they accounted for 6%, 5%, 3% and 4% respectively of the variance in the dependent variable, verbal/non-verbal focus.

Table 4.

Means (M) and Standard Deviations (SD) for Attribution of
Meaning to Messages

<u>Group</u>	<u>Type of Message</u>							
	<u>Inconsistent Negative</u>		<u>Inconsistent Positive</u>		<u>Consistent Negative</u>		<u>Consistent Positive</u>	
	M	SD	M	SD	M	SD	M	SD
Non- Clinical	1.78	0.30	1.10	0.21	2.00	0.00	1.00	0.00
Clinical	1.87	0.28	1.10	0.21	2.00	0.00	1.00	0.00

Main effect for PN = $F(1,38) = 927.78, p = .0001$

Interaction effect for CIC x PN = $F(1, 38) = 23.58, p = .0001.$

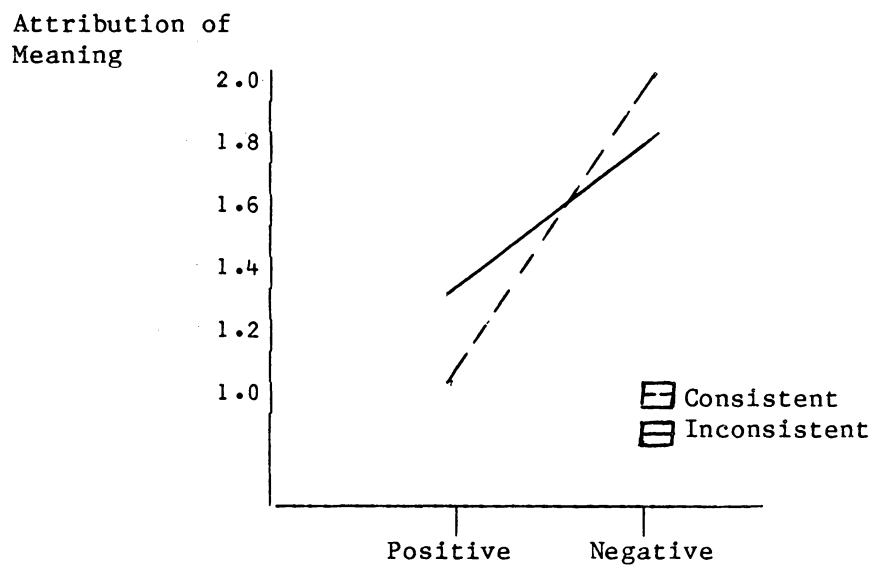


Figure 5. Interaction of CIC and PN on the Attribution of Meaning

Table 5.

Means (M) and Standard Deviations (SD) for Verbal/Non-Verbal Focus.

<u>Group</u>	<u>Type of Message</u>							
	Inconsistent Negative		Inconsistent Positive		Consistent Negative		Consistent Positive	
	M	SD	M	SD	M	SD	M	SD
Non-Clinical	1.25	0.26	1.20	0.25	1.00	0.00	1.38	0.46
Clinical	1.03	0.11	1.13	0.22	1.03	0.11	1.10	0.21

Main effect for Group = $F(1, 38) = 11.08, p = .002$

Main effect for PN = $F(1, 38) = 12.22, p = .0012$

Interaction effect for CIC x PN = $F(1, 38) = 5.59, p = .0233$

Interaction effect for Group x CIC x PN = $F(1, 38) = 7.08,$

$p = .0114.$

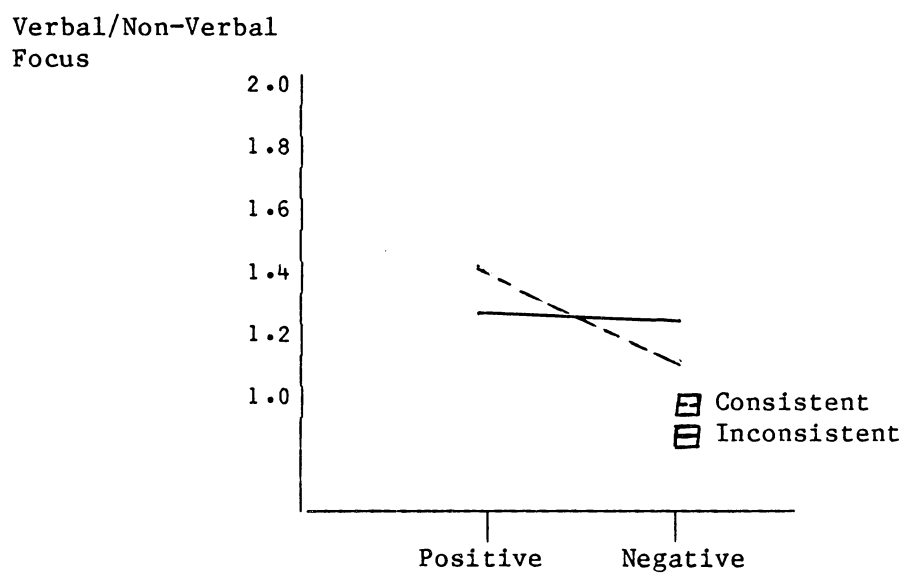


Figure 6. Interaction of CIC and PN on Verbal/Non-Verbal Focus

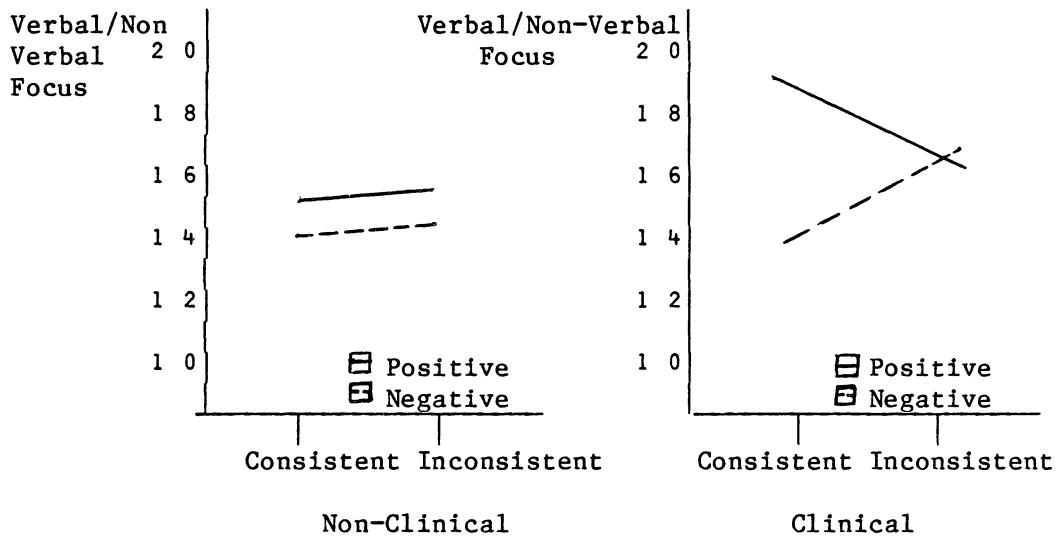


Figure 7. Interaction of Group x CIC x PN on Verbal/Non-Verbal Focus

For the final question, namely, the nature of interactional responses made to consistent and inconsistent messages by clinical and non-clinical groups, an inter-rater reliability of .94 was obtained. A significant main effect was found for Group, $F(1, 38) = 15.16$, $p = .0004$. As Table 6 indicates, the non-clinical group had a stronger tendency to make interactional responses of the non-double bound type ($M = 1.66$) than did the clinical group ($M = 1.54$). A significant main effect was found for CIC, $F(1, 38) = 766.74$, $p = 0.0001$. As Table 6 indicates, there were more double bound responses made to inconsistent than consistent messages. A significant main effect was also found for PN, $F(1, 38) = 14.32$, $p = .0005$. More non-double bound responses were made to positive messages ($M = 1.66$) than to negative messages ($M = 1.54$). There was a significant interaction for Group and CIC, $F(1, 38) = 15.16$, $p = .0004$. As Figure 8 indicates, the clinical group had a stronger tendency than the non-clinical group to make double bound responses to inconsistent than consistent messages. A significant interaction was also found for CIC x PN, $F(1, 38) = 14.32$, $p = .0005$. As Figure 9 indicates, this is because much more frequent double bound responses were made to inconsistent than consistent negative messages relative to inconsistent and consistent positive messages.

The simple effects revealed significant effects for Group with inconsistent messages, $F(1, 38) = 34$, $p < .01$, negative messages, $F(1, 38) = 5.33$, $p < .05$, and positive messages, $F(1, 38) = 13$, $p < .01$, respectively. In addition they revealed significant effects for CIC with negative messages, $F(1, 38) = 555.33$, $p < .01$ and with positive messages, $F(1, 38) = 315.21$, $p < .01$. Lastly, the ω^2 s for Group, CIC, PN, Group x CIC, and CIC x PN were .01, .78, .01, .01, and .01 respectively, that is, they accounted for 1%, 78%, 1%, 1% and 1% of the variance respectively in the dependent variable, the nature of interactional responses.

Table 6.

Means (M) and Standard Deviations (SD) for Interactional Response

<u>Group</u>	<u>Type of Message</u>							
	Inconsistent Negative		Inconsistent Positive		Consistent Negative		Consistent Positive	
	M	SD	M	SD	M	SD	M	SD
Non-Clinical	1.18	0.34	1.45	0.32	2.00	0.00	2.00	0.00
Clinical	1.00	0.00	1.18	0.24	2.00	0.00	2.00	0.00

Main effect for Group = $F(1, 38) = 15.16, p = .0004$

Main effect for CIC = $F(1, 38) = 766.74, p = .0001$

Main effect for PN = $F(1, 38) = 14.32, p = .0005$

Interaction effect for CIC x Group = $F(1, 38) = 15.16, p = .0004$

Interaction effect for CIC x PN = $F(1, 38) = 14.32, p = .0005$

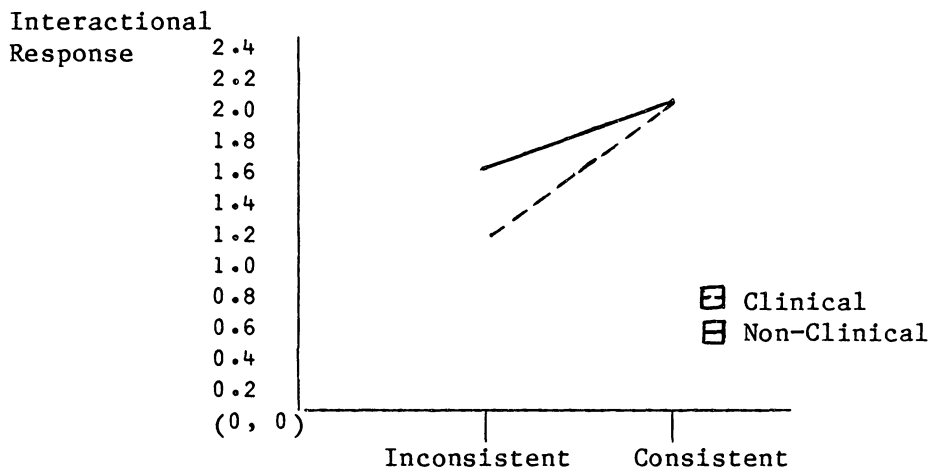


Figure 8. Interaction of Group x CIC on Nature of Interactional Response

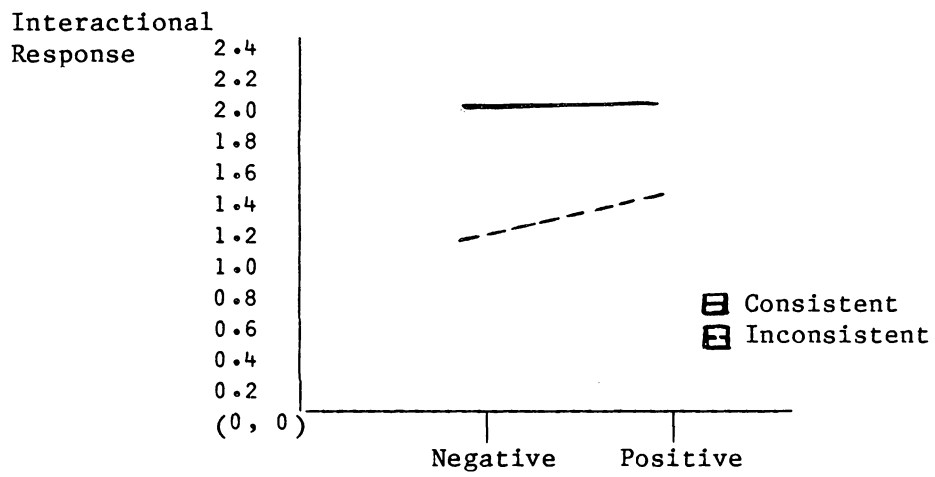


Figure 9. Interaction of CIC x PN on Nature of Interactional Response

CHAPTER 4

Discussion and Conclusion

Discussion

This has been an empirical study on communications in close relationships (specifically, the mother/child relationship), simulated in the experimental setting. It has addressed three empirical questions about a particular type of communication, that is, double binding communication, in such close contexts. The first of these questions has been about the possible complexity and stress that may be experienced in inconsistent communications, which are at the very heart of double binds, relative to consistent communications. This part of the study is hence an exploration of some of the responses of the bodily and biological systems to communications or events in interactional systems.

The first null hypothesis tested in this regard was the following:

There will be no difference in complexity, as measured by Reaction-Time, between consistent and inconsistent messages. This null hypothesis was rejected. Moreover, the finding that RT was significantly longer for inconsistent than for consistent messages is consonant with Melowsky's (1978) findings of higher RT associated with double binding than non-double binding tasks. Moreover, the inconsistent positive

message was experienced as the most complex relative to all other message types.

It may be that the pervasive use of the inconsistent negative message structure as examples in the double bind literature is a reflection of its greater frequency of occurrence in naturalistic observations.

Psychosocial factors have been discussed in connection with this type of message as well. Reilly (in press) stated that this message structure coincided with a social norm associated with women, of denying or toning down their anger in interacting with their children. Bugental, Love and Gianetto (1971) described this type of message as reflecting "the perfidious feminine face," attributable to middle class socialization. In light of this information, it may be speculated that the inconsistent positive message, which essentially involves expressing favor without meaning it in a mother/child context is not a similarly identifiable part of middle class socialization. Being possibly more uncommon than the inconsistent negative structure, it may be understandable that it is experienced as more complex.

A second null hypothesis was as follows :

There will be no difference in stress (heart rate and non-verbal movement) between consistent and inconsistent messages.

This null hypothesis was also rejected. Inconsistent positive and negative messages were found to be more stressful than their corresponding consistent message structure both in terms of the physiological measure of heart-rate, and the measure of specific non-verbal movements of the extremities. This supports the speculations

in the early double bind papers (Bateson et al, 1956; Weakland, 1960) of subjective distress being associated with such communications. These findings complement also those on self-reported measures of anxiety (Smith, 1976; Melowsky, 1978) of higher degrees of anxiety being found with double binding tasks relative to non-double binding tasks. In addition it was found that the difference in heart-rate between inconsistent negative and consistent negative messages was much greater than the difference between inconsistent positive and consistent positive messages. In other words, the inconsistent negative message structure was perceived to be the most stressful of all in terms of heart-rate. Two remaining null hypotheses were as follows :

There will be no difference in complexity (RT) between clinical and non-clinical groups.

There will be no difference in stress (heart rate and non-verbal movement) between clinical and non-clinical groups.

Both these null hypotheses were retained as no differences were found between clinical and non-clinical groups on heart-rate, non-verbal movement or reaction time. Both groups experienced stress and complexity with inconsistent messages relative to consistent ones. However, the second order interaction revealed that the non-clinical group found inconsistent (positive and negative) messages uniformly more stressful than the corresponding consistent ones. The clinical group, however, found inconsistent negative messages to be much more stressful than

consistent negative ones, relative to the difference between inconsistent and consistent positive messages. Hence, the clinical group found the inconsistent negative message structure to be much more stressful than did the non-clinical group. This may be explained by the theoretical expectation that the clinical group has perhaps been exposed to, and felt caught in binds, by such messages more frequently since childhood (Bateson et al, 1956).

The second part of the experiment involved the study of the manner in which meaning is attributed to consistent and inconsistent messages in the first instance. The null hypotheses in this regard were as follows :

There will be no difference in the attribution of meaning to consistent and inconsistent messages.

There will be no difference in the attribution of meaning to positive and negative messages.

There will be no difference in the attribution of meaning to messages by clinical and non-clinical groups.

The second of these three hypotheses was rejected, and the other two were retained. As was expected, there was complete consensus among clinical and non-clinical subjects that the consistent positive messages carried a "happy" meaning, and that this was in direct contrast to the consistent negative messages which carried an "angry" meaning. This indicates that neither group had any difficulty in correctly attributing meaning to consistent messages. This was as expected as neither group had

any identified thought disorders of a severe nature to indicate otherwise. These results were similar to those obtained by Reilly (in press) on normal preschoolers and adults. A first-order interaction revealed that inconsistent positive messages were perceived as 'happy', and hence similar to consistent positive messages most of the time. In contrast, there is much less consensus on the 'angry' response for inconsistent negative messages relative to consistent negative ones.

This indicates that both groups had considerable difference of opinion in taking the mother's verbal anger seriously when she refuted it non-verbally. But this was not so with respect to her praise. Perhaps this too relates back to psychosocial expectations that mothers do not necessarily mean what they say in anger, but that they do when they say it with affection.

On the question of the verbal/non-verbal channel focussed on interpreting messages, the following null hypotheses were tested :

There will be no difference in the verbal/non-verbal channel of focus in interpreting consistent and inconsistent messages.

There will be no difference in the verbal/non-verbal channel of focus in interpreting messages between clinical and non-clinical groups.

There will be no difference in verbal/non-verbal channel of focus in interpreting positive and negative messages.

The first null hypothesis was retained and the second and third were rejected. In general, the non-clinical group tended to focus on non-verbal cues whereas the clinical group relied at times on verbal cues and at times on non-verbal cues. This tendency in the non-clinical adolescents is in keeping with developmentally age-appropriate behavior (Depaulo and Rosenthal, 1978; Blanck et al, 1982) and shows a facility in handling abstract (non-verbal) information in communications characteristic of the formal operational stage of cognitive development. The tendency in the clinical group was more characteristic of a transition phase between a younger stage of development, the concrete-operational stage, and the age-appropriate formal operational stage. These findings are to some extent similar to the differences found in a recent study by Reilly and Muzekari (unpublished) where normal adolescents revealed a reliance on non-verbal cues and residential clinical adolescents revealed a reliance on verbal cues.

More of a reliance on verbal information was also found in the interpretation of positive rather than negative messages. The clinical group tended to rely on verbal information in interpreting all message types except the consistent negative category, for which they relied on non-verbal information. It seems that in making the transition to an age-appropriate non-verbal reliance, messages in the consistent negative category take priority. The non-clinical group, on the other hand, showed

facility in using non-verbal information in all message categories. It is worth noting that the non-clinical group resolved inconsistency by non-verbal reliance, and hence attributed to the inconsistent positive message meanings such as 'sarcasm' or 'indifference'; and to the inconsistent negative message, meanings of 'suppression or toning down of anger'. The clinical group, however, tended to make more verbal/literal interpretations of 'happy' or 'angry' respectively. It may be useful to develop a training program to teach clinical adolescents to use non-verbal information in communications, especially in the categories where they are specifically lagging as much is lost in normal adult communications when this information is not picked up on.

As a final note on the subject, it is worth reiterating Pease's (1970) point that there are indeed many known channels of human communication, that is, various non-verbal channels and the verbal channel. Hence, as he concluded, there are numerous ways in which inconsistent messages may be expressed, that is, in terms of various combinations of these different channels of communication. It may be useful to study verbal/non-verbal inconsistency in terms of these many specific combinations and to assess if they have any differential effects in terms of the way they are perceived, and in terms of their potential for creating double binds.

In this study, the "tone of voice" was the channel most frequently referred to by the subjects, that is, 45% of the time, and was hence considered to be the most important bearer of information of all

channels. This was followed by "facial expression" (28%), "verbal statement" (14%), and "physical gesture" (13%), respectively. Further study on the possible primacy of one or other channel of communication would also be of interest.

In the final part of the experiment, the question of the nature of interactional responses made to consistent and inconsistent messages by clinical and non-clinical groups were studied. The null hypotheses in this regard were as follows :

There will be no difference in the type of interactional response made by clinical and non-clinical groups.

There will be no difference in the type of interactional response made to consistent and inconsistent messages.

There will be no difference in type of interactional response made to positive and negative messages.

All three hypotheses were rejected. It was found that both groups had a tendency to make double bound responses to inconsistent messages and non-double bound responses to consistent messages, but that the clinical group had a much stronger tendency to be double bound by the inconsistent messages than the non-clinical group.

It was also found that many more double bound responses were made to inconsistent negative messages relative to consistent negative ones, and that this difference was significantly greater than that between inconsistent positive and consistent positive messages. Hence the most frequent double bound responses were made to inconsistent negative messages, those that have been singularly discussed in the double bind theory (Bateson et al, 1956).

The association between the group of membership and the type of interactional response, and between Group x CIC interaction and the type of interactional response were fairly weak. However, the association between the consistent/inconsistent nature of message and the type of interactional response was very strong. There may have been some positive bias in this latter estimate because of the categorical nature of the dependent variable. Despite this possibility, it seems that it is the inconsistent messages relative to the consistent ones that are principally associated with double bound responses, and though there are group differences as well, these are not as central to the creation of double binds as is the nature of the message.

Conclusion

One of the principal independent variables investigated in this study was the consistent/inconsistent nature of messages. The various parts of the study showed that it differentiated between scores on most dependent variables. Inconsistent messages (positive and negative) were found to be more stressful than their corresponding consistent messages by adolescents. Significant heart-rate rise and increased movement of the extremities were found with inconsistent positive and negative messages relative to consistent positive and negative ones. Moreover, inconsistent negative messages were found to be the most stressful of

all. In addition, the inconsistent positive message was also found to be the most complex relative to all other message types. It may be speculated that this type of message, wherein favor is verbally shown but not meant, in a mother/child framework, is not socially accepted, and perhaps is not as common relative to the inconsistent negative message structure, wherein disfavor is verbally shown but not meant. For these reasons perhaps the inconsistent positive structure was found to be so complex. In addition, consistent messages (positive/negative) were found to be less complex, and reflected a lower cognitive processing load than inconsistent messages for adolescents.

Meaning was attributed correctly and without hesitation to consistent messages (positive and negative) by adolescents. The meaning attributed to consistent positive and consistent negative messages was significantly different. This was not the case, however, with the corresponding inconsistent messages where there was more of a consensus on the meaning attributed to inconsistent positive and negative messages. In interpreting inconsistent and consistent messages, it was found that consistent and inconsistent positive messages were interpreted by a relatively verbal reliance (that is, on the praising words) and consistent and inconsistent negative messages were interpreted by a relatively non-verbal reliance (that is, on the positive non-verbal cues). So in a mother/child framework, wherever possible the positive cues were focussed on.

The interactional responses, that is, responses the subjects declared they would make in speech or action if their mothers had given the various types of consistent and inconsistent messages to them personally, were quite revealing. More double bound responses were made to inconsistent negative messages relative to consistent negative ones, and to inconsistent positive messages relative to consistent positive ones and the differences in the former set were greater than in the latter. Therefore, the inconsistent messages, and especially inconsistent negative ones, were much more potent in creating double binds.

Hence the inconsistent messages were found to be more stressful, complex, and evocative of interactional responses of the double bound type. This is supportive of the double bind theory. It can thus be said that the empirical differentiations that can be theoretically expected from the complete double bind can be made experimentally and perhaps otherwise, by consistency/inconsistency per se, which is but a part of the double bind.

The clinical and non-clinical adolescents were not found to be different in the stress and complexity they experienced with consistent and inconsistent messages, except for the clinical group finding inconsistent negative messages more stressful than the non-clinical group in terms of heart-rate. This may be a reflection of their being exposed to such messages more frequently as was documented in observations of the interactions of clinical families from which the double bind theory was

deduced (Bateson et al, 1956), and as has been observed subsequently too (Beavers et al, 1965; Berger, 1965; Sojit, 1969, 1971; Bugental, Love, Kaswan & April, 1971; Blotchky et al, 1980; and McCluskey and Albas, 1981). Whether much greater levels of stress and complexity are experienced by severely disturbed adolescents relative to normal ones, is a question worthy of further investigation.

Clinical and non-clinical adolescents interpreted consistent messages accurately and similarly. Both groups showed greater differences of opinion and confusion in attributing meaning to inconsistent messages. In interpreting inconsistent and consistent messages, the normal group showed a reliance on non-verbal information. This showed developmental age-appropriateness in this regard, and the ability to use abstract (non-verbal) information in communications. Mildly/moderately disturbed adolescents, however, showed a developmentally younger verbal/literal focus in interpreting inconsistent (positive and negative) messages and consistent positive messages, and a more age-appropriate non-verbal focus in interpreting consistent negative messages. This showed them to be in a transition phase between facility in using abstract and concrete information in communications.

Finally, clinical and non-clinical adolescents were found to be significantly different in terms of their proposed interactional responses to potential double binds. Both groups showed a greater tendency to make double bound responses to inconsistent

(positive/negative) messages, compared to consistent (positive/negative) ones. However, the tendency to make double bound responses to inconsistent messages was stronger with the clinical group as compared to the non-clinical group. These findings are very supportive of the double bind theory, for it suggests that normal and dysfunctional persons can be differentiated in terms of their propensities to create and generate double binds. It is even more significant that such a differentiation can be made between normal and mildly/moderately dysfunctional subjects.

Thus the normal subjects who were able to metacommunicate about the inconsistency assigned the behavior to the class of inconsistent behavior, and were thus able to offset the double bind many a time (for a fuller discussion refer to Appendix C). The clinical adolescents were not as able to similarly metacommunicate and identify the behavior as a member of its appropriate class most of the time, it would seem, and were double bound. For example, with the inconsistent positive message in which the mother said that a card the child had made for her was nice without looking at it, many non-clinical subjects said that they would tell her that she had not even looked at it, or would ask her to do so before making a statement. Many clinical subjects said that they would be upset and walk away, or go to their rooms, and not say anything about it.

However, it must be noted that the propensity for making double bound responses to inconsistent messages relative to consistent ones was considerably stronger than the propensity of clinical adolescents to do

so relative to non-clinical adolescents. Perhaps a stronger differentiation in this latter regard may be found between non-clinical and severely dysfunctional (residential) adolescents. This may be inductively expected from the results of this experiment and the hypotheses of the double bind theory. Empirical evidence on it would be highly desirable and is warranted.

This study represents as complete an operationalization of double binds as the present state of the theory allows. It stands to refute Pease's (1970) scepticism on the very existence of double binds, and Bateson's (1966; 1970; 1978) and Abeles' (1976) position that double binds were necessarily unamenable to empirical test. It was found in this study that double binds exist, and can be studied in a controlled experimental setting, where besides confirming the fact of their occurrence, they can provide much detailed and useful supportive information. This information as discussed through this chapter serves not only to confirm the validity and astuteness of the early double bind formulations, but can also serve a clinically preventive function by providing empirical basis to discourage the use of inconsistent communications, especially in emotionally significant relationships.

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APPENDIX A

Reilly's Messages

Question #1	Situation	Words	Facial Expression, Tone of Voice and Gesture	Message Type
1	Mother and child sit together on a couch. Child hands mother a homemade card.	What a beautiful card you made for me.	Positive	Consistent
2	Mother and child sit at breakfast table. Child fools with food.	If you don't sit down and eat your breakfast, I'm going to spank you.	Positive	Discrepant
3	Mother washes dishes. Child sits on the floor, banging a pot with a spoon.	Stop that banging.	Negative	Consistent
4	Mother sits on the back stoop. Child hands her a flower.	Thank you for the beautiful flower.	Negative	Discrepant
5	Mother reads a magazine on the couch. Child tries to give her a homemade card.	Oh, what a nice card you made for me.	Negative	Discrepant
6	Mother and child hug.	I love you.	Positive	Consistent
7	Mother and child sit at breakfast table. Child fools with food.	Sit down and eat your breakfast.	Negative	Consistent
8	Mother washes dishes. Child sits on the floor banging a pot with a spoon.	Stop making that noise, you're driving me crazy.	Positive	Discrepant



Message 1



Message 2



Message 3







Message 6



Message 7



APPENDIX B

Event Recording System for Nonverbal Behavior

The ABA Event Recording System to be used for the non-verbal behaviors of each subject.

Message Type

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

A (Arm movement)

L (Leg and foot movement)

APPENDIX C

On the Independence of the Double-Bind Theory from Russell's
Paradox : A Pedantic Note

On the Independence of the Double Bind Theory From

Russell's Paradox: A Pedantic Note

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On the Independence of the Double Bind Theory FromRussell's Paradox: A Pedantic NoteOpening Summary

The theory of Logical Types formulated by Russell to circumvent the logical Paradox which bears his name has been considered central to the theory of the Double Bind. A simple but strict account of Russell's own theory is given, and contrasted with the use made of it by the authors of the Double Bind Theory. While the use of the "class/member distinction," and possibly of the notion of a "hierarchy of types" may be justified, it is argued that Russell's Paradox itself can hardly be applied to the Double Bind theory without straining reason and plausibility. The Double Bind theory can stand on its own without reference to Russell's Paradox.

At the heart of the double bind theory formulated by Bateson, Jackson, Haley and Weakland (2), has been a reference to the Theory of Logical Types formulated by Russell (8, 12) in his work in the philosophy of logic and mathematics. However, twenty years ago, Watzlawick (10) pointed out that there were "very few references to the double bind that deal with what its originators considered the essential concept, that is, the theory of logical types;" and this remains the case today.

This note will argue that a simple but strict examination of Russell's own theory (as it has been commonly understood by philosophers and logicians) shows that, in fact, it per se has little to do with the theory of Bateson et al (2). This is not as bold a statement as it may seem at first because the double bind theory might be considered to have proven its own merits over the years, and can be taken on its own terms quite independently of Russell's theory. On the principle of Occam's Razor, it is probably best to not include reference to the very specialized problems of logic which concerned Russell when discussing the theory of Bateson et al (2) in the fields of psychology and family therapy.

Russell's Paradox: A Simplified Account

In the late 19th and early 20th centuries, the study of logic underwent major changes from the traditional forms which had been almost unchanged since Aristotle. Russell was a pioneer in making that transformation, along with others such as Frege and Peano (6).

One of the significant developments was that a clear distinction was sought to be made between a "class" of objects and a particular object or

a "member" of a class. Where traditionally the famous syllogism would have been of the form:

All humans are mortal,
 Joe is a human,
 Therefore, Joe is a mortal;

the new logic said the same in a more general form:

For all x , $f(x)$ implies $g(x)$;
 It is the case that $f(x)$;
 Therefore, it is the case that $g(x)$;

where $f(x) = 'x \text{ is a human,}'$ and $g(x) = 'x \text{ is a mortal.}'$ Alternatively, the class of all humans is a subclass of all mortal beings: Joe is a member of the class of all humans; therefore, Joe is a member of the class of all mortal beings.

It was while working with this new logic that Russell discovered in 1901 the famous Paradox which bears his name. And it was in trying to circumvent this Paradox that he came to develop the Theory of Logical Types.

Let us call a class of objects a "normal" class if the class does not contain itself as a member. Most classes we would normally talk about are of this kind; for instance, "the class of all family therapists" is clearly not itself a family therapist. However, there are "abnormal" classes too, i.e., ones which do refer to themselves. For instance, we can imagine a catalogue in the form of a book which lists all the books kept in a library; if such a catalogue also lists itself, for it too is a book in the library, then we can call it an abnormal class. Similarly, we can think of the class

of all classes, i.e., the so-called "universal" class, which, by its definition must contain itself as a member too.

The Paradox which Russell discovered was this. Consider the class which consists of all and only normal classes. Let us call it "Russell's Class (4)". Is Russell's class normal or abnormal? If it is normal, then by the definition of a normal class, it must not include itself, but then since it is the class of all normal classes, it must include itself and hence is abnormal! If it is abnormal, then by the definition of an abnormal class, it should be a member of itself, but then since it is the class of only normal classes, it must be normal!

To give a concrete example often given by logicians: Suppose there is a town in which the barber shaves all and only those men who do not shave themselves. Does the barber shave himself? If he does, then he is one of those men who shaves himself and therefore is not shaved by the barber! If he does not, then he is one of those men who does not shave himself, and therefore is shaved by the barber, i.e., himself!

It was in an effort to circumvent this fundamental paradox at the very heart of the new logic that Russell formulated the Theory of Logical Types--making a (somewhat arbitrary) distinction between different "types" or levels of logical abstraction. He proposed a rule that the members of a class are all of one type, while the class itself should be considered to be of a "higher" type--so that "no totality could contain members defined in terms of itself" (8, p. 163). To show the working of this rule using the barber

example, consider there to be a number of towns in each of which the barber shaves all and only those men who do not shave themselves; then consider a barber for the county, whose job it is to shave all and only those town barbers who do not themselves; then consider a barber for the state, whose job it is to shave all and only those county barbers who do not shave themselves, and so on. Each "level" of barber would be of a different "logical type."

As it happens, this way of circumventing the Paradox has been the subject of much discussion and criticism by logicians, on grounds of its seeming arbitrariness (4).

The Use of Russell's Theory by Bateson et al.

In developing a "communications approach" to schizophrenia, and in discussing human and animal communications in general, Bateson et al (2) sought to make an application of Russell's Theory. Their aim was to give a systematic explanation of how messages given and received were classified, and thereby how meanings were attributed to them. In this effort, they seemed to want to put to work three aspects of Russell's theory: the concept of a "class/member distinction;" Russell's Paradox itself; and the concept of a "hierarchy of types."

Several uses of the class/member distinction were offered in the context of communications theory. For example, in the telling of a joke, it was said that all the messages preceding the punch-line may be classified as members of the class of "fantasy," or of "metaphor." But it is the punchline which commonly led to the re-classification of the whole set of messages in the class of "humor" or "joke." By this re-classification, the meaning attributed to the messages is one of funniness rather than one of fantasy or metaphoricalness.

Another (and more important) example was in the context of classifying messages within oneself or from others to oneself. Bateson et al (2) argued that schizophrenics typically showed unusual difficulty in correctly or appropriately classifying messages from others to them; i.e., in understanding a message as it was intended to be understood by the sender. A message of affection might be classified not as a member of the class "affection" but of say, of the class "aggression." This kind of misclassification creates the misunderstanding of intent, meaning, and context of messages, which Bateson et al (2) observed to be quite common in schizophrenia.

Similar errors may occur with messages from oneself, as well as with thoughts, sensations and perceptions within oneself. When an individual repeatedly makes such misclassifications, and so experiences such misunderstandings repeatedly, he or she may become severely constrained in functioning within normally understood systems of communication.

The concept of a "hierarchy" of types was borrowed by Bateson et al (2) from Russell as a convenient extension of the class/member distinction. A particular playful behavior (say, a dog wagging its tail and holding a ball in its mouth, with its eyes smiling) would be a member of the general class called "play." The playful behavior itself is understood to represent the intent of play. Bateson et al (2) held that the class "play" was then of a higher logical type than the particular playful behavior itself.

Another example came from the Pavlovian learning experiments, in which the dog associates the sound of the buzzer with the reward of the food.

When the buzzer sounded, the dog salivated and was rewarded with food. Bateson et al (2) attributed such learning by association to class of "learning by association," with the dog's learning behavior as a member of it. With time and repetition, the dog could learn that salivating was sufficient to obtain the food, and did not have to wait for the buzzer, i.e., it had "learned to learn," which Bateson et al (2) suggested was of a higher type than simple learning by association.

These examples illustrate that the use by Bateson et al (2) of the class/member distinction, and possibly also their use of the grander notion of a "hierarchy of types," may have been a reasonable and legitimate application of concepts in a field different from that in which the concepts had originally occurred. Bateson et al (2) may have been perfectly justified to argue that in the psychology of actual communications, the class/member distinction was often breached and that "... we must expect a pathology to occur in the human organism," when it was breached very frequently: "...this pathology at its extreme will have symptoms whose formal characteristics would lead the pathology to be classified as schizophrenia" (p. 4).

So much is fair enough. But what about Russell's Paradox itself? Did this also find a reasonable application in the theory of Bateson et al (2)?

The concept of the double bind was offered by Bateson et al (2) and was distinctively characterized by certain necessary elements. There were to be two or more persons; repeated experience; a primary negative injunction (commonly verbal) like "Do not do X or I will punish you;" a secondary injunction (commonly nonverbal) which conflicted with this, like "Do not see me as

punishing agent;" and a tertiary negative injunction prohibiting escape from the field. Moreover, when this sequence was learned after enough repetition, almost any particular element of it on its own could lead to distress.

Presumably it was this concept of the double bind that Bateson et al (3) were alluding to when they said that their "particular interest was in the way two or more messages--metamessages in relation to each other--may qualify each other to produce paradoxes of the Russellian Type" (p. 39).

The purpose this pedantic note would be fully served if the reader compared Bateson et al.'s (2, 3) use of Russell's Paradox with the simplified account of Russell's Paradox itself given in the previous section, and agreed that Bateson et al. (2, 3) in fact gave a very strained interpretation indeed of the Paradox--so much so that we would probably be better off when discussing the double bind theory to forget all about Russell's Paradox itself.

Consider one of the original examples given by Bateson et al (2) of a schizophrenic interacting with his or her mother. It is said that a hostile/withdrawing reaction is aroused in the mother by the child's approach. When the child responds to this appropriately, the mother simulates loving behavior in order to deny the earlier hostile/withdrawing reaction. Bateson et al (2) hold that the child's adaptation is prone to be one of mistakenly attributing the mother's second behavior in the class of "real feelings" instead of class of "simulated feelings" in order to support the mother's deception. However, either faulty or correct classification by the child yields him/her inescapable punitive consequences. This eventually is said to lead to a breakdown in the

ability to correctly classify particular messages to their appropriate classes.

Certainly the primary negative injunction (verbal) and the secondary injunction (non-verbal) are inconsistent with each other--with each being considered, if we like, to be a member of a different class. When they are presented at the same time or in quick succession, there is a good sense in which "a paradox" may be said to occur. But it is equally certain that this is not a paradox "of the Russellian type" (3, p. 39) in which a member of a class is confused as the class itself or a class is confused for a member of itself. Russell's rule that "no totality can contain members defined in terms of itself" (8, p. 163) is not violated by the examples of the concept of the double bind given by Bateson et al (2, 3).

To amplify, a person faced with a potentially double binding situation may either metacommunicate about it, classify the behavior as a member of the class of inconsistent behavior and so offset the double bind, or fail to make the appropriate classification (as Bateson et al (2) held) and so be double bound. Going back to the earlier discussion of the schizophrenic's problem of classifying messages correctly, errors can become rampant in a double binding situation. But these are not errors of logical typing in the sense a member is mistaken for a class or vice versa, but rather just the misclassification of members to the appropriate class.

Conclusion

Laing (5) cast brief doubt on the viability of the Theory of Logical Types as a base for the double bind, but did not elaborate further on any

reasons for this. Watzlawick (10, 11) and Abeles (1) argued persuasively that the double bind was a paradox, which held only the illusion of choice. This contention is fully supported in this note, while holding that Russell's Paradox and the paradox represented in the double bind are clearly independent.

It is also worth questioning whether the concept of a hierarchy of types is really useful for classifying communications. While it is essential to classify communications, there seems to be no specific reason for attributing to a class the status of a higher level than a member. It is this notion of a hierarchy which has been seen to be arbitrary in the field of communications (9), as in the field of logic. Moreover, Rabkin (7), in his critique of the double bind, objected to paradoxes in general being broken down into levels.

Perhaps the most useful concept for the classification communications is the class-member distinction which is common to the 20th century logic in general and not the the Theory of Logical Types in particular. By classifying messages as members of one or other class results in the attribution of a particular meaning to it. There may be a large variety of possible classes in human communications, making the task of correct classification both difficult and important. Moreover, classes and members may be seen to vary in terms of both complexity and abstraction rather than hierarchy. Thus, an actual message, which may be a member of a class of casual conversation may be seen as less complex than the class itself; and the attribution of meaning to the actual message as a member of the class of casual conversation, may be seen as more abstract, than the message itself.

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APPENDIX D

Consent Letters



Mental Health Services of the New River Valley

MONTGOMERY CLINIC ,
PHONE

, BLACKSBURG, VIRGINIA 2408C

Director , PH.D

Administrative Office:

RADFORD, VIRGINIA 24141

CLINICS:

Floyd Clinic

Giles Clinic

Montgomery Clinic

Pulaski Clinic

City of Radford

EMERGENCY & RESPITE
SERVICE
Rt. 11, at 740
West of Radford

Dear

I write to ask your permission for your child _____ to participate in a study I am conducting on adolescents, and their responses to different kinds of communications. It will involve looking at some pictures of mothers and children, and listening to an accompanying tape of conversation, and sharing what he/she thought of each segment. Before he/she does this, he/she will be connected to an EKG monitor, so that we can study their heartrate during the experiment. However, this will in no way hurt or harm him/her. We would also prefer to video tape the experiment. This entire process should take about 10-15 minutes. Thereafter, we will informally discuss the experience for a few minutes. The entire time spent by your child will be approximately half an hour. At any point during the experiment however, your child will be free to opt out if they so wish. The experiment will be conducted at Wallace Hall on the VPI campus. The experimental proceedings will be confidential, accessible only to me and two coworkers on the research team. Transportation will be provided if necessary.

I will be pleased to share with you my research conclusions, as I arrive on them, should you so like. For your cooperation I shall be sincerely grateful.

Leena Roy, M.A.

PERMISSION GRANTED

_____ : Signature of Parent

_____ : Signature of Subject

_____ : Witness

_____ : Date

Research Conclusions Requested:

_____ Yes _____ No



Mental Health Services of the New River Valley

MONTGOMERY CLINIC ,
PHONE

, BLACKSBURG, VIRGINIA 24060

Director , PH.D.

Administrative Office:
RADFORD, VIRGINIA 24141

AUTHORIZATION TO RECORD SESSIONS

WITH AUDIO-VISUAL EQUIPMENT

CLINICS:
Floyd Clinic

Giles Clinic

Montgomery Clinic

Pulaski Clinic

City of Radford

EMERGENCY & RESPITE
SERVICE
Rt. 11, at 740
West of Radford

I hereby grant permission to Leena Roy of Mental Health Services of the New River Valley and VPI&SU to record the proceedings of her study concerning _____ using audio visual or audio recording equipment.

The purpose of the recording is to provide necessary data for the completion of the study, and will be used solely for that purpose. That is, after the experiment is conducted, the necessary information will be coded and collected from the tapes. In order to maintain the confidentiality of subjects, a number will be assigned to go along into each person's data, instead of the name. The tapes will also only be handled by and be accessible to members of this research team (myself and my two coworkers). Once the necessary information is transcribed, the recording will be erased.

This permission to record will expire on _____.

Signature of Subject

Signature of Parent

Witness

Date

**The vita has been removed from
the scanned document**

AN EMPIRICAL STUDY OF THE DOUBLE BIND

by

Leena Roy

Committee Chair : Janet K. Sawyers
Department of Family and Child Development

ABSTRACT

The purpose of this experiment was to empirically study and document the double bind. Twenty outpatient clinical and twenty matched non-clinical adolescents between the ages of 13 and 19 were studied.

Three research questions were investigated. The first was the nature of the bodily responses in terms of cognitive complexity and emotional stress to inconsistent and consistent messages in the context of a close relationship. Cognitive complexity was measured by Reaction-time, and emotional stress by heart-rate and frequency of non-verbal movement (arm, leg and foot). The consistent and inconsistent messages were presented by the instrument developed by Reilly (in press) consisting of photographs and accompanying taped messages in a mother/child context. The second question studied was the nature of responses (double bound/non-double bound) made by the two groups to inconsistent and consistent messages. Finally, the nature of the attribution of meaning to messages, and the verbal/non-verbal focus used used to do so by both groups, was studied.

It was found that the inconsistent messages were more cognitively

complex for both groups than consistent ones, and that inconsistent positive messages were the most complex of all. Perhaps this finding about inconsistent positive messages may be explained by their less frequent documentation in the double bind literature, and their not being part of the the accepted social norm. Inconsistent messages were also found to be more stressful than consistent messages to both groups. This confirms the speculations in the theory of such communication being associated with subjective distress. In addition, the clinical group was found to make more double bound responses than the non-clinical group, especially in response to inconsistent messages. This is very supportive of the hypotheses of the double bind theory.

Finally, it was found that meaning was correctly and unhesitatingly attributed to consistent messages by both groups. However there was less clarity and consensus in the attribution of meaning to the inconsistent messages by both groups. The non-clinical group tended to focus on non-verbal information in interpreting the messages, which is developmentally age-appropriate. The clinical group tended to focus at times on the non-verbal information, and at other times on the verbal or literal information, indicating a transitional stage between a developmentally younger stage and the age-appropriate stage.