THE SOCIAL IMPACT OF THE RESPONSE
ELICITED BY DEPRESSED BEHAVIOUR

By

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A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY
in
THE FACULTY OF GRADUATE STUDIES
(Clinical Psychology Program, Department of Psychology)

We accept this thesis as conforming
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THE UNIVERSITY OF BRITISH COLUMBIA
February, 1988
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Abstract

A fundamental assumption underlying any interpersonal model of depression is that depressed social behaviour evokes a predictable response from others that in turn contributes to depression. Whereas most recent research has focused on the response that the depressed elicit in others, the present study examined the social impact of that response. The central premise of interpersonal models of depression can be expressed more precisely in terms of interpersonal circumplex complementarity theory: The hostile-submissive quality that has been reported in depressed behaviour evokes a complementary response from others (labelled RD). That response, in turn, evokes more hostility and submissiveness in the depressed, thus perpetuating the cycle. To have clinical relevance, RD would also be expected to induce relatively negative mood. Predictions regarding possible intrapersonal mediating variables were derived from critics and proponents of cognitive models of depression.

After initial mood was assessed, each of 120 female subjects was shown a videotape depicting either RD or a control condition. Each subject then completed questionnaires assessing mood, her perceptions of what she would be like in the company of the person she had watched, and the social impact of the person she had watched. It was predicted that, compared to the control group, a) subjects exposed to RD would show more negative mood, b) they would anticipate that they would be more hostile and submissive in the company of the person they saw, and c) RD would impact as the interpersonal complement of hostility-submission, whether according to the traditional model of interpersonal complementarity or a facet analytic approach. These three predictions were borne out and the facet analytic prediction was supported. Further predictions that preexisting depressive symptoms and cognitions would correlate with mood and social acceptance for experimental group subjects were not supported. Methodological and theoretical implications are discussed.
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Acknowledgements

First and foremost, I would like to acknowledge the contributions of my supervisory committee, Keith S. Dobson (chair), Jerry S. Wiggins, and Demetrios Papageorgis. Their collective support and perspicacity were invaluable throughout the course of this project. Together they comprised the kind of advisory committee that every graduate student hopes for by providing a congenial balance of guidance and autonomy.

Several people and organizations made tangible contributions to specific stages of this project. Financial support was provided by a Social Sciences and Humanities Research Council of Canada doctoral fellowship. Pilot work for an earlier version of this study was made possible with the help of psychiatrist Ron Remick and the Shaughnessy Hospital Affective Disorders Unit, research co-ordinator Harry Leiber and the staff of several Greater Vancouver Community Care Teams, particularly David Brown, and numerous anonymous volunteers. The study’s videotaped stimuli were produced with the help of actors Lynn Schneider and Lori Dungey, and behavioural coders Vivien Escott and Elaine Conway. I am grateful to Wolfgang Linden for the generous loan of VCR equipment that facilitated speedy data collection. The support of the director and staff of the New Westminster Mental Health Centre were invaluable in the later stages of this project. Thanks are also due for the helpful comments and support provided by Keith Dobson’s graduate research team, in alphabetical order: Lori Block, Elsie Cheung, Judith Cutshall, Renee-Louise Franche, and Risha Joffe.

In no small way, the completion of this project has been made possible, and certainly more bearable, by the steadfast support of family and friends. For their tolerance and good humour throughout this preoccupation, I will ever be grateful.
Epidemiological evidence suggests that as many as one in every five people in the general population will suffer an episode of major depression at some point in their lives (Wing & Bebbington, 1985). At this rate, almost everyone is likely to have occasion to interact with someone who is clinically depressed, whether an acquaintance, friend, colleague, or loved one. The nature of such interactions and their role in the etiology and maintenance of depression have been the focus of increasing research interest in the past decade and a half. A social interactional perspective may provide both an alternative and supplementary point of view to other research perspectives in the study of depression.

This chapter will briefly review examples of traditional psychosocial models of depression, then critically examine more recent social interactional models (e.g., Coyne 1976b). In particular, controversies and research questions that have emerged from Coyne's (1976a, 1976b) work will be reviewed. Although Coyne's work has generated considerable research examining the response that the depressed elicit in others (e.g., Coyne, 1976a; Gotlib & Robinson, 1982; Howes, Hokanson, & Loewenstein, 1985), the present research represents the first empirical study of the social impact of that response and concomitant implications regarding its role in maintaining depression. In order to generate precise, testable hypotheses regarding the social
impact of the response elicited by depressed behaviour, it was necessary to augment Coyne’s (1976b) model by predictions derived from other theories. Thus, interpersonal circumplex theory (Carson, 1969; Kiesler, 1983; Wiggins, 1982) and cognitive theory of depression (Beck, 1967, 1974) and its critics (e.g., Coyne, 1982; Coyne & Gotlib, 1983; Youngren & Lewinsohn, 1980) will also be reviewed.

**Traditional Psychosocial Models**

Traditional psychosocial models of depression have tended to reflect a viewpoint that regards depression as the end point of a causal chain of psychosocial antecedents. Antecedents have typically been described in terms of characteristics of the social environment, characteristics of the depressed individual’s social functioning, or their interaction, each of which will be discussed in turn. This is not meant to provide a comprehensive review of this literature, but to provide examples of the types of theories and findings that characterize traditional psychosocial models of depression.

Social environmental research includes studies of life stress events, social support, and Expressed Emotion. Since studies of life stress events and social support (e.g., Brown & Harris, 1978; Costello, 1982; Fiore, Becker & Coppel, 1983; Monroe, Imhoff, Wise, & Harris, 1983) have similar research design and findings, they will be discussed
together. Such studies tend to rely upon retrospective self-report data and have generally found depression to be moderately correlated with stressful life events and low levels of social support (cf. Billings, Cronkite, & Moos, 1983 for review). This evidence suggests that depressed individuals tend to experience a relatively negative social environment, but the literature is inconclusive regarding the importance of such an environment in the etiology and maintenance of depression, since the related research relies upon correlational research design.

Expressed Emotion studies (e.g., Hooley, 1986; Hooley, Orley, & Teasdale, 1986; Vaughn & Leff, 1976) represent another example of social environmental research that focuses on the specific social environment of the family and its role in the re-emergence of depressive symptoms following treatment. Expressed Emotion (EE) refers to the degree to which a patient’s family members make critical remarks or demonstrate emotional overinvolvement in regard to the patient. It is assessed by means of observational ratings of the comments of a family member in a structured interview by a mental health professional. The occurrence of more than 2 or 3 critical remarks by a family member in a one-hour interview (high EE) has been found to reliably predict symptom relapse in patients (Hooley et al., 1986; Vaughn & Leff, 1976). None of the patients in the low EE groups relapsed during 9-month follow-ups. Unfortunately, low EE seems to be relatively rare in the families of
depressed patients. An examination of the data presented by Hooley and her colleagues (Hooley, 1986; Hooley et al., 1986) indicates that only 20 - 24% of their subjects exhibited low EE. In other words, a depressed patient seems to have almost an 80% chance of experiencing a hostile and critical social environment within the family. Although Hooley correctly points out that the direction of causality cannot be determined from these studies, we may conclude that a hostile family environment is common for depressed patients and bears some relationship to the recurrence of depression.

The social functioning of the depressed represents the second traditional area of research related to psychosocial antecedents of depression. Such research includes studies of social role performance (e.g., Bothwell & Weissman, 1977; Dobson, 1987; Weissman & Paykel, 1974), interpersonal problem solving skills (Gotlib & Arsanow, 1979; Zemore & Dell, 1983), and external and self-limiting sources of meaning and gratification (Arieti & Bemporad, 1980). Weissman, Paykel, and their colleagues (Paykel & Weissman, 1973; Paykel, Weissman, Prusoff, & Tonks, 1971; Weissman & Paykel, 1974; Weissman, Paykel, Seigel, & Klerman, 1971) have studied the social role performance and social adjustment of depressed women. They described social adjustment as an individual’s ability to perform social roles (Weissman & Paykel, 1974). They found that, in comparison with nondepressed women, depressed women were
more likely to report impaired work performance, interpersonal friction, inhibited communication, submissive dependency, restricted social contacts outside the home accompanied by a greater attachment to extended family, and anxious rumination (Paykel et al., 1971). Subsequent research (Bothwell & Weissman, 1977; Dobson, 1987) has found that formerly depressed women show less severe deficits in social functioning than do depressed women.

Interpersonal problem solving skills represent a more specific aspect of social functioning. Gotlib and Arsanow (1979) found that depressed subjects generated fewer and less relevant possible solutions to hypothetical interpersonal problems than did nondepressed subjects. Similarly, Zemore and Dell (1983) found that subjects who described themselves as depression-prone showed comparable skills deficits regardless of their current level of depressive symptoms.

Arieti and Bemporad (1980) have proposed a model of depression from a psychodynamic perspective that has psychosocial implications. Based upon clinical case studies, they concluded that depression is a function of self-limited sources of meaning and gratification. They suggested that people who rely heavily upon external supports to maintain self esteem are especially vulnerable to depression. Arieti and Bemporad identified a subtype of depression wherein a single dominant relationship represents the restricted and external source of meaning. In such
instances, the depressed individual is hypothesized to seek rewards and satisfaction vicariously through the "dominant other" rather that by means of his or her own efforts.

Taken together, studies of social functioning suggest that the depressed exhibit interpersonal skills and attitudes that are both limited and limiting. Nevertheless, the extent to which such deficits are a product of or contribute to depression remains unclear.

In the traditional approach to the study of social factors and depression, the term interaction has been generally used in an analysis of variance sense, in that it refers to the study of the outcome when selected environmental and individual characteristics co-occur. Examples of such research would include studies of the interaction of stressful life events with depressive self-schemas (Hammen, Marks, Mayol, & deMayo, 1985) and with coping style (e.g., Billings, Cronkite, & Moos, 1983; Billings & Moos, 1981, 1982, 1984; Coyne, Aldwin, & Lazarus, 1981; Folkman & Lazarus, 1986). Cognitive schemas are hypothesized cognitive structures that are posited to facilitate information processing, including memory recall. Self-schemas may be assessed by asking subjects to judge whether each of a list of descriptors refers to them, and then to attempt to recall as many of the descriptors as possible. Depressed subjects have been found to recall more negative items than positive items from such lists, which has been regarded as evidence that a negative self-schema is
associated with depression (e.g., Derry & Kuiper, 1981). In a prospective study, Hammen et al. (1985) found that subjects who showed a dependent self-schema, as indicated by the tendency to remember more interpersonal events than achievement related events, were more likely to develop depressive symptoms in response to schema-relevant (i.e., interpersonal) events than other types of stressful events. Subjects showing a dependent self-schema did not differ from other subjects in their level of self-reported depressive symptomology.

Generally speaking, the depressed have been found to show more passive coping styles than have the nondepressed in coping with stressful events. For example, Billings & Moos (1981) found depressive symptoms to be positively correlated with avoidance strategies and negatively correlated with active coping strategies, such as logical analysis. Similarly, Coyne, Aldwin, and Lazarus (1981) found that in comparison with nondepressed subjects, depressed subjects were more likely to judge that they needed more information before they could act, to seek emotional support, and to engage in wishful thinking. Billings and Moos (1984) found that the number of stressors was more predictive of depressive severity than was coping style, but that subjects with more adaptive coping styles had fewer stressors. Although stressful events and coping style are construed as antecedents, direction of causality cannot be readily ascertained from these studies, since
their design is correlational. In fact, some evidence (Billings & Moos, 1984; Hammen, Mayol, de Mayo, & Marks, 1986) suggests that for some people, depressive symptoms may predispose them to the onset of stressful events. Furthermore, evidence suggests that people are more likely to remember negative events than positive events when they are experiencing negative mood (eg., Bower, 1981; Sutherland, Newman, & Rachman, 1982); thus, the depressed may be expected to remember more stressful events than would those experiencing normal mood. At most, we can conclude that there appears to be a moderate relationship between depression and stressful events, particularly interpersonal events (cf. Hammen et al., 1985), and that, although the depressed appear to rely on more passive coping responses, evidence regarding any mediating effect of coping style is somewhat ambiguous (Billings & Moos, 1984).

Social Interactional Models

Social interactional or interpersonal models examine the characteristics of social interactions between persons. Inherent in this point of view is the understanding that each person in any social exchange constitutes part of the social environment of the other individuals present. Thus causality is viewed as circular and reciprocal and the choice of causal direction, of subject and object, is seen as somewhat arbitrary. Thus, the traditional distinctions between onset and maintenance of psychological phenomena
such as depression are also regarded as arbitrary from this perspective. In effect, interpersonal models focus upon the boundary or meeting place between the individual and the social environment. This boundary represents the medium of social exchange. From this perspective, the characteristics of individual social functioning and of social environments may be regarded as the reciprocally caused products of social interaction, as well as codeterminants of future interaction. Several interactional models of depression will be reviewed.

Behavioural theories represent an intermediate position between the traditional psychosocial models of depression and models that are more explicitly interpersonal. Although the assumption is seldom made explicit, behavioural models generally encompass Bandura's (1977) notion of reciprocal causality. Behavioural models have interactional aspects, but tend to emphasize psychosocial antecedents related to factors of social functioning and the social environment. Although other writers have proposed behavioural models of depression (eg., Burgess, 1969; Ferster, 1974), Lewinsohn (eg. 1974, 1975; Lewinsohn, Weinstein, & Shaw, 1969), has been the foremost theorist and researcher in this area. His initial position was that depression represents a low rate of behaviour that is a consequence of a low rate of response contingent positive reinforcement. Lewinsohn hypothesized that the depressed lack the social skills to elicit positive responses from others, and that their inability to generate
social reinforcement effectively places them on a prolonged extinction schedule. In other words, the social functioning of the depressed is characterized by social skills deficits, their social environment provides limited opportunity for positive reinforcement, and these two factors are causally related according to principles of learning theory.

Lewinsohn's extinction paradigm has been criticized (see commentary by Seligman in Friedman & Katz, 1974) as inconsistent with learning theory on the grounds that a low rate of positive reinforcement represents intermittent reinforcement rather than an extinction schedule. Since intermittent reinforcement schedules generate increased rather than decreased rates of behaviour, the low rate of behaviour that Lewinsohn (1974, 1975) has equated with depression must be explained in other ways. Lewinsohn (1975) has introduced a social interactional hypothesis that is less dependent upon the extinction paradigm:

The social environment provides contingencies in the form of sympathy, interest, and concern which strengthen and maintain depressed behaviours... However, since most people in the depressed person's environment... find these behaviours aversive, they will avoid him/her as much as possible, thus...further accentuating his/her depression (p. 30).

Although he has not tested this hypothesis directly, Lewinsohn and his colleagues have amassed a large body of descriptive evidence regarding psychosocial factors in depression. They have found that the depressed elicit fewer social behaviours from others than do the nondepressed, and that in home and group interactions, depressed individuals
tend to be less active, less responsive to others' social behaviour, more likely to show a delayed latency of response, and tend to be more sensitive to the "aversive person" in a group, in the sense that the depressed are more likely than are the nondepressed to withdraw from interaction in response to such individuals (Lewinsohn, 1975). More recently, Lewinsohn and his colleagues (Lewinsohn, Mischel, Chaplin, & Barton, 1980; Youngren & Lewinsohn, 1980) have found that depressed subjects were rated as less socially skillful than others, whether rated by themselves, interactants, or independent observers. Whereas self and observer ratings were similar for the depressed, nondepressed subjects tended to rate themselves as more socially skilled than did observers, suggesting that an "illusory glow" may be necessary for normal affective regulation (Lewinsohn et al., 1980). Lewinsohn's current model of depression deemphasizes social interactional factors in favour of an emphasis upon the disruption of scripted behaviour and increased self-awareness on the part of the depressed (Hoberman & Lewinsohn, 1985).

McLean (1976a, 1976b) outlined a behavioural model of depression that placed a greater emphasis upon social interactional factors. He proposed that microstressors, "defined simply as sources of small repetitive personal and social frustration" (McLean, 1976a, p. 303), are the principal psychological antecedents to depression. In addition to instrumental factors such as behavioural
productivity, goal setting, decision making, problem solving, and cognitive self-control, McLean identified restricted interpersonal communication and disturbed social interaction as probable social origins of microstressors that may precipitate depression. He cited clinical evidence to suggest that depressed people often suffer personal relationships that are competitive and critical rather than co-operative. In a hypothesis similar to Lewinsohn's (1975), he further contended that the responses of others can serve to maintain depression a) by unwittingly reinforcing depressed behaviour by responding to it with support and attention, and b) by eventually avoiding depressed people who "are usually not reinforcing to be with" (McLean, 1976a, p.313). Although McLean has not conducted research testing hypotheses derived from his model, McLean, Ogston, and Grauer (1973) found that they were able to ameliorate depressive symptoms by using a behavioural approach to clarify communication between depressed patients and their spouses.

Although depression is generally regarded as an affective disorder (American Psychiatric Association, 1987), the behavioural perspective generally avoids discussion of affective experience, even in the context of behavioural interpersonal hypotheses. In behavioural models, pleasure and despair are reinterpreted in terms of reinforcement and extinction. Other explicitly interpersonal models of depression have emerged that give greater emphasis to the
domain of social and emotional experience. Several such models will be reviewed.

Forrest and Hokanson (1975; Sacco & Hokanson, 1978) regarded the self-punitive behaviour of the depressed as reflecting a pattern of coping with interpersonal stress that facilitates escape or avoidance of such stress. They presented evidence indicating that when faced with interpersonal aggression, depressed subjects were more likely than others to choose self-punishment as a coping strategy, and that following self-punishment, the depressed showed sharply reduced levels of physiological arousal (Sacco & Hokanson, 1978).

Hinchliffe, Hooper, and Roberts (1978; Hinchliffe, Lancashire, & Roberts, 1971) developed a systems theory model of depression that describes depression as a byproduct of disturbed interpersonal systems, particularly marital systems. They interpreted depressed behaviour as a symptom of system disequilibrium that emerges when emotional needs are unacknowledged or misinterpreted in the relationship. They presented evidence to suggest that the interactions of couples wherein one of the partners is depressed are characterized by a more negative affective tone than is the case with other couples, and that their interactions are more likely to be disrupted by pauses. Furthermore, although interactions of recovered patients with their spouses were found to be less negative, there were no more expressions of positive affect than was the case with the
interactions of depressed patients and their spouses (Hinchliffe et al., 1978).

Salzman (1975) has developed an interpersonal model of depression in the tradition of Harry Stack Sullivan (1947). Salzman contended that the hostility that has often been observed in depression is secondary to the irritating and demanding behaviour of the depressed and the manner in which others respond to such behaviour. In contrast to Beck (1967), who posits that the depressed have a uniformly negative view of themselves, the world, and the future, Salzman (1975) suggested that the depressed tend to have perfectionistic expectations regarding themselves and others, and when such expectations are inevitably unmet, the loss has more personal significance than would otherwise be the case. The depressed individual then attempts to restore the loss by making demands on others. Salzman posits that others initially respond to such demands with reassurance and support, but that such reassurances fail to satisfy the perfectionistic expectations of the depressed, who respond with further demands. Eventually, those interacting with the depressed become angry, impatient, and inattentive, yet feel guilty about their inability to provide sufficient support. In response, the depressed develop feelings of hostility toward their companions and increase their demands for support. In short, Salzman regards depressed behaviour as a manipulative attempt to control the behaviour of others.
that only serves to alienate them, thereby contributing further to the depression.

Coates and Wortman (1980) have interpreted the disturbed interpersonal relationships of the depressed from a social psychological perspective. In contrast to Salzman's (1975) focus upon the depressed person's attempts to control others, Coates and Wortman emphasize the attempts of others to control the behaviour of the depressed. They contend that, when people suffer a loss, they attempt to seek feedback from others about the appropriateness of their feeling state. They argue that, in general, others respond to expressions of negative affect with attempts to alleviate the person's distress by changing the topic or by attempting to look at the situation more positively. In this way, others attempt to compel the depressed to change their behaviour. Coates and Wortman suggest that others react negatively to people who are depressed because of common attributional biases, including the just world hypothesis (Lerner, 1970) and the attributional bias that renders personal factors more salient than situational factors for observers (Jones & Nisbett, 1971). Coates and Wortman (1980) suggest further that, since the depressed are likely to find that others' responses provide unclear feedback, they are likely to seek clarification by repeating their requests for support and validation. Furthermore, others' demands for the depressed to change are likely to be perceived by the depressed as both an implicit rejection and
evidence of the inappropriateness of their experience, confirming their worst fears. Coates and Wortman (1980) further contend that if the depressed do change their behaviour in response to such demands, the symptomatic improvement is unlikely to last since it can be attributed to extrinsic causes and thus discounted.

Coyne (1976b) has proposed an interpersonal model of depression that has received considerable research attention. Coyne's position paper presented an articulate argument for the value of an interpersonal approach to the study of depression at a time when cognitive behavioural models of depression (e.g., Beck, 1967; Lewinsohn, 1975) were generating widespread interest (cf. Blaney, 1977; Friedman & Katz, 1974), and attributional models such as the reformulated learned helplessness model (Abramson, Seligman, & Teasdale, 1978) were yet to be developed. Coyne (1976b) reviewed the work of several theorists who emphasized the role of social factors in depression, including Cohen and her colleagues (Cohen, Baker, Cohen, Fromm-Reichmann, & Weigert, 1954), Grinker (1964), Lewinsohn (1974), and Weissman and Paykel (1974). Coyne's formulation drew heavily upon the work of Cohen et al. (1954) and Grinker (1964), and bore a close resemblance to Salzman's (1975) model. Like other interpersonal theorists, Coyne (1976b) suggested that depressed behaviour evokes a social response from others that exacerbates the depression. He conceptualized depressive symptoms as an attempt to restore or alter a
disrupted social space, an argument similar to ones presented by other theorists (e.g., Coates & Wortman, 1980; Salzman, 1975). He postulated that the depressive’s attempts to elicit restorative support and reassurance from others are met with false expressions of concern and actual withdrawal of support. The absence of support is hypothesized to impel the depressed individual to engage in further effort to solicit assurance. To complicate matters, even when others do offer supportive feedback, the depressed person is not in a position to accept it unambiguously, since it is unclear whether it was given sincerely or merely in response to the manipulative appeal for assurance. Coyne (1976b) initially emphasized that the depressed’s ability to induce feelings of guilt in others contributes to the eventual withdrawal of social support, and that a mutually unsatisfying pattern of interaction develops to the point where neither participant seems to be able to change it.

Although Coyne’s (1976b) model was not unique, two factors may account for the empirical attention that his work has received. First, Coyne reviewed the literature of several theoretical perspectives, thus facilitating exposure to a wide audience. Second, and perhaps more importantly, Coyne (1976a) presented an experimental paradigm that facilitated the empirical investigation of social interaction and depression. Coyne (1976a) had female undergraduate subjects engage in a telephone conversation with target individuals who were either depressed
outpatients, nondepressed mental health outpatients, or normal controls. There were 15 subject-target pairs per group. Coyne found that subjects who had interacted with a depressed target reported more negative mood and less willingness to engage in future interactions than did other subjects. Coyne (1976a) hypothesized that rejection of the depressed was mediated by the induction of negative mood in others, a slight shift in perspective from his previous emphasis upon guilt induction as a mediating variable (Coyne, 1976b). Coyne (1976a) also found that

The hypothesis that the depressed patients would be perceived as merely enacting a role performance, exaggerating their difficulties in order to receive sympathy, was clearly not supported (Coyne, 1976a, p. 189).

Although it provided mixed support for his model (Coyne, 1976b), Coyne's (1976a) study provided experimental evidence supporting the hypothesis that the depressed elicit a different social response from others than do people who are not depressed.

The research design in most of these studies has been a variation of Coyne's (1976a) experiment and the results have been mixed in some areas but remarkably consistent in others.

Findings have been contradictory regarding the tendency of depressed behaviour to elicit more statements of direct support relative to nondepressed behaviour. Whereas Howes and Hokanson's (1979) findings supported this proposition with undergraduate confederates enacting a depressed role, Gotlib and Robinson (1982) found that mildly depressed undergraduates elicited significantly fewer directly supportive statements.

Considerable controversy has arisen regarding the issues of negative mood induction and rejection (cf. Doerfler & Chaplin, 1985; Gurtman, 1986; Joffe & Dobson, 1987; King & Heller, 1984). Whereas six studies have found that subjects reported negative mood following actual or imagined interactions with someone showing signs of depression (Boswell & Murray, 1981; Coyne, 1976a; Gotlib & Beatty, 1985; Hammen & Peters, 1978; Howes et al., 1985; Marks & Hammen, 1982; Strack & Coyne, 1983), four studies found no evidence of negative mood induction (Gotlib & Robinson, 1982; Howes & Hokanson, 1979; Joffe & Dobson, 1987; King & Heller, 1984). Similarly, ten studies found that subjects were significantly less willing to engage in future interactions with a depressed target (Boswell &
Murray, 1981; Coyne, 1976a; Gotlib & Beatty, 1985; Hammen & Peters, 1977, 1978; Howes & Hokanson, 1979; Marks & Hammen, 1982; Robbins, Strack, & Coyne, 1979; Strack & Coyne, 1983; Winer et al., 1981), but three did not (Gotlib & Robinson, 1982; Joffe & Dobson, 1987; King & Heller, 1984). As Gurtman (1986) has pointed out, the majority of published studies have supported the predictions of negative mood induction and rejection. At present, however, these issues remain controversial.

Despite these areas of controversy, several researchers have found that the depressed do elicit a different social response from others than do the nondepressed (Boswell & Murray, 1981; Coyne, 1976a; Gotlib & Beatty, 1985; Gotlib & Robinson, 1982; Hammen & Peters, 1977, 1978; Hokanson et al., 1980; Howes & Hokanson, 1979; Howes et al., 1985; Marks & Hammen, 1982; Robbins et al., 1979; Strack & Coyne, 1983; Winer et al., 1981). Observational evidence suggests that depressives elicit more negative statements, fewer positive statements, fewer statements overall, more silence, more depressed and hostile affect, more rejection, less acceptance and less smiling and arousal than do individuals who are not depressed when interacting with strangers (Gotlib & Robinson, 1982; Howes & Hokanson, 1979). Gotlib and Robinson (1982) found that this sort of negative response was in evidence as early as the first three minutes of a face to face interaction. To date, only two published studies have not found such differences in social response.
Both were replications, one of Coyne's (1976a) study (King & Heller, 1984) and the other of Gotlib and Robinson's (1982) study (Joffe & Dobson, 1987). Appropriately, both studies replicated the small sample sizes of the original studies. Unfortunately, the sample sizes provided limited statistical power to detect small numerical differences (e.g., Kirk, 1982). Although the findings of other studies have been relatively consistent, the numerical differences between groups have been small (Boswell & Murray, 1981; Coyne, 1976a; Gotlib & Beatty, 1985; Gotlib & Robinson, 1982; Hammen & Peters, 1977, 1978; Hokanson et al., 1980; Howes & Hokanson, 1979; Howes et al., 1985; Marks & Hammen, 1982; Robbins et al., 1979; Strack & Coyne, 1983; Winer et al., 1981). Whereas King and Heller (1984) concluded that their findings suggest that the phenomena of negative mood induction and rejection are less than robust, an alternative conclusion may be that the bluntness of our instruments of measurement requires that we use larger sample sizes to achieve more confidence in our findings. Replications of studies with limited statistical power to detect differences are bound to result in inconsistent findings.

The evidence that others respond negatively to the depressed early in a first meeting (e.g., Gotlib & Robinson, 1982) is in striking contrast to the prediction by several theorists (e.g., Coates & Wortman, 1980; Coyne, 1976b; Lewinsohn, 1975; McLean, 1976; Salzman, 1975) that depressed people initially evoke supportive responses from others. As
Doerfler and Chaplin (1985) have suggested, such responses from strangers do not necessarily imply that friends and loved ones will respond in a similar fashion. Indeed, recent evidence (Franche & Dobson, 1987) suggests that people generally do not expect to reject good friends who are depressed, although they would expect to withdraw from depressed strangers. Doerfler and Chaplin (1985) have further argued that laboratory studies of first meetings between strangers do not adequately test Coyne's (1976b) model, and that such studies should be discontinued in favour of longitudinal studies of interactions between intimates. Coyne (1985) has argued that studies of interactions between strangers are valuable, since such interactions are unconfounded by a history of negative experiences or by differences in mate or friendship selection. Furthermore, the fact that virtually all intimate relationships begin with interactions between strangers would suggest that the study of first meetings should be part of the effort to come to a complete understanding of the role of social interaction in depression. Whereas certain issues related to interpersonal factors in depression cannot be studied with strangers, Doerfler and Chaplin's (1985) position begs the question regarding the effect that negative interactions with strangers may have upon the depressed.

In the controversy regarding the specifics of Coyne's model, more fundamental issues may have become clouded.
Although the question of whether the depressed are depressing remains unresolved, it is not necessarily the most crucial question to pursue in furthering our understanding of social interaction and depression. With only two exceptions (Joffe & Dobson, 1987; King & Heller, 1984), researchers using a variety of methods have found that the depressed do elicit a more negative social response than do others (Boswell & Murray, 1981; Coyne, 1976a; Gotlib & Beatty, 1985; Gotlib & Robinson, 1982; Hammen & Peters, 1977, 1978; Hokanson et al., 1980; Howes & Hokanson, 1979; Howes et al., 1985; Marks & Hammen, 1982; Robbins et al., 1979; Strack & Coyne, 1983; Winer et al., 1981). Furthermore, despite the differences in explanatory detail, all interpersonal models of depression share the assumption that the depressed evoke a predictable response in others that in turn contributes to further depression. Thus, to test any interpersonal model of depression, two fundamental aspects of depressive interaction must be examined. First, it is important to understand the impact that the depressed have on others. Second, it is critical to study the implications of such responses for the depressed. To date, researchers have focused their investigative attention upon the social impact of the depressed, either in terms of the nature of depressed social behaviour (eg., Blumberg & Hokanson, 1979; Youngren & Lewinsohn, 1980) or the response of others to such behaviour (e.g., Coyne, 1976a; Gotlib & Robinson, 1982; Howes & Hokanson, 1979). As yet, the
implications of such interactions for the depressed have not been empirically investigated. The purpose of this study was to examine this critical issue by investigating the social impact of the response elicited by depressed individuals.

**Predicting Social Impact**

Unfortunately, it is difficult to derive theoretically specific predictions based exclusively upon Coyne's (1976b) formulation and related research. Clearly, one would predict that relative to the type of response elicited by the nondepressed (RN), the type of response evoked by depressives (RD) would tend to induce depressed mood in their social partners, contributing to what Coyne denotes as depressive drift. If RD is to have any relationship to the etiology or maintenance of depression, it would certainly be expected to induce negative mood.

Coyne (1976b) and other writers (e.g., Coates & Wortman, 1980; Salzman, 1975) also suggested that when other people withdraw socially, rather than withdrawing in return, the depressed individual makes further attempts to elicit reassurance. One would therefore expect that someone who is relatively depressed would be relatively unlikely to reject someone exhibiting RD. Another reason to expect more acceptance of RD among the relatively depressed is that RD is likely to be the type of social response that they commonly encounter. By contrast, people who are relatively
nondepressed might be expected to be relatively rejecting toward a person exhibiting RD, since RD would be unusually negative, relative to their other social interactions. In other words, one might predict a positive correlation between measures of depression and measures of social acceptance among individuals exposed to RD.

To endeavour to make predictions regarding other aspects of the social impact of the posited depressogenic response is less straightforward. At present, the evidence regarding Coyne's (1976b) contention that depressed behaviour serves as a manipulative effort that prompts insincere statements of support is weak to nonexistent (cf. Coyne, 1976a; Gotlib & Robinson, 1982; Howes & Hokanson, 1979). Thus, predictions derived from this aspect of Coyne's formulation do not seem to be warranted. Furthermore, Coyne's (1976b) formulation does not provide hypotheses as to how the impact of the postulated depressogenic response might be mediated by the depressive's interpretation of that response. Coyne acknowledges that organismic variables (e.g., biochemical factors, intrapsychic factors including cognitions) may contribute to depression, but he does not offer any proposals as to how organismic and interpersonal factors may interact. For guidance regarding these types of predictions and hypotheses, we must look to other theoretical formulations.

*Interpersonal Circumplex Theories*
Interpersonal theories of personality and psychotherapy (e.g., Carson, 1969; Kiesler, 1982, 1983; Leary, 1957) are based on the premise that all social behaviour tends to evoke a complementary response. Circumplex models of personality and social response represent a well articulated system of measurement that facilitates the study of interpersonal behaviour. In a circumplex model, various dimensions of social response are represented by a circular two-dimensional array. Research (see Kiesler, 1983; Wiggins, 1982 for reviews) has established that there are two principal, orthogonally related dimensions that may be designated as hostility-friendliness and dominancesubmission. These two dimensions divide the interpersonal circle into four quadrants: hostile-dominant, hostile-submissive, friendly-submissive, and friendly-dominant. More specific dimensions within the circumplex have been described in terms of 16 variables that may be collapsed into octants. Table 1 summarizes the dimensions as described by various researchers. Although the specific names of the dimensions labelled A through P differ from system to system, they are generally viewed as representing comparable constructs (cf., Kiesler, 1983). In all cases, the interpersonal circumplex is anchored by the orthogonal dimensions of dominance-submission (A-I, or PA-HI when considered as octants) and hostility-friendliness (E-M, or DE-LM when considered as octants). Circumplex systems permit the measurement of both interpersonal behaviour and
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<td>P Success</td>
<td>Exhibitionistic</td>
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<td>Ambitious</td>
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<tr>
<td>A Power</td>
<td>Dominant</td>
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<td>Dominant</td>
<td>Dominant</td>
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<td>B Narcissism</td>
<td>Competitive</td>
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<td>Arrogant</td>
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<td>C Exploitation</td>
<td>Mistrusting</td>
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<td>Calculating</td>
<td>Mistrusting</td>
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<tr>
<td>D Punishment</td>
<td>--</td>
<td></td>
<td>Cold</td>
<td>Cold</td>
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<tr>
<td>E Hostility</td>
<td>Hostile</td>
<td></td>
<td>Quarrelsome</td>
<td>Hostile</td>
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<tr>
<td>F Rebellion</td>
<td>Detached</td>
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<td>Aloof</td>
<td>Detached</td>
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<td>G Distrust</td>
<td>Detached/Inhibited</td>
<td></td>
<td>Introverted</td>
<td>Inhibited</td>
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<tr>
<td>H Masochism</td>
<td>Succorant/Abusive</td>
<td></td>
<td>Unassuming</td>
<td>Unassured</td>
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<td>I Weakness</td>
<td>Submissive</td>
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<td>J Conformity</td>
<td>Deferent</td>
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<td>Lazy</td>
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<td>K Trust</td>
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<td></td>
<td>Ingenuous</td>
<td>Trusting</td>
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<tr>
<td>L Collaboration</td>
<td>Affiliative</td>
<td></td>
<td>Warm</td>
<td>Warm</td>
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<td>M Love</td>
<td>Nurturant/Agreeable</td>
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<td>Agreeable</td>
<td>Friendly</td>
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<td>N Tenderness</td>
<td>Sociable</td>
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<td>Gregarious</td>
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<td>O Generosity</td>
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<td>Extraverted</td>
<td>Exhibitionistic</td>
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Adapted from Kiesler (1983) and Wiggins (1982).
complementary social responses. If the behaviour of depressed individuals can be described in terms of the interpersonal circumplex, then the interpersonal response elicited by depressives may be predicted and measured, as may the social impact of that response.

Howes and Hokanson (1979) assessed the social impact of depressed behaviour by means of Kiesler's (Kiesler, Anchin, Chirico, Kyle, & Federman, 1979) Impact Message Inventory. The Impact Message Inventory (IMI) is used to assess a person's responses to a target individual on the basis of the target's impact on the person, i.e., feelings and cognitions evoked by the target during an interaction. The target is thus described according to 15 dimensions that map onto 14 of the 16 dimensions of Kiesler's 1982 Interpersonal Circle (Kiesler, 1983). The two general dimensions not represented by the IMI include D-cold and K-trusting. In Howes and Hokanson's (1979) study, targets enacting a depressed role impacted as significantly different from nondepressed targets on a number of dimensions. The pattern was remarkably orderly: "depressed" targets impacted as generally hostile-submissive relative to the "nondepressed" targets. Depressed targets impacted significantly higher than did nondepressed targets on each of the subscales that comprise the hostile and submissive quadrants, i.e., submissive, succorant, inhibited, mistrustful, detached, and hostile. The only exception was the abasive subscale. However, Kiesler (1983) contends that the
succorant and abasive subscales both represent the same
dimension of the 1982 Interpersonal Circle. Furthermore,
although the difference did not reach statistical signifi-
cance, depressed behaviour tended to impact as more abasive
than did nondepressed behaviour. Its absence from the list
of scales that were found to characterize the social impact
of depressed targets is therefore not theoretically crucial.
In short, Howes and Hokanson’s (1979) findings suggest that
depressed behaviour can be characterized as generally
falling within the hostile and submissive quadrants of the
interpersonal circumplex.

Kiesler (1983) has articulated the general proposition
that "a person’s interpersonal actions tend (with a
probability significantly greater than chance) to initiate,
invite, or evoke from an interactant complementary responses
that lead to a repetition of the person’s original actions"
(Kiesler, 1983, pp.100-101, emphasis in original).
According to this proposition, the hostile and submissive
style of depressive behaviour (Howes & Hokanson, 1979) would
be expected to evoke complementary responses (RD) that would
lead to further hostile and submissive behaviour on the part
of the depressed. One might predict, then, that individuals
exposed to RD would be more likely to exhibit the hostile
and submissive behaviour characteristic of depressives than
would individuals exposed to the type of response elicted
by the nondepressed (RN). According to Kiesler’s
proposition, this difference can be predicted with a probability significantly greater than chance.

How would the complementary responses themselves be described in terms of the interpersonal circle? In other words, what predictions can be made about the social impact of RD upon others? To date, two general systems for predicting complementarity have been proposed. Although both were derived from Leary’s (1957) work, each has different implications regarding the predicted response to depressed behaviour. The first and most widely known predictive system was derived by Carson (1969) and subsequently elaborated by Kiesler (1983). Essentially, Carson’s (1969) position is that:

complementarity occurs on the basis of reciprocity in respect to the dominance-submission axis (dominance tends to induce submission, and vice versa), and on the basis of correspondence in respect to the hate-love axis (hate induces hate, and love induces love) (p. 112).

In terms of the four quadrants of the interpersonal circle, the hostile-dominant and hostile-submissive quadrants are complementary, as are the friendly-dominant and friendly-submissive quadrants. Kiesler (1983) has made even more specific predictions regarding complementarity, suggesting that each of the 16 dimensions within the four quadrants has a single complement (see Figure 1). The overall pattern of complementarity follows Carson’s (1969) basic model. For example each dimension within the friendly-dominant quadrant has a single complementary dimension in the friendly-submissive quadrant.
Figure 1

Complementarity Predicted According to Kiesler's (1983) Model

Adapted from Kiesler (1983).
This also holds for the other two quadrants. According to this formulation, the hostile-submissive behaviour of depressives would tend to evoke a complementary hostile-dominant response. One would predict, then, that RD would impact as hostile and dominant.

An alternative formulation has been suggested by Wiggins (1982), based on Foa's (1961) facet analysis of Leary's (1957) interpersonal variables. Foa's (1961) approach was to describe interpersonal behaviour in terms of three facets: directionality (grants, denies), object (self, others), and resource (status, love). Any type of interpersonal behaviour can be viewed as an attempt to grant or deny love and status to oneself and others. Wiggins (1982) has tentatively proposed a profile of facet elements to describe each of the octants of the interpersonal circumplex (see Table 2). He has further suggested that the facet composition of interpersonal variables would have implications for predicting complementarity. He defines complementarity as a situation wherein both parties would accept one another's definition of the situation.

For example, ambitious-dominant behavior (PA) defines a situation in which status and love are granted to the actor and love, but not status, is granted to the other. A complementary response to ambitious-dominant behavior would be one that completely and literally accepted such a definition of the situation (p. 216).

According to this formulation, the hostile and submissive behaviour of depressives (octants DE, FG, and HI) would tend to elicit further hostile and submissive behaviour (see Figure 2). On the basis of this system, then, one would
Table 2

Facet Composition of Interpersonal Variables

<table>
<thead>
<tr>
<th></th>
<th>Self</th>
<th>Other</th>
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<tr>
<td></td>
<td>Status</td>
<td>Love</td>
</tr>
<tr>
<td>PA (ambitious-dominant)</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>BC (arrogant-calculating)</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>DE (cold-quarrelsome)</td>
<td>+</td>
<td>-</td>
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<tr>
<td>FG (aloof-introverted)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>HI (lazy-submissive)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>JK (unassuming-ingenuous)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>LM (warm-agreeable)</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>NO (gregarious-extraverted)</td>
<td>+</td>
<td>+</td>
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Key

+ = grants
- = denies

Adapted from Wiggins (1982, p.215).
Figure 2

Complementarity Predicted According to Wiggin's (1982) Facet Analytic Approach

Adapted from Wiggins (1982).
predict that RD would be characterized as generally hostile and submissive.

To summarize, interpersonal theories and recent research evidence (Howes & Hokanson, 1979) provide the basis for three additional hypotheses regarding the social impact of the type of response elicited by the depressed (RD) relative to the type of social response elicited by the nondepressed (RN). First, individuals exposed to RD would be more likely to exhibit hostile-submissive behaviour than would individuals exposed to RN. Second, RD would be predicted to impact as relatively hostile-dominant on the basis of Carson’s (1969) and Kiesler’s (1983) formulations. Alternatively, RD would be predicted to impact as generally hostile-submissive according to a facet analytic approach to complementarity (Wiggins, 1982).

Cognitive Models of Depression

For guidance in deriving predictions regarding depressives’ interpretations of the social response they elicit from others, we may turn to cognitive theories of depression (Beck, 1967, 1974; Beck, Rush, Shaw, & Emery, 1979). According to the cognitive model, the depressed and the depression prone consistently make unwarranted negative interpretations about themselves, the future, and the world around them. The world, in this sense, includes one’s personal experience, including social experience. This negative perspective is held to contribute to both the
etiology and maintenance of depression. In general, measures of the hypothesized depressive cognitions, such as the Dysfunctional Attitudes Scale (DAS: Weissman & Beck, 1978), have been found to correlate significantly with concurrent measures of depression (Dobson & Breiter, 1983; Dobson & Shaw, 1986; Hamilton & Abramson, 1983; Keller, 1983). Based on the cognitive model, one would expect that someone with a depressive cognitive style would respond more negatively than would others when faced with a negative social response. More specifically, one would predict that the type of social response elicited by depressives would have an increasingly negative impact relative to the degree to which a depressive cognitive style, as measured by the DAS, is evinced. In other words, pretest scores on the DAS would be expected to correlate with posttest measures of negative mood following experience with the type of social response elicited by depressives.

Critics of the cognitive model (cf., Coyne, 1982; Coyne & Gotlib, 1983; Lewinsohn et al., 1980) contend that although the relationship between negative cognitions and depression is well established, the evidence regarding the etiological significance of cognitive factors has been equivocal. Coyne (1976b) suggested that the depressed individual's negative view of his or her social environment may be veridical. Since others tend to respond more negatively to the depressed, their negative outlook and expectations may be accurate and realistic. Lewinsohn et
al. (1980) presented evidence that takes this argument one step further. Their study compared self-ratings and observer-ratings of social competence in depressed and nondepressed subjects. They found that depressed subjects saw themselves as others saw them, but that nondepressed subjects actually showed a positive distortion. They argued that an "illusory glow" may be necessary for appropriate affective regulation. Such a viewpoint would predict a positive relationship between preexisting depression and the negative impact of RD, not because of unwarranted negative interpretations on the part of the depressed, but because of unrealistically positive interpretations on the part of the nondepressed.

A different argument results in a similar conclusion. Several researchers (e.g., Lewinsohn, Lobitz, & Wilson, 1973; Suarez, Crowe, & Adams, 1978; Zuckerman, Persky, & Curtis, 1968) have argued that the depressed are more sensitive to aversive stimuli than are the nondepressed, as indicated by differences in autonomic arousal in response to painful stimuli. Lewinsohn (1974) has suggested that such hypersensitivity may also generalize to negative social stimuli. Thus, to the extent that someone shows signs of depression, that person may be expected to respond more negatively, i.e., to show more negative affect, in reaction to a relatively negative social stimulus, such as the social response typically elicited by the depressed.
A third line of argument would lend further support to predicting a relationship between preexisting depression and a negative affective reaction to the kind of social response evoked by depressed behaviour. Several writers (see Coyne & Gotlib, 1983 for review) have noted the difficulty of meaningfully assessing cognitions by means of self-report. The argument is that people are not normally reflective about their cognitions, and to ask that cognitions be observed and reported is to change their nature and meaning. Although depression may affect information processing, the effects may not occur in terms of the kinds of cognitions that can be assessed by self-report instruments. Thus depression, rather than self-reported cognitions, may be more appropriate to assess as a mediating variable. In any case, one would predict that the type of social response elicited by depressives may have more social impact for someone who is already depressed than for someone who is not depressed. In other words, measures of preexisting depression would be expected to correlate with measures of negative mood following experience with the type of social response elicited by depressives.

**Summary**

A review of the literature reveals that, although considerable evidence has accumulated regarding the social response that the depressed elicit in others, there has not
yet been an empirical investigation of the social impact of that response. Experimental predictions regarding the social impact of the response elicited by depressed behaviour were derived from several theoretical perspectives.

According to Coyne's (1976a) interpersonal model of depression, it was predicted that a) subjects exposed to the type of response that the depressed evoke would experience more negative mood than subjects in a control condition, and b) for those subjects exposed to the experimental condition, measures of pre-existing depression would correlate significantly with social acceptance of the target.

On the basis of interpersonal complementarity theory (Carson, 1969; Kiesler, 1983; Wiggins, 1982), it was predicted that a) subjects exposed to the experimental condition would show more hostile-submissive reactions than subjects exposed to a control condition, and b) the experimental condition would impact as either more hostile-dominant, thereby supporting the traditional complementarity hypothesis, or more hostile-submissive, as predicted by a facet analytic approach.

On the basis of Beck's (1967) cognitive model of depression and its critics (e.g., Coyne & Gotlib, 1983; Lewinsohn et al., 1980), it was predicted that measures of negative mood following exposure to the experimental condition would correlate significantly with prior measures of depression and depressive cognitive style.
The present study was designed to test the above hypotheses. Female subjects were administered preliminary questionnaires to assess preexisting levels of depressive symptoms, depressive cognitive style, and prior mood. They were then asked to watch a 10-minute videotaped conversation from the vantage of one of the participants and to imagine that they were interacting with the person whose face they saw on the video monitor. The female videotaped target exhibited either the type of social response elicited by depressed behaviour or a more positive control condition. Subjects then completed questionnaires designed to assess the target's social impact on the subject. Posttest questionnaires included mood measures, a measure of social acceptance, the Impact Message Inventory, and the Interpersonal Adjective Scales. Hypotheses related to mood induction and interpersonal complementarity were tested using a between-groups design. Hypotheses regarding correlations of measures of depression and cognitive style with measures of social acceptance and induced mood were tested by means of multiple correlations within the experimental group.
Method

Subjects

One hundred twenty women participated in the study. They were recruited by means of appeals made to undergraduate classes, notices posted on campus bulletin boards, and an advertisement placed in a neighbourhood newspaper. All subjects had some postsecondary education and the majority were university undergraduates (n=106). The mean age was 25.0 years. Subjects who were eligible received extra course credit for their participation (n=49). All other subjects received $2.00 for return busfare.

Measures

Pretest measures were administered to assess mood, depressive symptoms, and cognitive style. Posttest measures reassessed mood and assessed interactional variables including social acceptance, social impact, and expected social response.

Mood. Three measures were used to assess mood: the Today form of the Multiple Affect Adjective Check List (MAACL; Zuckerman & Lubin, 1965), the Wessman-Ricks 10-point elation-depression scale (W-R; Wessman & Ricks, 1966), and a semantic differential instrument developed by Mehrabian and Russell (1974).

The MAACL yields three subscales -- depression, anxiety, and hostility -- that have been used by several
researchers (Coyne, 1976a; Gotlib & Beatty, 1983; Gotlib & Robinson, 1982; Howes & Hokanson, 1979) to assess mood in response to real or imagined social interaction with depressed or nondepressed targets. The MAACL subscales have each demonstrated high correlations with related self-report measures and with observer ratings (Zuckerman & Lubin, 1965). All three subscales have shown significant retest reliability coefficients in patient populations but not in normal populations. Although briefer versions of this scale reduce the high intercorrelations among the subscales, Zuckerman and Lubin (1965) recommended that the full version be used with relatively homogeneous samples because of its extended range and corresponding sensitivity to differences. Because of the relative homogeneity of the present sample, the full version was employed.

The Wessman-Ricks elation-depression scale has also been used to assess mood in response to depressed interpersonal behaviour (Hammen & Peters, 1978). Wessman and Ricks (1966) did not provide psychometric data for their scale. The scale asks respondents to endorse one of ten descriptive mood statements. High scores represent elated mood and low scores represent depressed mood.

The semantic differential scale developed by Mehrabian and Russell (1974) assesses mood according to three orthogonal factors: pleasure, dominance, and arousal. The scale’s structure has been confirmed by factor analysis (Russell, Ward, & Pratt, 1981). Evidence has suggested that
the three factors of pleasure, dominance, and arousal can adequately define all emotional states (Russell & Mehrabian, 1977). This instrument was included as a more comprehensive measure of mood than those described above. Low scores on all three factors represent depressed mood.

**Depressive symptoms.** The Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) is a measure of the number and severity of depressive symptoms. The BDI correlates significantly with other measures of depression, including psychiatrists' ratings, the Hamilton Rating Scale for Depression, observational measures of depressed behaviour, the Depression Adjective Check List, the MMPI Depression scale, and Zung's Self-Rating Depression Scale (see Rehm, 1976). Bumbery, Oliver, and McClure (1978) validated the BDI for use in a student population.

**Cognitive style.** The Dysfunctional Attitude Scale (DAS; Weissman & Beck, 1978) was employed to assess depressogenic cognitive style. The DAS has two parallel forms of 40 items each that were originally selected by rational methods to reflect the relative presence or absence of beliefs held to characterize depression according to Beck's model. Each item consists of a statement (e.g., "I cannot be happy unless most people I know admire me") that is rated on a seven-point scale ranging from "totally agree" to "totally disagree". The maladaptive end of the scale is given the highest score. The DAS was validated with a sample of undergraduates, and showed very high internal
consistency, adequate retest reliability, and significant correlations with the BDI and Krantz and Hammen's (1979) Cognitive Bias Questionnaire (Weissman & Beck, 1978). Other researchers have reported similar findings in both patient and nonpatient samples (Dobson & Breiter, 1983; Dobson & Shaw, 1986; Hamilton & Abramson, 1983; Keller, 1983). Form A of the DAS was used in the present study.

Interactional variables. Three measures were administered to assess social perception. Social acceptance was assessed by a 13-item opinion scale adapted from one used by Winer, Bonner, Blaney, and Murray (1981). The scale is based on similar instruments used by Coyne (1976a), Gotlib and Robinson (1982), Hammen and Peters (1978), and Youngren and Lewinsohn (1980). Each item (e.g., "Would you like to sit next to this person on a 3-hour bus trip?") is rated on a six-point scale ranging from "definitely no" to "definitely yes". Relatively high scores indicate greater acceptance.

Social impact and perceptions of the experimental target were assessed by the Impact Message Inventory (IMI; Perkins, Kiesler, Anchin, Chirico, Kyle, & Federman, 1979), which was also used for a similar purpose by Howes and Hokanson (1979). The inventory assesses affective and cognitive responses to a target person in the context of a dyadic interaction. Scores on the IMI represent the social impact of the target person rather than representing characteristics of the respondent. For example, the first
item of the Dominant subscale is "When I am with this person she makes me feel bossed around." The IMI consists of 90 such items, and responses may range from "not at all" (1.0 points) to "very much so" (4.0 points). There are 15 subscales, each measuring a dimension of interpersonal style (Dominant, Competitive, Hostile, Mistrustful, Detached, Inhibited, Submissive, Succorant, Abasive, Deferent, Agreeable, Nurturant, Affiliative, Sociable, Exhibitionistic). Recent data have shown the IMI subscales to exhibit good circumplex structure (Wiggins & Trapnell, unpublished data). Twelve of the 15 subscales may be collapsed into cluster scores representing each of the four cardinal points of the circumplex: Friendly (Affiliative, Agreeable, Nurturant), Dominant (Dominant, Competitive, Exhibitionistic), Hostile (Hostile, Mistrustful, Detached), and Submissive (Submissive, Abasive, Succorant).

To assess subjects' self-perceptions of their social response to the videotaped target, a small modification of the short form of the Interpersonal Adjective Scales (IAS; Wiggins, 1979) was devised. The IAS shows the best circumplex structure of any of the instruments derived from Leary’s (1957) conceptualization (Kiesler, 1983). The short form of the IAS consists of 64 interpersonal adjectives representing 16 interpersonal dimensions that can be collapsed into octants. The scales were designed to assess interpersonal traits. In the present study, they were used to assess more short-term interpersonal inclinations.
Subjects were asked to vividly imagine themselves interacting with the videotaped target, and then to indicate the extent to which each IAS item would accurately describe their response to the target.

**Videotape Stimulus Material**

Each subject watched a 10-minute videotape of a simulated conversation. The target person was played by one of two female actors who were both experienced in theatrical improvisation. There were two main goals in producing the videotapes. First, they had to present a situation in which the subjects watching the tapes would be able to assume the role of participating in a conversation with the target. Second, they needed to represent the kinds of differences that had been reported in the literature regarding the response that a depressed person elicits as compared to the response that someone who is not depressed typically elicits from a stranger (Coyne, 1976a; Gotlib & Beatty, 1983; Gotlib & Robinson, 1982; Howes & Hokanson, 1979). Four videotapes were produced, such that each videotape portrayed one of two actors enacting one of two types of responses.

To achieve the first goal, the actor was seated facing the camera and an empty chair was placed below the camera, facing the actor. For all four tapes, each actor was instructed to portray an undergraduate who had volunteered to participate in a study of social interaction and the acquaintance process. Her "partner" would be another
volunteer who was someone she had not met before. As Coyne (1976a) had instructed his subjects, they were to have an unstructured conversation about anything they chose. This scenario was described to the subjects who eventually watched the videotapes. The subjects were told that two people had participated in the conversation, but that the voice of the off-camera person had been dubbed out so that they would receive information about only one person. In fact, the actor improvised her side of the conversation and left silences for her phantom partner's imagined responses. Thus subjects watched a videotape of someone who was seemingly talking toward them, and they could imagine their own responses during the silences.

To achieve the second goal, different instructions were devised for each of the research conditions. Since evidence had been inconclusive regarding the issues of negative mood induction and statements of direct support, these issues were omitted in the instructions given to the actors. In the experimental condition, the actor was told that her "partner" was someone who was not very happy with her life right now, and who tended to take a negative view of things. The conversation would begin as any other, but as it progressed the actor would find herself responding with more negative statements, more silence, fewer positive statements, less acceptance, less smiling, less eye contact, less animation, less pleasantness of expression, and fewer verbal statements than normal. The IMI was used to give the
actor more information about how to respond. Howes and Hokanson (1979) had found that depressed behaviour impacted as more hostile and submissive than nondepressed behaviour. On a copy of the IMI protocol, the items representing the corresponding subscales were circled. The actor was told that the circled items would be somewhat descriptive of how her "partner" would make her feel. Such items included "she'd rather be alone" and "I should do something to put her at ease." For the control condition, the actor was told that her "partner" was generally happy with her life and that they would enjoy each other's company. The conversation would begin in much the same way as the other one, but as it progressed the actor would find herself responding with more positive statements, fewer negative statements, more acceptance, more smiling, more eye contact, more animation, more pleasantness of expression, and more verbal statements than in the other conversation. The actor was again provided with a copy of the IMI, but the circled items were from the appropriate friendly and dominant subscales, following Howes and Hokanson's (1979) findings for nondepressed behaviour. Representative items included "she enjoys being with people" and "I can ask her to carry her share of the load". Once taping was complete, the actors were debriefed about the nature of the study.
Verification of Videotape Content

The differences between the two conditions were confirmed by behavioural coding procedures conducted by two trained observers who were blind as to hypotheses and conditions. The observers were female undergraduate research assistants. Observer training was conducted using sample videotapes that were not used in the study. The coding procedures were modelled on those used by other investigators (Gotlib & Robinson, 1982; Howes & Hokanson, 1979).

Verbal behaviour was coded according to six mutually exclusive categories, following the system used by Howes and Hokanson (1979) and Gotlib and Robinson (1982). The first five minutes of each videotaped conversation was divided into response units, each containing a sentence or equivalent. Based primarily on its content, each response unit was placed into one of the following categories:

1. **Direct support:** reassuring, sympathetic, or empathic remarks, or any positive appraisal of the imagined partner or her attributes.
2. **Conversation maintenance, positive content:** favourable descriptions other than of the imagined partner, assessment or prediction concerning self, hometown, weather, and so on.
3. **Conversation maintenance, neutral content:** responses that have no evaluative content.
4. **Conversation maintenance, negative content:** negative evaluations other than of the imagined partner, descriptions or depictions concerning self, the experiment, school, and so on.
5. **Direct negative:** punishing or insulting remarks or other expressions of displeasure or disapproval directly related to the imagined partner.
6. **Silence:** no verbal response to an apparent statement or question originating with the imagined partner.
Nonverbal variables were selected from those used by Youngren and Lewinsohn (1980) and Gotlib and Robinson (1982). A 10-second interval time-sampling procedure was employed to code the first five minutes of each videotaped conversation. The videotaped target was rated on the following measures: eye contact — proportion of intervals wherein the target was looking toward her imagined partner at the beginning of the interval; smiling — mean rating based on a 3-point scale (1 = not smiling, 2 = slightly smiling, 3 = smiling fully or laughing); facial expression (pleasantness and arousal) — mean ratings based on 7-point scales.

Table 3 summarizes the reliabilities for the videotape behavioural coding data. Since the small number of conversations precluded the use of mean ratings, the unit of analysis for observer reliability estimates was the single observation, i.e., response unit for verbal behaviour and time interval for nonverbal behaviour. Observer reliability was good for verbal behaviour and for eye contact and smiling. The reliability of the facial expression ratings was somewhat lower.

Table 4 summarizes the means for the behavioural coding data. The means confirm that the videotapes for the experimental group showed less eye contact, less smiling, less pleasantness and arousal, less positive content, more negative content, and fewer verbal statements than did the control group videotapes. The small numerical differences
## Table 3

### Reliability Estimates for Videotape Behavioural Coding Data

<table>
<thead>
<tr>
<th>Variable</th>
<th>% Agreement</th>
<th>Kappa</th>
<th>Pearson r</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verbal Behaviour&lt;sup&gt;1&lt;/sup&gt;</td>
<td>85</td>
<td>.70</td>
<td>--</td>
</tr>
<tr>
<td>Eye Contact&lt;sup&gt;2&lt;/sup&gt;</td>
<td>94</td>
<td>.83</td>
<td>--</td>
</tr>
<tr>
<td>Smiling&lt;sup&gt;3&lt;/sup&gt;</td>
<td>92</td>
<td>.79</td>
<td>.87</td>
</tr>
<tr>
<td>Facial Expression&lt;sup&gt;4&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pleasantness</td>
<td>--</td>
<td>--</td>
<td>.75</td>
</tr>
<tr>
<td>Arousal</td>
<td>--</td>
<td>--</td>
<td>.65</td>
</tr>
</tbody>
</table>

<sup>1</sup>Categorical data.

<sup>2</sup>Dichotomous categorical data.

<sup>3</sup>Rated on a 3-point scale.

<sup>4</sup>Rated on 7-point scales.
Table 4

Mean Ratings of Videotaped Targets' Behaviour by Condition

<table>
<thead>
<tr>
<th>Variable</th>
<th>Condition</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Experimental</td>
<td>Control</td>
<td></td>
</tr>
<tr>
<td>Eye Contact&lt;sup&gt;1&lt;/sup&gt;</td>
<td>.62</td>
<td>.88</td>
<td></td>
</tr>
<tr>
<td>Smiling&lt;sup&gt;2&lt;/sup&gt;</td>
<td>1.17</td>
<td>1.55</td>
<td></td>
</tr>
<tr>
<td>Facial Expression&lt;sup&gt;3&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pleasantness</td>
<td>3.40</td>
<td>4.23</td>
<td></td>
</tr>
<tr>
<td>Arousal</td>
<td>3.68</td>
<td>4.82</td>
<td></td>
</tr>
<tr>
<td>Verbal Behaviour&lt;sup&gt;4&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct Support</td>
<td>1.75</td>
<td>2.50</td>
<td></td>
</tr>
<tr>
<td>Conversation Maintenance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive Content</td>
<td>4.25</td>
<td>24.00</td>
<td></td>
</tr>
<tr>
<td>Neutral Content</td>
<td>35.75</td>
<td>49.25</td>
<td></td>
</tr>
<tr>
<td>Negative Content</td>
<td>12.50</td>
<td>1.50</td>
<td></td>
</tr>
<tr>
<td>Direct Negative</td>
<td>0.25</td>
<td>0.25</td>
<td></td>
</tr>
<tr>
<td>Silence</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>Total Statements</td>
<td>54.50</td>
<td>77.50</td>
<td></td>
</tr>
</tbody>
</table>

<sup>1</sup>Figures represent proportion of time intervals showing eye contact.

<sup>2</sup>Figures represent mean ratings on a 3-point scale.

<sup>3</sup>Figures represent mean ratings on 7-point scales.

<sup>4</sup>Figures represent mean frequency during 5 minutes of conversation.
between the two conditions are comparable to those reported in the literature (Gotlib & Robinson, 1982; Howes & Hokanson, 1979).

**Procedure**

Subjects were told that the study was an investigation of how people respond to different interpersonal styles in social interactions. After completing a consent form they were asked to complete a preliminary set of questionnaires including measures of mood (Wessman-Ricks elation-depression scale, Mehrabian-Russell semantic differential mood scales, MAACL), depressive symptoms (BDI), and depressive cognitive style (DAS). They were then asked to watch a 10-minute videotape, with instructions to allow themselves to react as though they were actually meeting the person whose face they saw on the screen. The videotape represented one of two actors portraying one of two conditions, either the type of response elicited by the depressed or the type of response elicited by the nondepressed. Assignment of subjects to videotape was made randomly. Immediately after viewing the videotape, subjects completed measures assessing mood (Wessman-Ricks elation-depression scale, Mehrabian-Russell semantic differential mood scales, MAACL), and social impact (social acceptance opinion scale, Impact Message Inventory, Interpersonal Adjective Scales). Subjects were thoroughly debriefed as to the purpose and hypotheses of the study and the method of preparing the videotapes.
Results

Subject Characteristics

To assess the equivalence of groups, a 2 by 2 (actor by condition) multivariate analysis of variance (MANOVA) was conducted using all of the preliminary measures as dependent variables. No significant effects were found for actor \( F(9,108) = 0.90 \), condition \( F(9,108) = 0.63 \), or their interaction \( F(9,108) = 0.75 \). The sample mean for the Beck Depression Inventory was 6.64 (SD = 5.26). The sample mean for the Dysfunctional Attitudes Scale was 120.94 (SD=24.68).

Between Groups Comparisons

Mood. The group means and standard deviations of the pretest and posttest mood measures are presented in Table 5. The first hypothesis was that the experimental condition would induce more negative mood, particularly depressed mood, relative to the control condition. In order to confirm that there were no differences between the two actors in terms of induced mood, a univariate analysis of variance (ANOVA) was conducted for each of the seven posttest mood variables. Since none of these comparisons was statistically significant \( F(1,118) < 1.98 \) in all cases), actors were considered equivalent within each condition. A one-way repeated measures multivariate analysis of variance (MANOVA) was conducted to assess differences between the two conditions while taking initial
Table 5

Mood Measures: Cell Means and Standard Deviations

<table>
<thead>
<tr>
<th>Measures</th>
<th>Pretest (Time 1)</th>
<th>Posttest (Time 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Experimental</td>
<td>Control</td>
</tr>
<tr>
<td>Wessman – Ricks Elation Scale</td>
<td>6.28 (0.96)</td>
<td>6.10 (0.84)</td>
</tr>
<tr>
<td>Mehrabian – Russell Affect Scales</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pleasure</td>
<td>38.00 (7.69)</td>
<td>37.83 (6.75)</td>
</tr>
<tr>
<td>Arousal</td>
<td>30.50 (6.38)</td>
<td>29.18 (6.67)</td>
</tr>
<tr>
<td>Dominance</td>
<td>32.70 (5.76)</td>
<td>32.15 (6.19)</td>
</tr>
<tr>
<td>Multiple Affect Adjective Check List</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hostility</td>
<td>7.45 (3.45)</td>
<td>7.53 (2.65)</td>
</tr>
<tr>
<td>Depression</td>
<td>13.98 (5.67)</td>
<td>14.43 (5.34)</td>
</tr>
<tr>
<td>Anxiety</td>
<td>6.73 (3.06)</td>
<td>7.20 (3.13)</td>
</tr>
</tbody>
</table>

Note: Cell means are collapsed across actors.
mood into account. There was no significant main effect for condition, $F(7,112) = 1.65$. There was a significant main effect for Time, $F(7,112) = 5.76$, $p < .001$. Univariate $F$ tests were performed, using the Bonferroni procedure to control for familywise error. Only the Mehrabian-Russell Pleasure scale met the critical probability level of $p = .002$, $F(1,118) = 22.19$, $p < .001$. A comparison of the means indicates that subjects reported more pleasure at pretest ($M = 37.92, SD = 7.21$) than at posttest ($M = 34.63, SD = 6.86$).

There was also a significant interaction effect for condition and time, $F(7,112) = 5.84$, $p < .001$. Four variables met the critical probability level of $p = .002$: the Wessman-Ricks elation-depression scale ($F(1,118) = 24.98$, $p < .001$), the Mehrabian-Russell Pleasure scale ($F(1,118) = 10.60$, $p < .002$), the Mehrabian-Russell Arousal scale ($F(1,118) = 17.84$, $p < .001$), and the MAACL Anxiety scale ($F(1,118) = 14.12$, $p < .001$). Figure 3 illustrates the interactions. From the pretest to the posttest, subjects in the experimental condition showed sharp decreases in elation ($t(59) = 4.00$, $p < .001$), pleasure ($t(59) = 5.03$, $p < .001$), and arousal ($t(59) = 4.18$, $p < .001$), accompanied by an increase in anxiety ($t(59) = -3.26$, $p < .001$). For subjects in the control condition, there were no significant differences between pretest and posttest mood scores. The experimental group’s scores on the MAACL Depression scale changed in the predicted direction, but the interaction did not reach statistical significance, $F(1,118)$
Figure 3. Time by condition interactions for 5 mood variables.

*WESSMAN-RICKS ELATION SCALE*

![Graph showing elation scores over time with condition interaction and statistical significance.]  
\[ F(1,118)=24.98, P .001 \]

*MEHRABIAN-RUSSELL PLEASURE SCALE*

![Graph showing pleasure scores over time with condition interaction and statistical significance.]  
\[ F(1,118)=10.60, P .002 \]

*Mehraban-Russell Arousal Scale*

![Graph showing arousal scores over time with condition interaction and statistical significance.]  
\[ F(1,118)=17.84, P .001 \]

*MAACL Anxiety Scale*

![Graph showing anxiety scores over time with condition interaction and statistical significance.]  
\[ F(1,118)=14.12, P .001 \]

*MAACL Depression Scale*

![Graph showing depression scores over time with condition interaction and statistical significance.]  
\[ F(1,118)=8.18, NS \]

Legend

- △ EXPERIMENTAL CONDITION
- × CONTROL CONDITION
= 8.18, \( p = .005 \). In general, the first hypothesis was at least partially supported. Full support for the hypothesis would have required significant interactions for two additional variables: the Mehrabian-Russell Dominance scale and the MAACL Depression scale.

**Interpersonal Complementarity.** The three hypotheses related to interpersonal complementarity were assessed by means of the Impact Message Inventory and the Interpersonal Adjective Scales. The IMI was collapsed into its four cluster scores and the IAS was collapsed into octants. The group means and standard deviations for these variables are presented in Table 6. A 2 by 2 (actor by condition) multivariate analysis of variance (MANOVA) was conducted to test the complementarity hypotheses. There was no significant interaction effect (\( F(12,105) = 1.14 \)), nor was there a significant actor effect (\( F(12,105) = 1.89 \)). There was a significant main effect for condition, \( F(12,105) = 8.46, p < .002 \). Univariate F tests were performed, using the Bonferonni procedure to control for familywise error rate. Five variables met the critical probability level of \( p = .001 \). These variables will be discussed in terms of the specific hypotheses to which they are related.

According to Kiesler's (1983) proposition, it was predicted that subjects exposed to the experimental condition would describe their own expected behaviour towards their partners as hostile-submissive relative to those subjects exposed to the control condition. The centre
Table 6

**Group Means and Standard Deviations for Interpersonal Circumplex Measures**

<table>
<thead>
<tr>
<th>Measures</th>
<th>Group Means</th>
<th>E(1,116)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Experimental</td>
<td>Control</td>
</tr>
<tr>
<td><strong>Impact Message Inventory</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dominant</td>
<td>27.13 (6.16)</td>
<td>30.83 (9.14)</td>
</tr>
<tr>
<td>Hostile</td>
<td>34.43 (9.34)</td>
<td>26.40 (7.86)</td>
</tr>
<tr>
<td>Submissive</td>
<td>34.87 (9.10)</td>
<td>29.42 (6.08)</td>
</tr>
<tr>
<td>Friendly</td>
<td>34.83 (9.02)</td>
<td>43.88 (8.24)</td>
</tr>
<tr>
<td><strong>Interpersonal Adjective Scales</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PA (ambitious-dominant)</td>
<td>38.20 (7.23)</td>
<td>35.13 (6.13)</td>
</tr>
<tr>
<td>BC (arrogant-calculating)</td>
<td>23.38 (7.71)</td>
<td>24.72 (7.99)</td>
</tr>
<tr>
<td>DE (cold-quarrelsome)</td>
<td>23.33(10.26)</td>
<td>20.12 (9.18)</td>
</tr>
<tr>
<td>FG (aloof-introverted)</td>
<td>33.40 (9.51)</td>
<td>27.33(10.17)</td>
</tr>
<tr>
<td>HI (unassuming-submissive)</td>
<td>28.82 (7.26)</td>
<td>31.32 (7.51)</td>
</tr>
<tr>
<td>JK (lazy-ingenious)</td>
<td>39.82 (6.27)</td>
<td>42.03 (6.02)</td>
</tr>
<tr>
<td>LM (warm-agreeable)</td>
<td>41.43 (8.12)</td>
<td>45.07 (8.18)</td>
</tr>
<tr>
<td>NO (gregarious-extraverted)</td>
<td>38.37 (9.45)</td>
<td>44.80 (9.02)</td>
</tr>
</tbody>
</table>

*p < .002.

1 IMI scales collapsed into cluster scores.

2 IAS scales collapsed into octants.
of the hostile-submissive quadrant is represented by the Aloof/Introverted (FG) scale of the IAS. As predicted, this variable yielded a significant difference between conditions, $F(1, 116) = 11.36, p < .001$, with subjects in the experimental group showing higher scores than did control subjects. Furthermore, there is evidence to suggest that the experimental subjects expected to be significantly less friendly and dominant toward their partners than did the control subjects. The IAS scale that represents the centre of the friendly-dominant quadrant of the circumplex (NO; Gregarious/Extroverted) also showed a difference that met the critical probability level, $F(1, 116) = 14.74, p < .001$. Experimental subjects scored lower on this scale than did control subjects. None of the other IAS variables met the critical probability level. To summarize, Kiesler's (1983) proposition was supported by this study's findings.

There were two alternative hypotheses regarding interpersonal complementarity that predicted the social impact of the experimental condition relative to the control condition. Based on Carson's (1969) position, the experimental condition should impact as more hostile and dominant than the control condition. Wiggins' (1982) facet analysis resulted in the alternative complementarity hypothesis that the experimental condition should impact as more hostile and submissive. Three of the four IMI cluster scores reached the critical probability level. The Dominant score did not reach significance, $F(1, 116) = 6.73$, n.s..
There were significant differences on the Hostile ($F(1,116) = 25.75, p < .001$), Submissive ($F(1,116) = 14.58, p < .001$), and Friendly ($F(1,116) = 35.81, p < .001$) scores. The Hostile and Submissive scores were higher and the Friendly score was lower in the experimental group as compared to the control group. In short, the findings were supportive of Wiggins' (1982) facet analytic hypothesis.

**Social Acceptance.** Although no specific predictions were made regarding social acceptance, a 2 by 2 (actor by condition) univariate analysis of variance (ANOVA) was performed to assess group differences. A significant effect was found for condition, $F(1,116) = 25.18, p < .001$. Subjects in the experimental condition showed less social acceptance of the target ($M = 36.48, SD = 13.55$) than did subjects in the control condition ($M = 49.15, SD = 13.71$). No significant effects were found for actor, $F(1,116) = 0.37$, or for the interaction, $F(1,116) = 1.26$.

**Within Groups Comparisons**

The three remaining hypotheses pertained to the experimental group only. They involved correlations of the BDI and the DAS with measures of mood and social acceptance. These correlations, as well as the corresponding figures for the control group, are presented in Table 7. The individual correlations for the experimental group were all quite low, ranging in value from $-0.32$ to $+0.20$. Individual tests were performed, using the Bonferonni procedure to control
Table 7
Within Groups Correlations of Posttest Mood with Pretest Depressive Symptoms (BDI) and Cognitions (DAS)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Experimental</td>
</tr>
<tr>
<td></td>
<td>BDI(^1)</td>
</tr>
<tr>
<td>Wessman - Ricks Elation Scale</td>
<td>-.32</td>
</tr>
<tr>
<td>Mehrabian - Russell Affect Scales</td>
<td></td>
</tr>
<tr>
<td>Pleasure</td>
<td>-.23</td>
</tr>
<tr>
<td>Arousal</td>
<td>-.03</td>
</tr>
<tr>
<td>Dominance</td>
<td>-.07</td>
</tr>
<tr>
<td>Multiple Affective Adjective Check List</td>
<td></td>
</tr>
<tr>
<td>Hostility</td>
<td>-.01</td>
</tr>
<tr>
<td>Depression</td>
<td>.20</td>
</tr>
<tr>
<td>Anxiety</td>
<td>.14</td>
</tr>
<tr>
<td>Social Acceptance Opinion Scale</td>
<td>.00</td>
</tr>
<tr>
<td>Composite Mood Score</td>
<td>.16</td>
</tr>
</tbody>
</table>

All values n.s.

\(^1\)BDI = Beck Depression Inventory

\(^2\)DAS = Dysfunctional Attitudes Scale
familywise error rate, and none of the values was significant.

Statistical power was constrained for this set of analyses because of the relatively large number of correlations (32) and the relatively small sample size (60). In order to improve statistical power, a data reduction procedure was implemented for the mood variables, such that the within groups hypotheses could be tested with 4 correlations, including the BDI, the DAS, the social acceptance Opinion Scale, and a composite mood score. The composite mood score was derived from the first principal component of the seven mood variables for the experimental group. Rotated factor scores ranged in absolute value from .04 for the Mehrabian-Russell arousal scale to .88 for the MAACL anxiety scale. Negative loadings were found for measures of pleasure (-.81), elation (-.70), and dominance (-.50), and positive loadings were found for measures of anxiety (.88), hostility (.86), depression (.73), and arousal (.04). The composite mood score consisted of a linear combination of the factor scores and could be characterized as representing globally negative mood. The correlations of the BDI and DAS with the Opinion Scale and the composite mood score were also quite low, ranging in value from .00 to .16. Individual tests were performed, and none of the values was significant. In short, attempts to find within-groups relationships among the BDI, DAS, and measures of mood and social acceptance were unsuccessful.
Discussion

This study’s between groups findings may be regarded as supportive of an interpersonal approach to the study of depression. The implications of the results regarding negative mood induction, interpersonal complementarity, and mediating variables will be discussed in turn, followed by a summary of the current status of interpersonal models of depression.

Negative Mood Induction

The purpose of this research was to examine the social impact of the response evoked by depressed behaviour. The first and most fundamental prediction was that the response that the depressed evoke in others would tend to induce negative mood. This hypothesis was supported by the findings, in that experimental group subjects were found to show decreases in elation, pleasure, and arousal, and an increase in anxiety following exposure to the experimental condition; however, the negative mood that was induced is not necessarily characterizable as depressed. The posttest mood of the experimental subjects might just as accurately be described as bored and anxious relative to the mood of control subjects. Whether such affective discomfort would further degenerate into more depressed mood with prolonged exposure is a question for future research. In contrast to other studies of social interaction and depression (e.g.,
Coyne, 1976a; Hammen & Peters, 1978; Gotlib & Beatty, 1985; Winer et al., 1981), this study relied upon three separate measures of mood, enabling a more fine grained analysis of affective response. Any future studies of changes in mood subsequent to social interaction may benefit from such an approach.

Although the relationship is less direct, the sort of affective social discomfort found in this study may itself contribute to the depressive cycle. To the extent that these findings are generalizable, depressed individuals may find themselves experiencing contradictory feelings when meeting new social contacts. Feeling in need of social contact, yet feeling bored and anxious when faced with the social contact that they are typically able to generate, the depressed may feel that they are unable to get their interpersonal needs met by means of interpersonal contact. Thus, instead of being a source of comfort and gratification, social interactions may contribute to feelings of social impotence that may exacerbate the depression. For the depressed, social interaction may actually detract from feelings of self-efficacy (cf. Bandura, 1986). The social isolation of depressives may in fact serve a protective function. Rather than a sign of pathology per se, it may be a secondary sign -- a sign of the individual's adaptive attempt to prevent exposure to circumstances that are likely to induce even more negative
mood. In learning theory terms, social isolation may be negatively reinforced.

From the traditional behavioural perspective (e.g., Lewinsohn, 1974), the negative mood induction findings of this study could be interpreted as evidence that the kind of social response typically elicited by the depressed is not reinforcing. The findings may also be interpreted as an example of loss of reinforcer effectiveness (Costello, 1972), since an event that would be expected to be reinforcing (social contact) has been found to induce negative mood. Unfortunately, the term reinforcement has lost much of its connection to learning theory in some usages, in the sense that any ostensibly pleasant circumstance may be designated as a reinforcer regardless of its functional relationship to instrumental behaviour. Support for a learning theory approach requires that a functional relationship be demonstrated between a behaviour or class of behaviour and its consequences. The designation of reinforcement or punishment depends upon whether the consequence increases or decreases the behaviour, not upon whether the consequence can be deemed pleasant or unpleasant. Withdrawal from someone exhibiting the kind of social response elicited by depressed behaviour would support a negative reinforcement paradigm. On the other hand, an extinction paradigm would predict an initial increase in social behaviour, much as Coyne (1976b) and Salzman (1975) have predicted. Although such predictions
were not made at the outset of this study, present evidence would tend to support a negative reinforcement interpretation, since subjects in the experimental condition expressed significantly less interest in future interaction with the target than did subjects in the control condition. Further experimental research would be required to evaluate specific reinforcement hypotheses. For example, a negative reinforcement model would predict a reduction in arousal and anxiety in subjects who were allowed to withdraw from interaction with someone exhibiting the kind of social response that the depressed elicit, but an increase in such measures when withdrawal is prevented.

Interpersonal Complementarity

This study's interpersonal complementarity findings have theoretical and methodological implications that will be discussed in turn. The theoretical implications stem from the present evidence and from fundamental assumptions underlying complementarity theory. The present evidence has implications that encompass both interpersonal models of depression and interpersonal complementarity theory. As predicted from Kiesler's (1983) proposition, the social complement of depressed behaviour as portrayed in the experimental condition evoked a response resembling the hostile-submissive behaviour of the depressed (Howes & Hokanson, 1979). This evidence supports both the central premise of complementarity theory (Kiesler, 1983) and the
implicit assumption underlying all interpersonal models of depression (e.g., Coates & Wortman, 1980; Coyne, 1976b; Hinchliffe et al., 1978; Salzman, 1975), that is that depressed behaviour evokes a predictable response from others that in turn elicits more depressed behaviour. These findings are also congruent with the more negative affective responses of the experimental group. In short, the present evidence supported the notion that exposure to the interpersonal response that the depressed typically elicit in strangers can contribute to an increase in both negative affect and depressive social behaviour. Naturally, further research is required to establish the generalizability of this conclusion.

The facet-analytic prediction that the social complement of depressed behaviour would impact as hostile and submissive (Wiggins, 1982), rather than hostile and dominant (Carson, 1969; Kiesler, 1983), was supported by the present evidence. Although the findings challenge the traditional predictions of complementarity patterns (Carson, 1969; Kiesler, 1983), the evidence supporting facet-analytic predictions (Wiggins, 1982) should be interpreted cautiously, since other interpretations of the evidence may be equally viable. For example, it is feasible that complementarity occurs on the basis of correspondence for all circumplex octants in interactions between strangers, such that any interpersonal style may tend to evoke a similar style in strangers. Such a tendency toward
interpersonal correspondence could have survival value for a social species, since humans need to be able to cooperate and to bond with one another (cf. Bowlby, 1969) in order to survive. An innate capacity to match our experience to someone else's may be required for such fundamental human phenomena as empathy, modelling, and early social learning. Furthermore, there is some evidence to support the argument of social correspondence between strangers. Prisoner's Dilemma studies (cf. Carson, 1979; Wiggins, 1980; Wrightsman, O'Connor, & Baker, 1972) have found that a competitive stance on the part of a confederate eventually induces a competitive stance in return. In interpersonal circumplex terms, this would suggest that hostile-dominance evokes hostile-dominance in this situation. Orford's (1986) recent review of interpersonal complementarity research also suggests that hostile-dominance is frequently met with hostile-dominance. Orford's review further indicates that traditional assumptions regarding complementarity require further examination in the light of contradictory evidence.

Another alternative to a facet analytic interpretation of this study's complementarity findings is that it is possible that complementarity patterns between strangers may differ from those between intimates. For example, with growing familiarity, frequency and intimacy of contact, there may be increasing frustration with the depressed individual such that an initially hostile-submissive response to depressed behaviour may change to a
hostile-dominant response or to social withdrawal. Evidence that the marital interactions of depressed patients tend to be critical (e.g., Hooley, 1986; Hooley et al., 1986) and competitive (cf. McLean, 1976) may support the argument that the spouses of depressed patients exhibit a hostile-dominant interactive style in their marital interactions. Studies of developing relationships (cf. Howes et al., 1985; Joffe & Dobson, 1987) could be employed to test the hypothesis of shifting complementarity patterns with growing intimacy. Such research could perhaps be accomplished by following large samples of relatively intact groups that would be expected to generate close relationships, such as first year undergraduates in residence, new fraternity and sorority members, new graduate students in large departments, armed forces recruits, and so on. If shifts in complementarity pattern are found for depressed behaviour, they may also be expected for other dimensions of the interpersonal circumplex. Further complementarity research is clearly indicated.

Although Wiggins' (1982) facet analysis of interpersonal complementarity requires empirical confirmation, it may be used to generate further testable hypotheses. For example, an interesting question emerges regarding the interrelationship between negative mood and a hostile-submissive interpersonal style. Wiggins' (1982) facet analysis of the interpersonal circumplex would suggest that a hostile-submissive social stance denies both status
and love to the actor. Low mood might be a natural concomitant of such a position, a hypothesis that would be readily researchable. Furthermore, since hostile-submissive complementary interactions are posited to deny status and love to both participants, one might predict that between strangers, such interactions would result in short-lived relationships. At least one of the interactants may be inclined to seek out interactions where they may receive at least some love and/or status. This prediction would be expected to hold regardless of the presence or absence of feelings of guilt (Coyne, 1976b; Salzman, 1975) or frustrated interpersonal control (Coates & Wortman, 1980; Coyne, 1976b; Salzman, 1975). It may also account for the diminished quantity and quality of relationships that seem to characterize the social environment of the depressed (e.g., Billings, Cronkite & Moos, 1983; Brown & Harris, 1978; Hinchliffe et al., 1978; Hooley, 1986; Lewinsohn, 1975; Monroe et al., 1983; Weissman & Paykel, 1974).

The present study demonstrated that a combination of social exchange theory, interpersonal circumplex theory, and interpersonal complementarity theory can generate viable and testable research hypotheses. Such an approach may be sufficiently compatible with social reinforcement models to augment the traditional behavioural perspective regarding the nature of social reinforcement. Social exchange theory suggests that social reinforcement can be understood in terms of the exchange of love and status (Foa, 1961).
Interpersonal circumplex theory suggests that there are likely to be individual differences in the absolute and relative importance of these two factors, resulting in a range of interpersonal styles (Wiggins, 1982). Such interpersonal styles can be expected to be dysfunctional to the extent that they are rigid and extreme (Leary, 1957). Interpersonal complementarity theory suggests further that people tend to seek out and to evoke responses from others that tend to confirm their own world view of social exchange (Kiesler, 1983; Wiggins, 1982). In reinforcement terms, social interactions that confirm one's world view may be regarded as intrinsically reinforcing. Thus the range and complexity of social reinforcement may perhaps be understood and predicted in terms of the availability of love, status, and confirmation of one's personal world view. Although this analysis is somewhat speculative, it may help to address Eastman's (1976) criticism of behavioural models of depression for their "curious narrowness of outlook regarding reinforcement parameters" (p.280).

Despite the apparent compatibility of social exchange and social reinforcement theory, social interactional models represent a significant paradigmatic shift (Anchin & Kiesler, 1982; Kuhn, 1970) from traditional behavioural models. Like behavioural theory (cf. Skinner, 1987), interpersonal circumplex theory can yield precise and refutable research hypotheses; however, an interpersonal approach differs from a behavioural approach in at least two
important ways. First, an interpersonal approach provides a theoretical model wherein affect and social experience are intrinsically embedded, in contrast to the traditional behavioural position that these factors are secondary to behaviour (e.g., Skinner, 1971). Second, it assumes a circular rather than linear model of causality. A circular model of causality assumes that any phenomenon is simultaneously an antecedent and a consequence. To designate any particular occurrence as one or the other is regarded as an arbitrary choice, since evidence can always be generated to support one arbitrary choice over another. From this perspective, arguments as to whether affect, cognition, or behaviour represents a primary cause of depression are futile; such arguments may be analogous to meteorologists arguing whether good weather follows bad or bad weather follows good -- evidence can be found for either argument and the argument that prevails may have more to do with the ability of its adherents to present their case than with the fit of the model to reality. Linear models of causality may more readily facilitate theoretical precision (Pepper, 1942); however, this may regarded as a technical challenge that has been met to some degree by interpersonal circumplex theories.

Assumptions regarding the nature of causality have important implications for clinical research and practice (cf. Bandura, 1986). A perspective assuming circular causality would predict that research attempts to find
specific psychosocial etiological antecedents to depression in adult subjects would yield modest or inconclusive results at best, since designation of a particular event as an antecedent is regarded as an arbitrary choice. To date, this prediction appears to fit the available evidence. A decade ago, Blaney (1977) reviewed what were then the foremost psychological models of depression, as represented by the theories of Lewinsohn (1974), Beck (1967), and Seligman (1975). All three models made predictions regarding antecedents to depression, but empirical support for the etiological predictions derived from these models has been equivocal at best. Lewinsohn’s model has shifted focus over the intervening years, from an emphasis on loss of response contingent positive reinforcement (Lewinsohn, 1975), to an emphasis on social factors (Lewinsohn, et al., 1980), to the current focus on self-awareness phenomena (Hoberman & Lewinsohn, 1985). Whereas cognitive therapy for depression (Beck et al., 1979) has demonstrated its usefulness (Rush, Beck, Kovacs, & Hollon, 1977), depressive cognitions have yet to be established as antecedents to depression (see Coyne & Gotlib, 1983, for review). The learned helplessness model of depression (Seligman, 1975) and its reformulation (Abramson, Seligman & Teasdale, 1978) have encountered considerable criticism (e.g., Costello, 1978; Coyne & Gotlib, 1983; Miller & Moretti, in press) and have found limited utility in predicting depression (e.g., Golin, Sweeney, & Shaeffer, 1981; Manly, McMahon, Bradley, &
Stress and coping models of depression have also met with modest support (Billings & Moos, 1984). Such inconclusive findings may persist because research has not yet achieved sufficient evidence or rigour. They may also persist to the extent that linear models of causality persist in fields of study where rigorous application of circular causal models may be more germane (cf. Bandura, 1986).

Attempts to designate antecedents and consequences persist in the face of such inclusive findings, perhaps because of the apparent relevance of hypothesized antecedents to clinical practice, in terms of primary prevention, choice of interventions, and prevention of relapse. If they could be identified, discovery of specific etiological antecedents could conceivably lead to targets for primary prevention efforts. Similarly, etiological antecedents could conceivably be made the focus of specific clinical interventions in an attempt to prevent relapse. The continuing quest for a specific psychological causal agent for depression may represent an example of the triumph of hope over evidence.

Social interactional theorists contend that, rather than reflect specific etiological antecedents, psychological difficulties such as depression develop when people have learned an interpersonal style that is both rigid and extreme (Anchin & Kiesler, 1982; Carson, 1969; Leary, 1957; Wiggins, 1982). They further assert that interpersonal
traits are developed in the context of significant personal relationships, particularly in the family of origin. To the extent that depression represents a hostile-submissive interpersonal style, primary prevention would be expected to be required during childhood, by providing children with family environments that help to build self-esteem (cf. Coopersmith, 1967; McLean, 1976) and to promote a more rewarding interpersonal style. In facet analytic terms (Foa, 1961; Wiggins, 1982), primary prevention of depression would require family environments wherein children could develop an interactional style that provided them with access to both love and status. From this perspective, primary prevention of depression would be considered an unlikely prospect, since widespread changes in family environment are improbable.

Although an interpersonal perspective would be pessimistic regarding primary prevention, relapse prevention would be expected to be more promising. Hooley’s (1986; Hooley et al., 1986) research suggests that it is important not to ignore the client’s current family context in preventing relapse. Although recovery can be achieved through medication and/or individual cognitive-behavioural treatment (Beckham & Leber, 1985; McLean & Hakstian, 1979; Rush et al., 1977), if the client returns to a hostile family, the probability of relapse is high (Hooley et al., 1986). Furthermore, accumulated evidence from several sources (e.g., Billings, Cronkite & Moos, 1983; Brown &
Harris, 1978; Hinchliffe et al., 1971; Hooley, 1986; Lewinsohn, 1975; Monroe et al., 1983; Weissman & Paykel, 1974) suggests that the probability is high that a depressed person will experience an aversive social environment. To compound matters for the client, there is also evidence that the depressed are more sensitive than others to aversive stimuli (e.g., Suarez, Crowe, & Adams, 1978; Zuckerman, Persky, & Curtis, 1968). Although individual treatment may be able to ameliorate such sensitivity at least temporarily, marital and family interventions (cf. Haas, Clarkin, & Glick, 1985; Hafner, 1986; Haley, 1976; McLean et al., 1973) may be required to facilitate lasting change. Alternatively, depressed adults may need to acquire the social skills to develop new, more supportive social networks. Interpersonal psychotherapists (Anchin & Kiesler, 1982) would predict that a client who develops a new mode of relating to others will tend to evoke different complementary responses, contributing to changes in the client's relationships that would support the new interactional mode. Rigorous treatment outcome studies are required to test such clinical hypotheses.

In addition to their theoretical implications, this study's interpersonal complementarity findings have implications for research methodology, particularly in regard to measurement, sample size, and experimental versus correlational design. In terms of measurement, the present study demonstrated that the Interpersonal Adjective Scales
(IAS; Wiggins, 1979) may be used as a meaningful state measure as well as a trait measure. Perhaps more importantly, it has also demonstrated that the IAS may be used in conjunction with the Impact Message Inventory (IMI; Perkins et al., 1979) to assess interpersonal complementarity. Now that their utility has been demonstrated in imagined conversations, it would be relatively straightforward to apply this combination of measures to studies of actual conversations. Moreover, whereas social interactional studies have traditionally employed expensive observational coding systems (e.g., Gottman, 1979; Hooley, 1986; Levenson & Gottman, 1983), the IMI capitalizes upon the innate human capacity to process complex social information. Although such questionnaire measures cannot replace direct observation, the IMI and IAS provide interpersonal information that may convey additional meaning to data such as the proportion of positive statements or time spent smiling in a conversation. Thus, the IMI and IAS can economically augment observational data.

The issue of sample size is related to the sensitivity of current instruments for assessing social interaction. An inspection of the means in Table 6 reveals that the significant group differences for the interpersonal circumplex measures represent relatively small numerical differences. This finding is consistent with the small numerical differences found in other studies of interpersonal factors in depression (e.g., Coyne, 1976b;
Gotlib & Robinson, 1982; Howes & Hokanson, 1979). The videotaped stimuli were designed to reflect previous findings, and the data verifying their content showed similar differences (see Table 4). Despite the small numerical differences, the videotapes represented striking qualitative differences, suggesting that our current instruments for measuring social interaction may be rather blunt. If such is the case, we may expect that studies with modest sample sizes, and correspondingly modest statistical power to detect differences, would create a literature characterized by inconsistent findings. Furthermore, failure to replicate such studies (e.g., Joffe & Dobson, 1987; King & Heller, 1984) would not be surprising. In short, larger sample sizes may be essential until such time as more sensitive measures of social interaction are developed.

Generally speaking, experimental designs are preferable to correlational designs, since they are more informative regarding the direction of causality (Campbell & Stanley, 1963). The present findings suggest that experimental designs may be particularly important in the study of interpersonal complementarity, since complementarity seems to be relative rather than absolute. An examination of Table 6 reveals that subjects rated themselves highest in the friendly-dominant octant of the IAS regardless of group membership, and one would expect most people to describe themselves in such positive social terms. The differences
in complementarity patterns that were evident from between groups comparisons may not have been apparent in a correlational design.

**Mediating Variables**

The present study's attempts to find intrapersonal variables that mediated the effects of interpersonal impact were unsuccessful. For those subjects exposed to the experimental condition, no significant relationships were found among pretest measures of depressive symptoms and depressive cognitive style and posttest measures of mood and social acceptance. Relationships among these variables were predicted from Coyne's (1976b) model of depression and from Beck's (1967) cognitive model of depression and its critics (e.g., Coyne & Gotlib, 1983; Lewinsohn et al., 1980). It was predicted that depressive cognitive style would correlate with negative mood and that prior depression would correlate with both social acceptance and negative mood. Since the predictions were derived from several sources, the negative findings do not have implications for any particular theoretical model. Furthermore, the possibility that the findings may reflect insufficient statistical power to detect differences cannot be entirely ruled out. These predictions were tested using a correlational design with half of the study's sample, thus much lower statistical power would be expected for tests of these predictions than was the case in the rest of the study. Nevertheless, when
statistical power was improved by reducing the mood variables to a single composite score, the statistical tests still failed to reject the null hypothesis. Although future research may require experimental designs in order to adequately test these predictions, the present findings cannot rule out the hypothesis that depressive cognitions and symptoms do not mediate mood induction and social withdrawal when someone is exposed to the kind of social response that depressed behaviour elicits in strangers.

**Interpersonal Models of Depression**

The present findings supported the underlying assumption of any interpersonal model of depression, that is that the response that the depressed evoke in others elicits both depressive social behaviour and negative mood. Interpersonal circumplex measures and theory enabled the investigation and confirmation of additional predictions regarding interpersonal complementarity. Other predictions based upon Coyne's (1976b) model, cognitive models of depression (Beck, 1967), and criticisms of cognitive models (e.g., Coyne & Gotlib, 1983; Lewinsohn et al., 1980) were not borne out. In short, predictions specific to Coyne's (1976b) model were not supported by the findings. The evidence did support those predictions that were a) common to any interpersonal model of depression, and/or b) derived from interpersonal circumplex theory. As a well developed general theory of human behaviour, interpersonal circumplex
theory has lent both breadth and precision to the study of depression in this instance.

Although the conclusiveness of such findings remains to be established, a number of other specific predictions derived from Coyne's (1976a, 1976b) model have not found strong empirical support in other studies of interactions between strangers. For example, depressed behaviour has not been found to be perceived as manipulative (Coyne, 1976a), evidence has been mixed regarding the prediction that others would initially offer more support to someone who is depressed versus someone who is not depressed (Gotlib & Robinson, 1982; Howes & Hokanson, 1979), and considerable controversy has arisen regarding whether or not depressed people induce negative mood and rejection in others (Doerfler & Chaplin, 1985; Gurtman, 1986; Joffe & Dobson, 1987; King & Heller, 1984). As Doerfler and Chaplin (1985) have pointed out, such findings in studies of strangers do not necessarily negate Coyne's (1976b) model, since it is essentially a model of interaction between intimates. Thus, studies of social interactions between intimates are essential to adequately test interpersonal models of depression.

Studies of intimates may also be required to investigate other interpersonal predictions that are as yet untested, including issues related to guilt feelings and interpersonal control. Coyne (1976b) and Salzman (1975) both emphasized that the capacity of depressed individuals
to induce guilt in others is important in mediating social rejection of the depressed. Since guilt induction would be unlikely with strangers, this hypothesis would need to be tested with studies of intimates. Several interactional models of depression emphasize the role of interpersonal control and manipulation (Coates & Wortman, 1980; Coyne, 1976b; Salzman, 1975). Perceptions of another's attempts to exercise interpersonal control may be more pronounced in interactions between intimates than in those between strangers. Thus, studies of interactions between intimates may be required to investigate predictions derived from several interactional models of depression.

This study shares the limitations of other laboratory analogue research. Although such research enables maximal internal validity, external validity may be constrained (Campbell & Stanley, 1963). Additional evidence is necessary to determine whether the present findings can be extended to men, opposite sex interactants, intimates rather than strangers, actual conversations rather than staged conversations, more naturalistic settings, clinically depressed participants, nondepressed mental health patients, and so on. For example, there is research evidence to suggest that there are important sex differences in the ability to process social stimuli (Wine, Moses, & Swine, 1980). Such differences may also have relevance for social interaction and depression. The question of generalizability is crucial: firm conclusions regarding the
role of interpersonal complementarity in depression cannot be drawn until the generalizability of the present findings is either established or disconfirmed by future research.

The implications of this study’s findings for our understanding of depression are also limited to the extent that the videotaped stimuli represent actual interactional differences. Although the videotapes represent current knowledge, the characteristics of the response evoked by depressed behaviour will need to be confirmed with actual conversations in studies with adequate sample sizes. Had it been feasible, it would have been preferable for this study to have used videotapes of actual conversations wherein the targets in the experimental condition were interacting with people who were diagnosably depressed. Such a strategy was in fact attempted, but was eventually abandoned. Recruitment problems restricted the number of taped conversations from which prototypical conversations that would conform to group data could be selected. The decision to use actors, who could be instructed to respond according to group data, was made in the interest of maximizing internal validity. In future studies, it will be more important to place a greater emphasis upon establishing external validity. Since further research is required to ascertain the extent to which the present findings may be generalized to other circumstances and populations, the results should be interpreted with caution.
Although there is insufficient evidence to date to favour one interpersonal model of depression over any others, there is considerable evidence indicating the significance of social interactional factors in depression. Relative to the nondepressed, the depressed have been found to experience more stressful social events and fewer social supports (e.g., Costello, 1982; Fiore et al., 1983; Monroe et al., 1983), more hostile and critical family environments (Hooley, 1986; Hooley et al., 1986), marital interactions that are characterized by more negative affective tone (Hinchliffe et al., 1971), more interpersonal friction (Weissman & Paykel, 1974), and more negative social responses from strangers (e.g., Boswell & Murray, 1981; Coyne, 1976a; Gotlib & Robinson, 1982; Hammen & Peters, 1978; Hokanson et al., 1980; Howes & Hokanson, 1979; Howes et al., 1985; Robbins et al., 1979; Strack & Coyne, 1983; Winer et al., 1981). The present study provided evidence that supports the assumptions that underly any interpersonal model of depression. Further research, particularly research with social intimates, is required to establish the generalizability of findings to date. In order to prevent the proliferation of studies with inconsistent results, such research should employ experimental designs with adequate sample sizes whenever possible. In any case, further investigation of social interaction seems to be warranted in the quest for a more complete understanding of depression.
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## Appendix

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CONSENT FORM
SOCIAL INTERACTION STUDY
Keith S. Dobson, Ph.D. Patricia C. Manly, M.A.

This is a study about interpersonal interaction. We are interested in how people respond to strangers that they are meeting for the first time. You will first be asked to fill out a short series of questionnaires about your own thoughts and feelings. You will then be asked to view a 15-minute videotape of a conversation and to imagine yourself talking with the person whose face you see on the screen. Finally, you will be asked to complete a second series of questionnaires describing your feelings and impressions. The experimenter will then explain the purpose of the study in detail and will answer any questions. The entire study will take approximately 90 minutes.

Your participation in this study is entirely voluntary and you are free to withdraw at any time you wish without prejudice. All information that you provide will be kept strictly confidential. Your responses will be identified by a coded number only, and when the results of the study are reported, only group data will be presented.

You will be paid $2.00 for your participation in this project.

"I hereby give my consent to participate in this study under the conditions as stated above. I have retained a copy of this statement."

_________________________                _________________________
Name                                                  Researcher

_________________________
Date
This is a study about the acquaintance process. After completing some preliminary questionnaires about your own thoughts and feelings, you will see a 15-minute videotaped conversation. The participants in the conversation are volunteers who agreed to participate in this study. They were asked to talk about themselves and were told that they could discuss anything they chose, but to avoid using one another's names for the sake of confidentiality. Since we are only interested in our subjects' impressions of one person at a time, you will only see one person's face on the videoscreen, and the voice of the off-camera participant has been masked.

As you see the videotape, imagine that you are talking with the person whose face you see on the screen. Try to allow yourself to react as though you are meeting this person for the first time and beginning to get to know her. Be aware of how you are feeling inside and how you are feeling toward the person you see as the conversation progresses. Try to form an impression of her and think about what it is like to be with her.

When the videotape is over, complete the second set of questionnaires. As you continue to imagine being with the person you have just seen, we will be asking about your response to her. What is your mood? What are your impressions of her? How do you feel towards her? What is she like? Please give your honest feelings, opinions, and reactions, remembering that all your responses are strictly confidential.

If you have any questions about the procedure at this time, please ask the experimenter. Otherwise, you may begin with the first set of questionnaires.
This packet of questionnaires will ask you about some of your thoughts and feelings. In some cases you will be asked about how you feel right now, at this moment, and in others you will be asked about how you feel more generally. For each questionnaire, please read the instructions carefully. Remember that your responses will be completely confidential.
From the ten statements listed below, please circle the number of the one that best describes how elated or depressed, happy or unhappy you feel right now, at this moment.

9. Very elated and in very high spirits. Tremendous delight and buoyancy.
8. Elated and in high spirits.
7. Feeling very good and cheerful.
6. Feeling pretty good, "OK".
4. Spirits low and somewhat "blue".
3. Depressed and feeling very low. Definitely "blue".
2. Extremely depressed. Feeling terrible, miserable "just awful."
1. Utter depression and gloom. Completely down. All is black and leaden.
How do you feel right now? Each pair of words below describes a feeling dimension. Some of the pairs may seem unusual, but you probably feel more one way than the other. Please put one check somewhere along each line (Example: \(--;\-;\--\)--) to show how you feel right now. Please take your time to arrive at an accurate description of your feelings.

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<tr>
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<tr>
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<td>Aroused</td>
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<tr>
<td>Guided</td>
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On this sheet you will find words which describe different moods and feelings. Circle the number of all which describe how you feel right now, at this moment.

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<td>33</td>
<td>destroyed</td>
<td>66</td>
<td>inspired</td>
<td>99</td>
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Beck Inventory

On this questionnaire are groups of statements. Please read each group of statements carefully. Then pick out the one statement in each group which best describes the way you have been feeling the PAST WEEK, INCLUDING TODAY: Circle the number beside the statement you picked. If several statements in the group seem to apply equally well, circle each one. Be sure to read all the statements in each group before making your choice.

1. 0 I do not feel sad.
   1 I feel sad.
   2 I am sad all the time and I can't snap out of it.
   3 I am so sad or unhappy that I can't stand it.

2. 0 I am not particularly discouraged about the future.
   1 I feel discouraged about the future.
   2 I feel I have nothing to look forward to.
   3 I feel that the future is hopeless and that things cannot improve.

3. 0 I do not feel like a failure.
   1 I feel I have failed more than the average person.
   2 As I look back on my life, all I can see is a lot of failures.
   3 I feel I am a complete failure as a person.

4. 0 I get as much satisfaction out of things as I used to.
   1 I don't enjoy things the way I used to.
   2 I don't get real satisfaction out of anything anymore.
   3 I am dissatisfied or bored with everything.

5. 0 I don't feel particularly guilty.
   1 I feel guilty a good part of the time.
   2 I feel quite guilty most of the time.
   3 I feel guilty all of the time.

6. 0 I don't feel I am being punished.
   1 I feel I may be punished.
   2 I expect to be punished.
   3 I feel I am being punished.

7. 0 I don't feel disappointed in myself.
   1 I am disappointed in myself.
   2 I am disgusted with myself.
   3 I hate myself.

8. 0 I don't feel I am any worse than anybody else.
   1 I am critical of myself for my weaknesses or mistakes.
   2 I blame myself all the time for my faults.
   3 I blame myself for everything bad that happens.

9. 0 I don't have any thoughts of killing myself.
   1 I have thoughts of killing myself, but I would not carry them out.
   2 I would like to kill myself.
   3 I would kill myself if I had the chance.

10. 0 I don't cry anymore than usual.
    1 I cry more now than I used to.
    2 I cry all the time now.
    3 I used to be able to cry, but now I can't cry even though I want to.
11. 0 I am no more irritated now than I ever am.  
1 I get annoyed or irritated more easily than I used to.  
2 I feel irritated all the time now.  
3 I don't get irritated at all by the things that used to irritate me.  

12. 0 I have not lost interest in other people.  
1 I am less interested in other people than I used to be.  
2 I have lost most of my interest in other people.  
3 I have lost all of my interest in other people.  

13. 0 I make decisions about as well as I ever could.  
1 I put off making decisions more than I used to.  
2 I have greater difficulty in making decisions than before.  
3 I can't make decisions at all anymore.  

14. 0 I don't feel I look any worse than I used to.  
1 I am worried that I am looking old or unattractive.  
2 I feel that there are permanent changes in my appearance that make me look unattractive.  
3 I believe that I look ugly.  

15. 0 I can work about as well as before.  
1 It takes an extra effort to get started at doing something.  
2 I have to push myself very hard to do anything.  
3 I can't do any work at all.  

16. 0 I can sleep as well as usual.  
1 I don't sleep as well as I used to.  
2 I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.  
3 I wake up several hours earlier than I used to and cannot get back to sleep.  

17. 0 I don't get more tired than usual.  
1 I get tired more easily than I used to.  
2 I get tired from doing almost anything.  
3 I am too tired to do anything.  

18. 0 My appetite is no worse than usual  
1 My appetite is not as good as it used to be.  
2 My appetite is much worse now.  
3 I have no appetite at all anymore.  

19. 0 I haven't lost much weight, if any lately.  
1 I have lost more than 5 pounds. I am purposely trying to lose weight by eating less.  
2 I have lost more than 10 pounds.  
3 I have lost more than 15 pounds. Yes____ No____  

20. 0 I am no more worried about my health than usual.  
1 I am worried about physical problems such as aches and pains; or upset stomach; or constipation.  
2 I am very worried about physical problems and it's hard to think of much else.  
3 I am so worried about my physical problems, that I cannot think about anything else.  

21. 0 I have not noticed any recent change in my interest in sex.  
1 I am less interested in sex than I used to be.  
2 I am much less interested in sex now.  
3 I have lost interest in sex completely.
This Inventory lists different attitudes or beliefs which people sometimes hold. Read EACH statement carefully and decide how much you agree or disagree with the statement.

For each of the attitudes, show your answer by placing a checkmark (✓) under the column that BEST DESCRIBES HOW YOU THINK. Be sure to choose only one answer for each attitude. Because people are different, there is no right answer or wrong answer to these statements.

To decide whether a given attitude is typical of your way of looking at things, simply keep in mind what you are like MOST OF THE TIME.

EXAMPLE:

<table>
<thead>
<tr>
<th>ATTITUDES</th>
<th>TOTALLY AGREE</th>
<th>AGREE VERY MUCH</th>
<th>AGREE SLIGHTLY</th>
<th>NEUTRAL</th>
<th>DISAGREE SLIGHTLY</th>
<th>DISAGREE MUCH</th>
<th>TOTALLY DISAGREE</th>
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<tbody>
<tr>
<td>1. Most people are O.K. once you get to know them.</td>
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<td>✓</td>
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Look at the example above. To show how much a sentence describes your attitude, you can check any point from totally agree to totally disagree. In the above example, the checkmark at "agree slightly" indicates that this statement is somewhat typical of the attitudes held by the person completing the inventory.

Remember that your answer should describe the way you think MOST OF THE TIME.

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<table>
<thead>
<tr>
<th>ATTITUDES</th>
<th>TOTALLY AGREE</th>
<th>AGREE VERY MUCH</th>
<th>AGREE SLIGHTLY</th>
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<th>DISAGREE SLIGHTLY</th>
<th>DISAGREE VERY MUCH</th>
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<tr>
<td>REMEMBER, ANSWER EACH STATEMENT ACCORDING TO THE WAY YOU THINK MOST OF THE TIME.</td>
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<tr>
<td>1. It is difficult to be happy unless one is good looking, intelligent, rich and creative.</td>
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<td>2. Happiness is more a matter of my attitude towards myself than the way other people feel about me.</td>
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<td>3. People will probably think less of me if I make a mistake.</td>
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<td>4. If I do not do well all the time, people will not respect me.</td>
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<td>5. Taking even a small risk is foolish because the loss is likely to be a disaster.</td>
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<td>6. It is possible to gain another person's respect without being especially talented at anything.</td>
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<td>7. I cannot be happy unless most people I know admire me.</td>
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<td>8. If a person asks for help, it is a sign of weakness.</td>
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<td>9. If I do not do as well as other people, it means I am an inferior human being.</td>
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<td>10. If I fail at my work, then I am a failure as a person.</td>
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<td>11. If you cannot do something well, there is little point in doing it at all.</td>
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<td>12. Making mistakes is fine because I can learn from them.</td>
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<td>13. If someone disagrees with me, it probably indicates he does not like me.</td>
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<td>14. If I fail partly, it is as bad as being a complete failure.</td>
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<td>15. If other people know what you are really like, they will think less of you.</td>
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<td>16. I am nothing if a person I love doesn't love me.</td>
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<td>17. One can get pleasure from an activity regardless of the end result.</td>
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<td>18. People should have a reasonable likelihood of success before undertaking anything.</td>
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<td>19. My value as a person depends greatly on what others think of me.</td>
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<td>20. If I don't set the highest standards for myself, I am likely to end up a second-rate person.</td>
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<td>21. If I am to be a worthwhile person, I must be truly outstanding in at least one major respect.</td>
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<td>22. People who have good ideas are more worthy than those who do not.</td>
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<td>23. I should be upset if I make a mistake.</td>
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<td>24. My own opinions of myself are more important than other's opinions of me.</td>
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<td>25. To be a good, moral, worthwhile person, I must help everyone who needs it.</td>
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<td>26. If I ask a question, it makes me look inferior.</td>
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<td>27. It is awful to be disapproved of by people important to you.</td>
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<td>28. If you don't have other people to lean on, you are bound to be sad.</td>
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<td>29. I can reach important goals without driving myself.</td>
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<td>30. It is possible for a person to be scolded and not get upset.</td>
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<td>31. I cannot trust other people because they might be cruel to me.</td>
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<td>32. If others dislike you, you cannot be happy.</td>
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<td>33. It is best to give up your own interests in order to please other people.</td>
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<td>34. My happiness depends more on other people than it does on me.</td>
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<td>35. I do not need the approval of other people in order to be happy.</td>
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<td>36. If a person avoids problems, the problems tend to go away.</td>
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<td>37. I can be happy even if I miss out on many of the good things in life.</td>
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<td>38. What other people think about me is very important.</td>
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<td>39. Being isolated from others is bound to lead to unhappiness.</td>
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<td>40. I can find happiness without being loved by another person.</td>
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</table>
Now watch the videotape carefully and imagine yourself talking to the person whose face you see on the screen. Try to allow yourself to react as though the two of you are actually carrying on a conversation after meeting for the first time.

Be aware of your impressions of this person and how you feel about her.

When the videotape is over, continue to imagine being with the person you are about to see, and complete the second set of questionnaires.
QUESTIONNAIRES: SET TWO

DO NOT OPEN UNTIL VIDEO IS OVER
We are now interested in your response to the person you have just seen. Please complete the following questionnaires on your feelings, opinions, thoughts, and reactions. Continue to imagine being with the person you have just seen as you fill out the questionnaires. The first three questionnaires will ask you about your mood.
From the ten statements listed below, please circle the number of the one that best describes how elated or depressed, happy or unhappy you feel right now, at this moment.

9. Very elated and in very high spirits. Tremendous delight and buoyancy.
8. Elated and in high spirits.
7. Feeling very good and cheerful.
6. Feeling pretty good, "OK".
4. Spirits low and somewhat "blue".
3. Depressed and feeling very low. Definitely "blue".
2. Tremendously depressed. Feeling terrible, miserable "just awful."
1. Utter depression and gloom. Completely down. All is black and leaden.

(Continue to think about the person you have just seen)
How do you feel right now? Each pair of words below describes a feeling dimension. Some of the pairs may seem unusual, but you probably feel more one way than the other. Please put one check somewhere along each line (example: ---; -x--; ---) to show how you feel right now. Please take your time to arrive at an accurate description of your feelings.

Happy
Stimulated
Controlling
Annoyed
Calm
Influenced
Satisfied
Frenzied
In Control
Melancholic
Dull
Awed
Hopeful
Wide Awake
Dominant
Bored
Unaroused
Guided

Unhappy
Relaxed
Controlled
Pleased
Excited
Influential
Dissatisfied
Sluggish
Cared for
Contented
Jittery
Important
Despairing
Sleepy
Submissive
Relaxed
Aroused
Autonomous

(Please continue thinking about the person you have just seen)
On this sheet you will find words which describe different moods and feelings. Circle the number of all which describe how you feel right now, at this moment.

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<td>inspired</td>
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<td>safe</td>
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<td>young</td>
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</table>

(Please continue thinking about the person you have just seen)
OPINION SCALE

What are your thoughts and opinions about the person you have just seen? Answer the following questions by circling one of the numbers on the 6-point scale given with each question. Consider the person in comparison with other acquaintances that you have. Work quickly. Your first impression is probably best.

1. Would you like to meet this person?
   1 2 3 4 5 6
   definitely no definitely yes

2. Would you ask this person for advice?
   1 2 3 4 5 6
   definitely no definitely yes

3. Would you like to sit next to this person on a 3 hour bus trip?
   1 2 3 4 5 6
   definitely no definitely yes

4. Would you be willing to work on a job with this person?
   1 2 3 4 5 6
   definitely no definitely yes

5. Would you be willing to have this person eat lunch with you often?
   1 2 3 4 5 6
   definitely no definitely yes

6. Would you invite this person to your home?
   1 2 3 4 5 6
   definitely no definitely yes

7. Would you be willing to share an apartment with someone like this?
   1 2 3 4 5 6
   definitely no definitely yes

8. Would you be willing to have a person like this supervise your work?
   1 2 3 4 5 6
   definitely no definitely yes

9. How physically attractive do you think this person is?
   1 2 3 4 5 6
   definitely no definitely yes

10. How socially poised do you think this person is?
    1 2 3 4 5 6
    definitely no definitely yes

continued...
11. How likely would it be that this person could become a close friend of yours?

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<tr>
<th>1</th>
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<th>3</th>
<th>4</th>
<th>5</th>
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<td>definitely yes</td>
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</table>

12. How likely would you be to approve of a close relative dating a person with this kind of personality?

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<td>definitely no</td>
<td>definitely yes</td>
<td></td>
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</tbody>
</table>

13. How likely would you be to approve of a close relative marrying someone with a personality like this?

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<th>4</th>
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<td>definitely no</td>
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PREVIOUSLY COPYRIGHTED MATERIAL ON PAGES 120 TO 125 WAS NOT MICROFILMED. PLEASE REFER, IF NEED BE, TO THE ORIGINAL THESIS DEPOSITED IN THE UNIVERSITY CONFERRING THE DEGREE.
IMPACT MESSAGE INVENTORY

(IN: FORM II - 1976)

Name: ___________________________ Sex: ______

Age: ___________________________ Subject number: ______________

This inventory contains words, phrases and statements which people use to describe how they feel when interacting with another person.

You are to respond to this Inventory by indicating how accurately each of the following items describes your reactions to the person you have just seen. Respond to each item in terms of how precisely it describes the feelings this person arouses in you, the behaviors you want to direct toward her when she’s around, and/or the descriptions of her that come to mind when you’re with her. Indicate how each item describes your actual reactions by using the following scale: 1=Not at all, 2=Somewhat, 3=Moderately so, 4=Very much so.

In filling out the following pages, first imagine you are in this person’s presence, in the process of interacting with her. Focus on the immediate reactions you would be experiencing. Then read each of the following items and fill in the number to the left of the statement which best describes how you would be feeling and/or would want to behave if you were actually, at this moment, in the person’s presence.

At the top of each page, in bold print, is a statement which is to precede each of the items on that page. Read this statement to yourself before reading each item; it will aid you in imagining the presence of the person you have just seen.

There are no right or wrong answers since different people react differently to the same person. What we want you to indicate is the extent to which each item accurately describes what you would be experiencing if you were interacting right now with this person.

Please be sure to fill in the one number which best answers how accurately that item describes what you would be experiencing. For example, if an item is Somewhat descriptive of your reaction, fill in the number 2 for Somewhat descriptive:

Thank you in advance for your cooperation.

The Impact Message Inventory was developed by Donald J. Kiesler, Jack C. Anchin, Michael J. Perkins, Bernard H. Chirico, Edgar M. Kyle, and Edward J. Federman of Virginia Commonwealth University, Richmond, Virginia.

Copyright © 1975, 1976 by Donald J. Kiesler
1-Not at all
2-Somewhat
3-Moderately so
4-Very much so

WHEN I AM WITH THIS PERSON SHE MAKES ME FEEL

1. bossed around.
2. distant from her.
3. superior to her.
4. important.
5. entertained.
6. impersonal.
7. like an intruder.
8. in charge.
9. appreciated by her.
10. part of the group when she's around.
11. cold.
12. forced to shoulder all the responsibility.
13. needed.
14. complimented.
15. as if she's the class clown.
16. annoyed.
17. embarrassed for her.
18. frustrated because she won't defend her position.
19. loved.
20. taken charge of.
21. defensive.
22. curious as to why she avoids being alone.
23. dominant.
24. welcome with her.
25. as important to her as others in the group.
26. like an impersonal audience.
27. uneasy.
28. as though she should do it herself.
29. admired.
30. like I'm just one of many friends.
1-Not at all  3-Moderately so
2-Somewhat  4-Very much so

WHEN I AM WITH THIS PERSON IT APPEARS TO ME THAT...

1. she wants to be the center of attraction.  17. she’s nervous around me.
2. she doesn’t want to get involved with me.  18. whatever I did would be okay with her.
3. she is most comfortable withdrawing into the background when an issue arises.  19. she trusts me.
4. she wants to pick by brain.  20. she thinks other people find her interesting, amusing, fascinating and witty.
5. she carries her share of the load.  21. she weighs situations in terms of what she can get out of them.
6. she wants me to put her on a pedestal.  22. she’d rather be left alone.
7. she’d rather be alone.  23. she sees me as superior.
8. she thinks she can’t do anything for herself.  24. she’s genuinely interested in me.
9. her time is mine if I need it.  25. she wants to be with others.
10. she wants everyone to like her.  26. she thinks she’s always in control of things.
11. she thinks it’s every person for himself or herself.  27. as far as she’s concerned, I could just as easily be someone else.
12. she thinks she will be ridiculed if she asserts herself with others.  28. she thinks she is inadequate.
13. she would accept whatever I said.  29. she thinks I have most of the answers.
14. she wants to be helpful.  30. she enjoys being with people.
15. she wants to be the charming one.
16. she’s carrying a grudge.
1-Not at all  
2-Somewhat  
3-Moderately so  
4-Very much so  

WHEN I AM WITH THIS PERSON SHE MAKES ME FEEL THAT...

1. I want to tell her to give someone else a chance to make a decision.
2. I should be cautious about what I say or do around her.
3. I should be very gentle with her.
4. I want her to disagree with me sometimes.
5. I could lean on her for support.
6. I want to put her down.
7. I'm going to intrude.
8. I should tell her to stand up for herself.
9. I can ask her to carry her share of the load.
10. I could relax and she'd take charge.
11. I want to stay away from her.
12. I should avoid putting her on the spot.
13. I could tell her anything and she would agree.
14. I can join in the activities.
15. I want to tell her she's obnoxious.
16. I want to get away from her.
17. I should do something to put her at ease.
18. I want to point out her good qualities to her.
19. I shouldn't hesitate to call on her.
20. I shouldn't take her seriously.
21. I should tell her she's often quite inconsiderate.
22. I want to show her what she does is self-defeating.
23. I should tell her not to be so nervous around me.
24. I could ask her to do anything.
25. I want to ask her why she constantly needs to be with other people.
26. I want to protect myself.
27. I should leave her alone.
28. I should gently help her begin to assume responsibility for her own decisions.
29. I want to hear what she doesn't like about me.
30. I should like her.
We would now like you to take a few seconds to picture yourself spending time with the person you have seen on the videotape. Imagine as vividly as you can how you would be likely to feel and act when in her company. On the following page you will find a list of personal descriptions. For each word on the list, indicate how accurately it describes the way you would be when with her. The accuracy with which a word would describe your responses is to be judged on the following scale:

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</table>

Consider the word BOLD. How accurately would that word describe your responses to the person you have just seen? If you think that this word is a quite accurate description of how you would be with her, write the number "6" to the left of the item:

6  BOLD

If you think that this word is a slightly inaccurate description, write the number "4" next to it, if it is very inaccurate, write the number "2", etc.

Please answer all items. If you are uncertain of the meaning of a word, ask the experimenter to define it for you.

If you find it necessary, take a few seconds from time to time to imagine very vividly what it would be like to be around this person. What would you be like around this person?
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