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Chapter One
What is the Impact Message Inventory?

The Impact Message Inventory (IMI) is a self-report transactional inventory designed to measure distinctive internal reactions, referred to as impact messages, that interactants experience to the full range of interpersonal behaviors indexed along the circumference of the interpersonal circle (Kiesler, 1983; Leary, 1957). Unique in examining the covert reactions evoked during interpersonal transactions (Wiggins, 1982), it assesses one person's (the target individual's) interpersonal behavior as experienced through the emotional and other reactions pulled from other individuals with whom he or she interacts (Kiesler, Schmidt, & Wagner, 1997). The inventory was constructed on the assumption that the interpersonal or evoking behavior of one person (A) can be validly characterized and measured by assessing the covert responses or impact messages of another person (B) who has interacted with or observed A. Person B (the respondent) fills out the inventory on Person A (the target).

Originally the IMI was constructed to characterize the evolving patient-therapist relationship during psychotherapy. It became apparent that the IMI could also be used to study any two-person late adolescent or adult interaction including that between patient and physician, student and teacher, husband and wife; between two siblings, family members, friends, acquaintances or strangers, and other dyads.

The IMI is a self-report instrument since one transactant in a dyadic interaction (respondent B) reports his or her emotional, behavioral, and cognitive internal engagements experienced during interactions with a specified or targeted interacting partner (A). However, it is not a traditional self-report inventory since person B's report of his or her internal engagements are not scored to characterize person B's own behavior or interpersonal style; rather, person B's responses to the IMI items characterize the interpersonal behavior of person A. It is a transactional device since respondent B's reported impacts or engagements (IMI items) are scored to characterize the interpersonal behavior of the targeted interacting partner (A). The IMI, thus, describes the interpersonal behavior of normal and maladjusted individuals by measuring the interpersonal consequences of their behavior as they interact with other persons. Since the IMI is both a self-report and transactional inventory, it is the first of its kind in the area of psychological measurement.

Similarly, the IMI is not a traditional rating or coding instrument. The IMI respondent (B) is not asked to answer items that describe A's overt behavior or to record perceptions that describe A's observable actions. Instead, the IMI respondent is asked to describe his or her own inner reactions and engagements when interacting with person A, which then are scored to characterize A's interpersonal behavior when interacting with B.

In sum, the IMI differs significantly from self-report or rating interpersonal inventories such as LaForge and Suczek's (1955) Interpersonal Check List (ICL) or the Interpersonal Adjective Scales-Revised (IAS-R; Wiggins, Trapnell, & Phillips, 1988), or the Interpersonal Behavior Inventory (IBI; Lorr, Bishop, & McNair, 1965; Lorr & McNair, 1967).
Rationale for the IMI

The goal of most psychologists, certainly interpersonal investigators, is to understand and predict the behavior of humans as we interact with each other in everyday situations. The central, repetitive patterns that characterize our lives, the basic motivations or tendencies that guide our actions, are assumed to be most evident in our everyday transactions with a variety of other persons. As humans we tend to show varying degrees of repetitiveness in the kinds of relationships we attempt to establish with others.

Psychologists disagree as to the extent of the consistency evident in our social transactions. Some argue for wide-band consistency of individuals’ behavior across many situations, while others advocate narrow-bands wherein individuals’ behaviors are constrained primarily by the parameters and rules of particular situations. Today most psychologists opt for an intermediate position which claims that central, repetitive patterns of actions show generalizability across a moderate band of situations, but also can be modified by the contextual features of particular environmental settings.

The conceptual underpinnings of the IMI derive from contemporary interpersonal theory (Anchin & Kiesler, 1982, Carson, 1969; Kiesler, 1982a, 1991, 1996; Leary, 1957; Sullivan, 1953). The theory focuses on the underlying relationship negotiations between individuals during their social interactions. These negotiations are rooted in the cognitive and emotional experiences of the interacting partners, which subsequently affect the strength and patterning of their sequential reactions. The underlying theory is that our interpersonal behavior serves the function of establishing distinctive kinds of relationships with others – relationships that are comfortable, anxiety-free, and serve to confirm our conceptions of who we are as individuals. In order to establish these comfortable relationships, it is necessary that we, in automatic and minimally aware ways, maneuver persons who are interacting with us to adopt relationship positions that are “complementary” and reinforcing of the positions we are proffering. The first effect of this transactional negotiation is that we begin to restrict the covert experience (feelings, action tendencies, images, cognitions) of persons interacting with us in a manner that makes it more likely they will respond overtly in the way we desire.

The name “impact message” comes from one of the major constructs in Kiesler’s interpersonal communication theory for personality and psychotherapy (Kiesler, 1979, 1982b, 1983, 1988, 1991, 1996). A basic notion is that relationship is inevitable and pervasive in human transactions, including psychotherapy, and occurs primarily through nonverbal messages by which one person invokes a claim on the interactant to accept the person’s particular self-presentation. Two central concepts are the “evoking message” which is the claim presented or encoded nonverbally by one interactant and “impact message” which is the corresponding message the other participant internally receives, registers, or decodes. The evoking message imposes a condition or command as a result of which the interactant decoder behaves as the encoder signaled without either being much aware of the command transaction. The impact message denotes the receiving end of this process and refers to the covert emotional and other “pulls” evoked in the decoder as the direct result of the encoder’s evoking message.

Impact messages, thus, are all internal emotional events an interactant (person B) experiences as predominantly produced or evoked by a target individual (person A) during their routine or other transactions. Impact experiences include direct feelings, action tendencies, perceived evoking messages, and metaphors or fantasies, all of which symbolize interactant B’s thematic covert engagements experienced in the presence of person A.
Four classes of impact messages are distinguished (Kiesler, 1979, 1982b; 1988): (1) **Direct feelings.** When respondent B is with person A, person A arouses distinct feelings and pulls specific emotions from B (e.g., I feel ... bored, angry, suspicious, competitive, cautious, etc.). (2) **Action tendencies.** Respondent B also experiences definite urges or pulls to do or not do something when with person A (e.g., I should avoid interrupting him; I should leave her alone; I should defend myself; I have to be gentle with her; I have to find some answers for him soon; etc.). (3) **Perceived Evoking Messages.** When with person A, various thoughts run through respondent B's head about what person A is trying to do to B, or what B thinks person A wants B to do, thoughts about what person A is feeling or thinking about respondent B (e.g., This person wants me to put him on a pedestal; she thinks I can't be trusted; he would rather be left alone; she is determined to be in control of me; he wants to be the center of attention; etc.). (4) **Fantasies.** When with interactant A, person B may experience more or less vivid images of him or herself in concrete situations with person A (e.g. persons A and B on separate rafts floating out to sea; interactant B holding person A in her lap in a rocking chair; persons A and B playing poker, each wearing dark glasses; persons A and B making love on a white sand beach; etc.).

The IMI-C items assess three of the four categories (excluding fantasies): direct feelings, action tendencies, and perceived evoking messages.

The IMI was designed to describe a person's (encoder's) distinctive interpersonal evoking behavior by measuring the impacts reported by interpersonal partners (decoders). Although interactants ordinarily are not clearly aware of their internal engagements or impacts in response to others, these covert reactions can become available and reportable as attention is focused upon them. A respondent filling out of the IMI-C demands a focus on these internal emotional and other events which typically occur as ground (vs. figure) in one's transactions with others. The IMI-C, thus, serves to tap the automatic, relatively unconscious sets of emotional and other covert reactions we have to other persons.

As both a transactional and self-report inventory, the IMI is the first of its kind in the area of psychological measurement. It also is distinct and unique among interpersonal circumplex inventories found within contemporary interpersonal theory of personality, psychopathology, and psychotherapy (Kiesler, 1996; Wiggins, 1982).

**The IMI-C**

Two previous publications offered summaries of available psychometric data on the IMI. Kiesler (1987b) provided a research manual for the original 90-item (15 Scale) IMI developed by Kiesler, Anchin, Perkins, et al., (1976, 1985). Kiesler and Schmidt (1993) provided a brief manual for the 56-item (8 Scale) latest IMI revision, the Impact Message Inventory-Circumplex version (IMI-C), with a summary of structural and psychometric analyses for the 8-scale IMI-C (octant) version found also in Schmidt, Wagner and Kiesler (1999b). Because of its demonstrated superior circumplex and psychometric properties, researchers and clinicians have been urged to use exclusively the most recent IMI-C octant version.

The IMI-C measures eight categories of interpersonal behavior arranged equidistantly around the circumference of the interpersonal circle (Kiesler, 1983). The eight scales are (in counterclockwise order around the circle beginning at the top center): dominant, hostile-dominant, hostile, hostile-submissive, submissive, friendly-submissive, friendly, and friendly-dominant. Each of the eight scales is measured by 7 items, yielding a total of 56 IMI-C items. The 7 items for each scale consist of mixtures of content measuring direct feelings, action tendencies, and perceived evoking messages. Table 1-1 presents examples of impact items for
Kiesler and Schmidt’s (1993) eight IMI-C scales. Table 2-1, in the next chapter, provides a complete listing of the 56 items that measure the eight IMI-C scales.

Table 1-1: Examples of Inventory Items for Kiesler and Schmidt’s (1993) IMI-C Octants

<table>
<thead>
<tr>
<th>OCTANT</th>
<th>SAMPLE IMI-C ITEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>&quot;When I am with this person, he/she makes me feel ...</td>
</tr>
<tr>
<td>HD</td>
<td>bossed around.</td>
</tr>
<tr>
<td>H</td>
<td>that I want to stay away from him/her.</td>
</tr>
<tr>
<td>HS</td>
<td>distant from him/her.</td>
</tr>
<tr>
<td>S</td>
<td>that I should tell him/her not to be so nervous around me.</td>
</tr>
<tr>
<td>FS</td>
<td>in charge.</td>
</tr>
<tr>
<td>F</td>
<td>that I could tell him/her anything and he/she would agree.</td>
</tr>
<tr>
<td>FD</td>
<td>appreciated by him/her.</td>
</tr>
</tbody>
</table>

|          | |
| D = Dominant | S = Submissive |
| HD = Hostile-dominant | FS = Friendly-submissive |
| H = Hostile | F = Friendly |
| HS = Hostile-submissive | FD = Friendly-dominant |

References for IMI and IMI-C. The following references are the precise citations for the original IMI and its octant revision, IMI-C.

Original 15-scale version

IMI-C (circumplex, octant scale) version

Reviews and Critiques of the IMI. Four reviews and critiques of the original IMI have appeared: two in the Ninth Mental Measurements Yearbook (Borgen, 1985; Strong, 1985); one in Test Critiques (McCarthy, 1985); and one in the Handbook of Research Methods in Clinical Psychology (Wiggins, 1982).

Translations of IMI and IMI-C Into Other Languages. The original 90-item IMI was translated into German by F. Caspar (1984). The IMI-C has been translated into Dutch by A. Hafkenscheid (2003b) and into Japanese by T. Furukawa (2005). F. Caspar (personal communication) is in the process of translating IMI-C into both German and French.
Uses of the IMI-C

Since original publication of the IMI, a large number of IMI and IMI-C studies have appeared (Kiesler, 1987b, 1996, 2001). Kiesler’s (1987b) earlier research manual provided summaries of most of the IMI studies completed to that date. Kiesler’s (1996) book on contemporary interpersonal theory and research devoted a chapter to the clinical and research applications of the IMI. Kiesler (2001, October) made available on the internet a comprehensive annotated bibliography of empirical studies that had used the IMI or the IMI-C. Chapter Six will provide a more detailed summary of typical IMI or IMI-C studies.

The IMI has shown wide applications to human transactions including individual, marital, and group psychotherapy, patient-physician medical consultations, interview and laboratory dyadic situations, and other transactions occurring routinely in individuals’ lives. The Inventory has shown useful research applications to single-case and group studies of psychotherapy as well as to psychotherapy training and supervision. It has been used as an outcome measure by which the therapist, observers, and others record their changing interpersonal impacts to the patient’s interpersonal behavior over the course of therapy and follow-up periods. In marital and group therapy, it has served as a repeated outcome measure filled out by spouses or group members on each other.

Along with other interpersonal measures, the IMI has beneficial clinical uses as part of the individual psychotherapy process itself (Van Denburg, Schmidt, & Kiesler, 1992). Its use permits assessment of the distinctive covert reactions of both client and therapist, which complement their overt reactions, in specifying the components of the patient’s central maladaptive transaction cycle (MTC; see Figure 5-4). This profile, in turn, permits construction of a treatment plan that specifies the goals of treatment as well as the patterns of complementary and non-complementary patient-therapist relationship that need to characterize sequential stages over the course of successful psychotherapy (cf. Kiesler, 1983, 1996; Tracey, 1993; Tracey, Patrick-Sherry, & Albright, 1999). Two items in the Appendix “Interpersonal Treatment Plan: Example for an Unassured Submissive Patient” and its companion, “Interpersonal Treatment Plan: Therapist Worksheet” are quite useful in applications to individual psychotherapy. The IMI may be used as an outcome measure by which the therapist, observers, and/or significant others record their changing interpersonal impacts to the patient over the course of therapy and follow-up periods.

The IMI has proven especially applicable to marital therapy, where it is used not only as a repeated measure of a couple’s improvement but is easily incorporated into the therapy process itself. Discussion by spouses of their rated impacts in a protective setting provides a productive take-off point for continuing therapeutic meta-communication (Kiesler, 1982b, 1988) both within and outside the session. In marital and group therapy it can serve as a repeatedly applied outcome measure filled out by spouses or group members on each other.

The IMI has shown equivalent utility in training and supervision. In the therapist training context, use of the Inventory can sensitize therapists to their emotional and other engagements experienced with their patients, as well as to the patient’s verbal and nonverbal behaviors that produce the impacts. By systematically recording their impacts to patients at various stages of the psychotherapy process, trainees learn to tune-in and become sensitive to their distinctive emotional and other engagements experienced with patients. Through comparison of a trainee’s and supervisor’s (or other trainees’) IMI responses, a trainee also can learn to discriminate his or her impacts with patients that are consensually validated (objective countertransference) from the trainee’s impacts that are more idiosyncratic (subjective countertransference).
information can particularly help trainees to identify interpersonal “pulls” of patients that more likely make them anxious, from which they have more difficulty disengaging, and in reaction to which they likely escalate rigid and extreme patterns of their own interpersonal behavior. Use of the IMI also can sensitize therapists to the distinctive impacts they produce in others including their clients and can assist therapists to broaden their range of emotional sensitivity and response to a patient’s verbal and nonverbal relationship messages. Equally importantly, therapists can learn how to metacommunicate therapeutically with patients (Kiesler, 1982b, 1988, 1996) about their patients’ problematic self-defeating interpersonal patterns. In a similar manner, patients also can learn how to metacommunicate therapeutically, not only with the therapist but also with significant others in their lives whenever conflictual or problematic interpersonal transactions occur.

During supervision systematic use of the IMI seems to ameliorate the predisposition of novice therapists (trainees) to respond to their clients with only a restricted range of feeling tones. Through IMI feedback regarding the generalizability of impacts they experience with patients as well as regarding impacts they themselves evoked in patients, supervisors, and other trainees new therapists can learn to broaden the range of their emotional sensitivity and the therapeutic interventions they use.

Kiesler (1992) illustrated in detail how interpersonal circle inventories, such as the IMI, can form an integral part of the conceptualization and assessment of important constructs that have been derived from various psychotherapy theories. These include the therapeutic alliance, social reinforcement, resistance and countercontrol, transference, and countertransference. He showed how applications of the IMI also can address other important psychotherapy issues such as therapist-patient matching, parallel process in psychotherapy and supervision, and assessment of DSM personality disorder.

As Wiggins (1982) concluded: “The Impact Message Inventory is a much needed and welcome addition to the clinician’s collection of methods for measuring dimensions of interpersonal behavior. The focus of the instrument upon the covert impacts of a patient upon significant others provides a valuable source of clinical information that could not be derived from previous assessment devices.” (p. 200).
Chapter Two
Administration and Scoring of the IMI-C

The IMI-C Octant Scales

The original 90-item (15 Scale) IMI was developed by Kiesler, Anchin, Perkins, et al., 1976, 1985). The IMI-C (Kiesler & Schmidt, 1993), composed of a subset of 56 of the original 90 items, measures eight categories of interpersonal behavior arranged equidistantly around the circumference of the interpersonal circle. The eight scales are (in counterclockwise order around the circle beginning at the top center): dominant, hostile-dominant, hostile, hostile-submissive, submissive, friendly-submissive, friendly, and friendly-dominant. Each of the eight scales is measured by 7 items, yielding a total of 56 IMI-C items. The 7 items for each scale consist of mixtures of content that measures direct feelings, action tendencies, and perceived evoking messages. Table 2-1 provides the 7 IMI-C items of covert emotional impacts found in each of Kiesler and Schmidt’s (1993) eight IMI-C scales.

Table 2-1. Scoring Key for Kiesler and Schmidt’s (1993) 56-item IMI-C

D: DOMINANT

1. feel bossed around (DOM)*
17. feel taken charge of (EXH)
18. that I want to tell him to give someone else a chance to make a decision (DOM)
33. appears that he wants to be the center of attention (DOM)
36. appears that he wants me to put him on a pedestal (COM)
44. appears that he thinks he's always in control of things (DOM)
48. appears that he weighs situations in terms of what he can get out of them (COM)
**HD: HOSTILE-DOMINANT**

12. feel uneasy (MIS)
16. feel annoyed (HOS)
25. that I want to stay away from him (HOS)
27. that I should tell him he's often quite inconsiderate (COM)
30. that I want to get away from him (HOS)
40. appears that he thinks it's every man for himself (HOS)
52. appears that he's carrying a grudge (HOS)

**H: HOSTILE**

2. feel distant from him (MIS)
5. feel like an intruder (DET)
9. feel forced to shoulder all the responsibility (INH)
21. that I'm going to intrude (DET)
34. appears that he doesn't want to get involved with me (MIS)
37. appears that he'd rather be alone (DET)
49. appears that he'd rather be left alone (DET)

**HS: HOSTILE-SUBMISSIVE**

28. that I should tell him not to be so nervous around me (SUC)
31. that I should do something to put him at ease (INH)
35. appears that he is most comfortable withdrawing into the background when an issue arises (SUB)
38. appears that he thinks he can't do anything for himself (SUC)
41. appears that he thinks he will be ridiculed if he asserts himself with others (INH)
45. appears that he thinks he is inadequate (SUB)
53. appears that he's nervous around me (INH)
S: SUBMISSIVE

6. feel in charge (SUC)
13. feel dominant (SUC)
19. that I want him to disagree with me sometimes (DEF)
22. that I should tell him to stand up for himself (SUC)
32. that I want to point out his good qualities to him (ABA)
46. appears that he thinks I have most of the answers (DEF)
50. appears that he sees me as superior (SUC)

FS: FRIENDLY-SUBMISSIVE

3. feel important (DEF)
26. that I could tell him anything and he would agree (ABA)
29. that I could ask him to do anything (AGR)
39. appears that his time is mine if I need it (AGR)
42. appears that he would accept whatever I said (ABA)
54. appears that whatever I did would be okay with him (ABA)
55. appears that he trusts me (NUR)

F: FRIENDLY

7. feel appreciated by him (AGR)
8. feel part of the group when he's around (SOC)
10. feel complimented (NUR)
14. feel welcome with him (AGR)
15. feel as important to him as others in the group (SOC)
20. that I could lean on him for support (AFF)
23. that I can ask him to carry his share of the load (AGR)
**FD: FRIENDLY-DOMINANT**

4. feel entertained (AFF)  
11. feel as if he's the class clown (EXH)  
24. that I could relax and he'd take charge (SOC)  
43. appears that he wants to be the charming one (EXH)  
47. appears that he enjoys being with people (AFF)  
51. appears that he wants to be with others (SOC)  
56. appears that he thinks other people find him interesting, amusing, fascinating and witty (EXH)

* Scale titles (e.g. DOM = Dominant, EXH = Exhibitionistic) list the one of 15 Scales of the Original IMI-IIA from which the particular item was taken.

**IMI-C Materials**

The IMI-C materials consist of two forms of a reusable question booklet, as well as separate answer sheets, scoring sheets, and summary profile sheets.

One form of the Question Booklet is for male target interactants (*IMI-C Question Booklet: Male Target*), the other for female target interactants (*IMI-C Question Booklet: Female Target*) The first page of the booklet contains complete instructions to the respondent as to how to fill out the remaining pages. The person administering the inventory should feel free, however, to add any necessary explanations and to answer any questions. It is also possible to change the standard instructions to fit a particular situation or study.

The IMI-C consists of three separate categories of impact items: Direct Feelings, Action Tendencies, and Perceived Evoking Messages (cognitive attributions). On the question booklets, unequal numbers of items are grouped successively under the following three corresponding headings:

- *When I am with this person he (or she) makes me feel ...* (Direct Feelings 17 items)  
- *When I am with this person she (or he) makes me feel that ...* (Action Tendencies 15 items)  
- *When I am with this person it appears to me that ...* (Perceived Evoking Messages 24 items)

For each of the three item groups, the respondent is asked to judge (using 4-point Likert scales) the accuracy with which each item describes his or her internal engagements experienced in reaction to the target interactant. For each item the respondent selects one of four Likert scale
choices that describes the extent to which he/she experiences a particular impact: 1: not at all, 2: somewhat, 3: moderately so, 4: very much so.

The Respondent records his or her score (1 to 4) for each of the 56 items on a separate IMI-C Answer Sheet. The scores from the answer sheets can then be transferred to the IMI-C Scoring Sheet, on which the respective 7 item scores are recorded and summed for each of the eight octant scales: Dominant (D), Hostile-Dominant (HD), Hostile (H), Hostile-Submissive (HS), Submissive (S), Friendly-Submissive (FS), Friendly (F), and Friendly-Dominant (FD).

**Scoring IMI-C Octant and Axis Scales**

It is recommended that investigators routinely analyze both IMI-C octant scale scores and axis scores in all interpersonal investigations. This section describes scoring for the eight octant scale scores and the two axis scores.

**IMI-C Octant Scores.** In any IMI-C measurement procedure, respondent B records on the IMI-C, on 4-point Likert scales, the extent to which each item accurately describes the impact a particular target person (A) produced in him or her during an interaction just completed (or during their previous transactions). Person B responds to each item selecting one of the four foils that describes the extent to which he/she experiences a particular impact: 1: not at all, 2: somewhat, 3: moderately so, 4: very much so. The particular intensity of impact endorsed for an item (1 to 4) is then added to the score for its corresponding octant scale. The higher an octant scale score, the stronger are the impacts registered by respondent B, and the stronger the octant interpersonal behavior exhibited by person A (the target). The sum of the item scores for a given IMI-C scale indicates the relative strength of the corresponding circle scale of A’s interpersonal behavior, as experienced interpersonally by B. The sum scores range from 7 (all seven items scored “1. not at all”) to 28 (all seven items scored “4. very much so”). For each octant scale, the sum score is divided by seven (the number of items in each of the eight scales) so that a subject’s average scale score is expressed in the language of the original 4-point scale item.

For example, following an interaction with person A (who manifests strongly dominant interpersonal behavior), respondent B endorses as “4. very much so” descriptive of his or her covert reactions to A on each of the seven dominant items (e.g., items such as: “he makes me feel bossed around,” “I should tell him he’s often quite inconsiderate”). B’s resulting Dominant scale sum score, then, is the sum of respondent B’s responses to each of the seven items comprising that octant (7 items at 4 points each = 28). The subject’s sum score of 28 is then divided by seven to express the average dominant score (i.e. 4.00) in terms of the 4-point item scale. The other circle Scale scores are obtained in an identical manner.

An IMI-C Profile Summary Sheet is available for depicting the 8 IMI-C scale scores that a particular person obtains (or the eight mean scores a group of respondents obtain) on the interpersonal circle figure. First, each of the octant mean scores (range 1.00 to 4.00) is marked on the appropriate radius of the Profile Summary Sheet. Then, lines are drawn to connect the 8 scores together. The resulting figure provides a visual summary of the interpersonal impact pattern obtained for that subject. The profile can be quite useful for interpretation of a respondent’s impacts, especially in the context of assessment and treatment of interpersonal maladjustment. The resulting linear pattern can be considered a pictorial display of the interpersonal force field that a respondent registered during his or her transactions with the designated target.
**IMI-C Axis Scores.** Axis scores measure the two major dimensions that constitute the axes of the interpersonal circle: *control* (dominance-submission) on the ordinate, and *affiliation* (friendliness-hostility) on the abscissa. These two scores provide the most general level of description of a particular person’s recorded interpersonal impacts.

The axis scores are calculated from the octant scores using the following mathematical formulas:

\[
\text{CONTROL} = D - S + 0.707 (HD + FD) - 0.707 (HS + FS)
\]

\[
\text{AFFILIATION} = F - H + 0.707 (FD + FS) - 0.707 (HD + HS)
\]

The two axis scores also can be visually displayed on the IMI-C Summary Profile Sheet by marking each of the two scores on the respective axis diameters (control on DOM-SUB and affiliation on FRI-HOS). Then, if one draws perpendicular lines from the point on each two axes at which a particular person’s scores fall, the resulting point at which the two lines intersect ("sum vector score") will fall within one of the four circle quadrants. The sum vector point provides an overall summary of the "force field" of person A’s interpersonal impacts registered by the respondent. For example, a respondent’s impacts to a particular interactant (person A) are axis scores of -2.5 on control and -2.5 on affiliation. The intersecting sum vector point describes that person A’s interpersonal behavior was registered as moderately hostile-submissive by that respondent.

It is recommended that, together with the octant scores, axis scores be routinely calculated and analyzed in IMI-C studies. The axis scores provide a conservative and wide-band test of study hypotheses and can be followed up with more narrow-band tests using the octant scale scores.

The following four sections provide additional IMI-C scores that investigators may choose to calculate for more subtle tests of interpersonal and other hypotheses.
IMI-C Hemisphere and Quadrant Scores

It is sometimes useful to calculate circle areas of interpersonal impacts registered by an IMI respondent. Separate scores for the four separate hemispheres and for the four separate quadrants have been used in various studies to test corresponding hypotheses. For example, it seems increasingly important to calculate separate positive and negative complementarity scores to test more precise predictions of the complementarity patterns that differentiate stages of psychotherapy for successful versus unsuccessful cases. These tests would utilize two (friendly, hostile) of the four hemisphere scores. Sometimes quadrant scores can be used for simpler but easier understood tests of the degree or type of complementarity present between respondents and interactants. Examples of quadrant complementarity would be FD with FS, and HD with HS; quadrant anticomplementarity would be FD with HD, and FS with HS; quadrant incomplementarity would be FD with FD or HS, HD with HD or FS, HS with HS or FD, and FS with FS or HD. The formulas for calculating the various hemisphere and quadrant scores are found below:

### Hemisphere Scores:

- DOMINANT = \( D + .707 \times (FD + HD) \)
- SUBMISSIVE = \( S + .707 \times (FS + HS) \)
- FRIENDLY = \( F + .707 \times (FD + FS) \)
- HOSTILE = \( H + .707 \times (HD + HS) \)

### Quadrant Scores:

- FRIENDLY-DOMINANT = \( FD + .707 \times (D + F) \)
- HOSTILE-DOMINANT = \( HD + .707 \times (D + H) \)
- HOSTILE-SUBMISSIVE = \( HS + .707 \times (S + H) \)
- FRIENDLY-SUBMISSIVE = \( FS + .707 \times (S + F) \)

IMI-C Peak and Nadir Scores

In studies of psychotherapy or behavior change, investigators can profitably analyze shifts in the IMI-C peak score (the highest IMI-C scale score obtained by a particular patient) pre- to post-intervention or stages between, or in the IMI-C nadir score (the lowest scale score obtained by a particular patient) pre- to post-intervention or stages between, or shifts in both.

Theoretically, effective intervention should decrease the rigidity (increase the flexibility) of a patient’s interpersonal transactions with others (including the therapist). Decrease in rigidity should be reflected in both a decrease in intensity of the patient’s predominant (peak) impact style and by an increase in intensity of the patient’s least evident (nadir) impact style. In short, analysis of both peak and nadir scores for a patient permits a direct test of the prediction that in successful psychotherapy, the most extreme and intense aspect (peak) of a patient’s
interpersonal behavior should change toward less intensity or frequency of occurrence, while the least intense aspect (nadir) should change toward greater intensity or frequency of occurrence.

**Gurtman’s Structural Summary Scores**

Gurtman (1992, 1993, 1994; Gurtman & Balakrishnan, 1998) offered four scores that serve as a structural summary of a circular profile obtained from interpersonal circumplex inventories such as the IMI. The scores are separate indices for a best-fit cosine curve obtained when circle octant scores are graphed for a particular profile; these are the structural parameters of a given individual’s profile.

**Goodness of Fit.** This preliminary index determines whether it makes sense to calculate the three following interpersonal circle structural indices. The profile attribute of goodness of fit refers to the degree to which the obtained profile confirms to the mathematical model (a sinusoidal curve) for a circular profile. An excellent fit indicates the eight dimensions of the profile are reducible to the underlying dimensions with no loss of information -- the profile can indeed be interpreted assuredly as measuring interpersonal behavior. A poor fit, in contrast, suggests the pattern of scores does not indeed characterize interpersonal behavior and cannot be characterized using its three structural summary indices. Calculation of the following three structural summary indices, then, assumes that a preliminary analysis has determined good or excellent goodness of fit.

**Elevation.** The mean score within the profile, elevation reflects the individual’s standing on the general factor of the measure. Since its computation draws equally from all parts of the circle, it is interpersonally nonspecific. For particular interpersonal studies, how this factor is interpreted is the important issue determining whether it is eliminated by ipsatizing inventory scores, or retained for analysis. The choice to eliminate the elevation component makes sense (elevation is of little interest) if the general factor is regarded as simply a response style (e.g. acquiescence response set) or complaint contribution to scores (e.g. on an interpersonal problem inventory). Gurtman and colleagues, however, prefer to interpret elevation as a measure of an individual’s overall level of interpersonal stress as the best structural index of an individual’s global interpersonal adjustment. Accordingly, any specific version of interpersonal maladjustment (e.g. loneliness, dependency, hostile manipulation, distrust) loads on this dimension, although the individual versions would differ in their specific maladaptive manifestations.

**Angular Displacement.** The angular displacement of a profile curve is analogous to its central tendency. This index defines the point (between 0 and 360 degrees) where the profile has the highest value (peak) on the circumference of the circle. This peak score summarizes the predominant quality or theme of an individual interpersonal pattern. The peak score or angular displacement depicts the predominant direction of the interpersonal force field of a particular profile. On the IMI, the following angular displacements mark the center of each octant:

<table>
<thead>
<tr>
<th>Octant</th>
<th>Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>friendly</td>
</tr>
<tr>
<td>180</td>
<td>hostile</td>
</tr>
<tr>
<td>45</td>
<td>friendly-dominant</td>
</tr>
<tr>
<td>225</td>
<td>hostile-submissive</td>
</tr>
<tr>
<td>90</td>
<td>dominant</td>
</tr>
<tr>
<td>270</td>
<td>submissive</td>
</tr>
<tr>
<td>135</td>
<td>hostile-dominant</td>
</tr>
<tr>
<td>315</td>
<td>friendly-submissive</td>
</tr>
</tbody>
</table>

**Amplitude.** The amplitude is equivalent to a profile’s vector length. It describes the extremeness of a profile and its overall variability. For Gurtman and colleagues, amplitude
measures the variability from the center of the circle of the vector length of each of the octant scores. An amplitude of 0 indicates that the octant scores are exactly the same (hence a flat curve); high amplitude indicates a differentiated pattern of vector lengths with a single peak and trough. In interpersonal theory, amplitude (or profile extremity) is generally considered a critical index of interpersonal maladjustment. Extremity (an unusually peaked profile) is interpreted to measure an inflexible repertoire of interpersonal behaviors, constrained severely to a limited part of the circle. In IMI-C terms, extremity would indicate that the impacts a respondent experiences with a particular interactant are constrained considerably -- repeatedly occur near a particular octant of the IMIC profile.

In Gurtman and colleagues' interpretation, however, amplitude (or vector length) more simply is considered to be a measure of the distinctiveness of an individual’s interpersonal maladjustment: when elevation is high, low amplitude suggests undifferentiated or global interpersonal maladjustment; when elevation is high, high amplitude suggests a differentiated picture of maladjustment (for example, that rigidity indeed is constrained near the hostile-dominant octant).

**Recommended Use of Gurtman’s Scores for the IMI-C.** IMI-C investigators are urged to consider routine calculation of all four scores defined by Gurtman and colleagues: goodness of fit, elevation, angular displacement, and amplitude. Only if goodness of fit is good or excellent for a particular IMI-C profile or group of IMI-C profiles does it make sense to continue with various interpersonal analyses.

Assuming an acceptable level of goodness of fit, one can then routinely first score and record angular displacement. This exact angle describes the precise peak of the obtained IMI profile: exact designation of the point on the circumference at which impacts to a particular interactant tend to center -- the point at which the respondent’s impacts are strongest for a particular interactant. This angular displacement value should correspond closely to the highest (peak) octant score obtained on the profile.

In line with Gurtman and colleagues’ analysis, one can then determine whether the amplitude of the profile is sufficiently high to permit a clearcut analysis of extremeness or rigidity of a particular profile. If amplitude is sufficiently high, an investigator can then record a respondent’s amplitude score as a measure of extremeness or rigidity of the impacts experienced by the respondent to a particular interactant. Analysis of amplitude scores permit direct tests of important predictions regarding interpersonal maladjustment. In interpersonal theory, the more extreme and intense an interactant’s behavior, in this case indexed by the extremeness and rigidity of the impacts registered by the respondent, the more maladjusted is the interactant’s behavior.

In sum, it is recommended that users of IMI-C routinely consider using the following two scores offered by Gurtman and colleagues:

1. **angular displacement**: a measure of the exact location on the circumference of the circle, a point that will fall within a particular octant, at which the respondent’s impacts tend to peak or center -- a characterization, along with the peak octant score of the respondent’s most distinctive impacts to a particular interactant.

2. **amplitude (vector length)**: a measure of the degree of extremeness or rigidity of the impacts registered by the respondent, which directly reflects the degree of maladjustment of the interactant who evoked the impacts.
Dyadic Complementarity Scores

The conceptualization of interpersonal complementarity is discussed in Chapter Five. Chapter Six details how analyses of two persons' degree of fit, match, or complementarity are categorized as Transaction-Focused (target-respondent) studies.

Many unique aspects of contemporary interpersonal analysis result from simultaneous administration of the same circumplex measure, in our case the IMI-C, to both participants of a dyad, such as therapist-patient, physician-patient, husband-wife, mother-son, teacher-student. This permits analyses, not only of the separate IMI-C behaviors of each participant, but also of the degree of complementarity of fit (Kiesler, 1983) of the interactant's interpersonal IMI-C behaviors. On the interpersonal circumplex, complementarity occurs on the basis of correspondence on the affiliation axis (friendliness evokes friendliness, hostility evokes hostility) and reciprocity on the control axis (dominance pulls submission, submission pulls dominance). For example, person A's friendly-dominant behaviors pull for or invite friendly-submissive reactions from person B (and vice versa); person A's hostile-dominant behaviors seek to evoke hostile-submissive reactions from person B (and vice versa). The principle does not assert that all dyads will show complementary patterns, rather that each member of the dyad seeks to establish partner interpersonal reactions that complement his or her own interpersonal pattern of behavior.

Wagner (2001; in Kiesler, Schmidt & Wagner, 2004) provided a set of mathematical formulas for obtaining three complementarity scores for particular target-respondent dyads: complementarity on the affiliation axis, on the control axis, and overall complementarity (on both axes combined). Three steps are necessary.

Step 1. Calculate Control and Affiliation Axis scores, using the formulas presented in an earlier section of this chapter.

Step 2. Insert the resulting control and affiliation scores for each interactant in the two formulas below to obtain Absolute scores (ABS) on control and affiliation for the interactant pair. Subscripts \text{I} and \text{II} refer to the IMI-C scores of each of the two interactants. Subscripts \text{C} and \text{A} refer to affiliation and control respectively.

\[
\text{ABS}_C = \text{ABS} (\text{CON}_1 + \text{CON}_2)
\]
\[
= \text{ABS} [(\text{DOM}_1 - \text{SUB}_1) + (\text{DOM}_2 - \text{SUB}_2)]
\]
\[
\text{ABS}_A = \text{ABS} (\text{AFF}_1 - \text{AFF}_2)
\]
\[
= \text{ABS} [(\text{FRI}_1 - \text{HOS}_1) - (\text{FRI}_2 - \text{HOS}_2)]
\]

Step 3. Insert these absolute scores into the three formulas below to obtain the three complementarity scores: on the Control axis, on the Affiliation axis, and total or overall complementarity (for the combined control plus affiliation axes).

\[
\text{COMP}_C = \text{ABS}_C
\]
\[
= \text{ABS} (\text{CON}_1 + \text{CON}_2)
\]
\[
\text{COMP}_A = \text{ABS}_A
\]
\[
= \text{ABS} (\text{AFF}_1 - \text{AFF}_2)
\]
\[
\text{COMP}_{TOT} = \text{ABS}_C + \text{ABS}_A
\]
\[ = \text{ABS}\ (\text{CON}_1 + \text{CON}_2) + \text{ABS}\ (\text{AFF}_1 - \text{AFF}_2) \]

In each case, the score obtained characterizes deviation from complementarity. That is, the higher the score, the less the complementarity present among the pair of interactants; the lower the score, the more the complementarity present among the pair of interactants. The possible obtainable range of scores for total complementarity is "0" (perfect complementarity) to "12" (maximum non-complementarity), for axis complementarity is "0" to "6".

Comparison of the two separate axis complementarity scores (COMP\(_C\) and COMP\(_A\)) in reciprocity in control, correspondence in affiliation helps the investigator determine which of the circle axes is contributing more to the level of total complementarity (COMP\(_\text{TOT}\)) obtained. In some cases, complementarity may be found primarily on only one of the axes, but not on the other axis or for total complementarity. Some previous complementarity studies (e.g., in psychotherapy) have shown that it is crucial to examine the axes separately to tease out the (e.g., client-therapist) patterns that may be present.

Examples of IMI-C Complementarity Scores.

*Example One* provides IMI-C scores that, when inserted into the above formulas, yield "perfect complementarity" for a first therapist-patient pair.

<table>
<thead>
<tr>
<th>Therapist IMI-C Axis Scores</th>
<th>Patient IMI-C Axis Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOM(_1) = 4</td>
<td>DOM(_2) = 1</td>
</tr>
<tr>
<td>SUB(_1) = 1</td>
<td>SUB(_2) = 4</td>
</tr>
<tr>
<td>FRI(_1) = 4</td>
<td>FRI(_2) = 4</td>
</tr>
<tr>
<td>HOS(_1) = 1</td>
<td>HOS(_2) = 1</td>
</tr>
</tbody>
</table>

\[
\text{ABS}_C = \text{ABS}\ [\ (\text{DOM}_1 \cdot \text{SUB}_1) + (\text{DOM}_2 \cdot \text{SUB}_2)] = [(4-1) + (1-4)] = [(3) + (-3)] = 0
\]

\[
\text{ABS}_A = \text{ABS}\ [\ (\text{FRI}_1 \cdot \text{HOS}_1) - (\text{FRI}_2 \cdot \text{HOS}_2)] = [(4-1) - (4-1)] = [(3) - (3)] = 0
\]

\[
\text{COMP}_C = \text{ABS}_C = 0 \text{ "perfect reciprocity complementarity"}
\]

\[
\text{COMP}_A = \text{ABS}_A = 0 \text{ "perfect correspondence complementarity"}
\]

\[
\text{COMP}_\text{TOT} = \text{ABS}_C + \text{ABS}_A = 0 + 0 = 0 \text{ "perfect overall complementarity"}
\]
**Example Two** provides IMI-C scores that, when inserted into the above formulas, yield "perfect non-complementarity" for a second therapist-patient pair.

<table>
<thead>
<tr>
<th>Therapist IMI-C Axis Scores</th>
<th>Patient IMI-C Axis Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOM₁ = 4</td>
<td>DOM₂ = 4</td>
</tr>
<tr>
<td>SUB₁ = 1</td>
<td>SUB₂ = 1</td>
</tr>
<tr>
<td>FRI₁ = 4</td>
<td>FRI₂ = 1</td>
</tr>
<tr>
<td>HOS₁ = 1</td>
<td>HOS₂ = 4</td>
</tr>
</tbody>
</table>

\[
\text{ABS}_C = \text{ABS} \left[ (\text{DOM}_1 - \text{SUB}_1) + (\text{DOM}_2 - \text{SUB}_2) \right] = [(4-1) + (4-1)] = [(3) + (3)] = 6
\]

\[
\text{ABS}_A = \text{ABS} \left[ (\text{FRI}_1 - \text{HOS}_1) - (\text{FRI}_2 - \text{HOS}_2) \right] = [(4-1) - (1-4)] = [(3) - (-3)] = 6
\]

\[
\text{COMP}_C = \text{ABS}_C = 6 \quad \text{"perfect reciprocity noncomplementarity"}
\]

\[
\text{COMP}_A = \text{ABS}_A = 6 \quad \text{"perfect correspondence noncomplementarity"}
\]

\[
\text{COMP}_{\text{TOT}} = \text{ABS}_C + \text{ABS}_A = 6 + 6 = 12 \quad \text{"perfect overall noncomplementarity"}
\]

**Summary of IMI-C Scores**

It is recommended that all investigators routinely analyze both octant scores and axis scores in their studies. *Hemisphere, quadrant, peak and nadir,* and *complementarity* scores may also be analyzed if specific hypotheses indicate. For more precise analyses, an investigator can use Gurtman and colleagues' *angle of displacement* and *amplitude* scores, if preliminary analyses of *goodness of fit* and *elevation* indices justify the appropriateness of the former scores for testing interpersonal hypotheses.

**Language Recommendations for Reporting IMI-C Results**

Since the IMI-C is unique as a self-report transactional measure, it is recommended that investigators use transactional language in reporting IMI-C findings. These language usages will facilitate a clearer understanding of IMI-C findings and less misunderstanding of what the IMI-C measures.

The first recommendation is that an investigator routinely refer to the subjects who record their covert responses on the IMI-C (who fill out the IMI-C on some target person) as *respondents*. These are the persons in dyads who arbitrarily are designated as decoders for a particular transaction. Respondents are the persons who actually fill out the Inventory on an interactant.

The next recommendation is that an investigator routinely refer to the dyadic interactant whose overt interpersonal behavior is being characterized (by the respondent's covert impact messages) as *target*. For a particular transaction, these persons are arbitrarily designated as encoders who send overt evoking messages to the respondent. A target, then, is the person in a dyad in reaction to whom the respondent fills out the IMI-C.

The actual case is that in any dyadic interaction, both participants are simultaneously encoders and decoders. In IMI-C studies, both participants can serve alternatively as decoder-respondent by each filling out an IMI-C on the other, or one person arbitrarily can be designated decoder for a particular IMI-C study.
The last recommendation is to use transactional language whenever possible in discussing results from IMI-C studies. Misleading practices describe IMI-C findings using the terms raters, ratings, rated, ratee, and the like (e.g., subjects rated or perceived the assertive group as significantly more dominant). Use of this rating language incorrectly implies that IMI-C respondents' attention was directed outside themselves and that the IMI-C scores represent their perceptual judgments of the target's overt behavior. It is recommended that transactional language be used instead (e.g., the assertive group impacted patient respondents as being significantly more dominant; or patient respondents reported significantly stronger friendly impacts to the assertive group). Admittedly, use of transactional language can be awkward, more difficult, and sometimes less aesthetic; yet the precision gained greatly facilitates both communication and understanding of IMI-C findings.

Adaptations of the IMI-C Question Booklets for Specific Contexts

IMI-C: Brief Version (28 items).
Practical restraints of research settings often make it difficult and burdensome to IMI-C targets and respondents to fill out the 56-item IMI-C inventory. Certain interactions, such as with surgeons and other busy practitioners, require that an investigator abbreviate his or her measures or fail to obtain any data. Similarly, in settings requiring multiple administrations of the IMI-C over time, often in pre and post interaction situations, respondents can be easily distracted from veridical self-report by demanding and repetitive IMI-C administrations. More recent IMI-C studies in medical settings (Kiesler & Auerbach, 2003, 2006) have found it necessary, for practical reasons of physician time and motivation, to use a briefer 28-item version of the IMI-C.

The 28-item IMI-C brief version uses only the four octant scales that anchor the control and affiliation axes of the interpersonal circumplex: Dominant, Submissive, Friendly, Hostile. Each of the four scales consists of the same seven items found in the full 56-item octant version (see Table 2-1) yielding 4 x 7 = 28 total items. Question booklets are modified simply by removing the 28-items of the remaining octant scales (hostile-dominant, hostile-submissive, friendly-submissive, friendly-dominant) from the item pool. Chapter Three summarizes the mostly equivalent Cronbach alpha internal consistency alphas found in studies that used the IMI-C brief version. There are five components of the IMI-C Brief Version, as follows: Question Booklet: Male Target, Question Booklet: Female Target, Answer Sheet, Scoring Key, and Scoring Sheet (see Appendix for sample).

Tests of complementarity use the same formulas presented in the earlier pages of this chapter. The only modification for the brief version is that a different set of Axis Formulas (different from those used when all 8 scales are available) are used with the 4-scale IMI-C:

\[
\text{CON (Control)} = \text{DOM} - \text{SUB} \\
\text{AFF (Affiliation)} = \text{FRI} - \text{HOS}
\]

Once these CON and AFF scores are calculated, their values are then plugged into the Absolute Score and Complementarity Score formulas presented in previous pages of this chapter.

IMI-C Self-Report for Generalized Others.
The booklet used for administration of the IMI-C is the Interactant version, Male and Female forms (see Appendix for sample). The respondent is instructed to indicate how accurately each of the items described your reactions to the particular person under consideration.
Some investigators may wish to use a trait version of the IMI-C, administered to subjects either alone or in combination with regular IMI-C interactant versions. The IMI-C version developed for this trait or dispositional purpose is called the IMI-C Self-Report for Generalized Others. The accompanying question booklet is titled: IMI-C Question Booklet: Self-Report for Generalized Others. The respondent is instructed to indicate how accurately each item describes what you think others' typical reactions to you are during your interactions. Respond to each item in terms of how precisely it describes the feelings you think you typically arouse in others, the behaviors you think others want to direct towards you when they are around you, and/or the descriptions of you that you think come to other people's mind when you are present. Focus on the immediate reactions you think they would be experiencing in reaction to you.

In the case of the IMI-C Self-Report for Generalized Others version, the item wordings are adapted to fit the new Item Leads for the three classes of impacts. No reliability, circumplex structure, or normative data are yet available for the Generalized Others IMI-C version.

Training IMI-C Observer Respondents

Investigators of human relationships often have groups of trained coders observe (unobtrusively or not) live interactions, then simultaneously rate or code the frequency and kind of behaviors that are enacted. Investigators increasingly videotape-record live transactions, for example, between husbands and wives, parents and children, psychotherapists and patients, physicians and patients, with groups of coders subsequently watching and coding the behaviors that they observe.

IMI-C investigators often prefer to use the same procedure, having groups of observers watch persons A and B as they interact and then fill out an IMI-C on one or the other interactant. The important difference in the IMI-C situation is that the observers do not rate the overt behavior of the interactants as is done in behavioral coding situations. Rather the IMI-C observers focus on the internal reactions they are experiencing as they vicariously interact with one or the other interactants.

For behavioral coding studies the interactant behaviors to be coded are carefully defined and operationalized, and coders are provided ample training opportunities to learn and apply the
coding system. In the case of IMI-C observers the plot thickens. Impact messages can certainly be defined and exemplified. But it is problematic to talk about training IMI-C observers to "learn" the impacts they experience when repeatedly exposed to interactants similar to the experimental subjects. In effect, such training would require them to become sensitive to only certain classes of impact responses that characterize a particular target group. Such training would certainly guarantee "significant" results for a particular study by its demand that respondents learn and "experience" artificial, restricted classes of impacts. It seems safe to add, however, that it makes no scientific sense at all to train IMI-C observer-respondents to experience and produce only those impact responses that would confirm the investigator's study hypotheses.

What seems more useful instead is to provide IMI-C observer-respondents "sensitization training" to impact messages in general. Observer respondents can study and learn the definition of the four classes of impact messages using the included "Impact Messages: Definitions of the Four Subclasses." As a group they then can observe appropriate taped examples of interactants exhibiting a wide range of interpersonal behaviors. Upon completion of each viewing they can independently fill out the "Impact Messages: Free Response Worksheet" and then report and discuss their respective free-response impacts within the group (see Appendix for sample). Then using the IMI-C, observers-respondents can practice detecting and recording impacts to a training sample of videotaped interpersonal behaviors representative of a wide range of the interpersonal circle. Another possibility suggested by Hafkensheid (2006) is to have observers fill out IMI-Cs on persons in their lives who vary considerably in interpersonal behavior for example, on identifiable persons in their lives with whom they have experienced most (and then least) comfortable interactions.

These training procedures assume that most persons have had little experience during their everyday interactions in concentrating their attention on or verbalizing their transactional impacts. The rationale underlying the IMI-C is that, although impacts experienced with most interactants occur at automatic and unaware levels, they can be made aware when attention is focused in their direction. In the case of the IMI-C, the task of responding to each of the IMI-C items directs the attention of the respondent to those covert events normally occurring in "ground" and brings them more into "figure." A remotely possible negative side effect of this training is that it might prevent generalization of observer findings to the universe of respondents at large who have not had similar sensitization experiences.
Chapter Three

Circumplexity and Reliability of IMI-C Scores

A previous publication provided a summary of available structural and psychometric data on the IMI-C (Schmidt, Wagner, & Kiesler, 1999b). Findings were based on extensive analyses of the eight IMI-C scales across a combined sample (N = 1,109) from eight studies. The present chapter will update these findings by including more recent IMI-C normative and reliability findings.

Evaluation of IMI-C Circumplex Structure

In addition to satisfying standard psychometric criteria, interpersonal circle measures need to demonstrate a circumplex structure. Circumplexity is tested by the degree to which scales are evenly distributed (in regard to their angular locations) throughout the interpersonal circle space and by the values and consistency of the vector lengths (circle radii) of scales projected into that space. Octant scales such as those of the IMI-C should be distributed at equal 45-degree intervals around the two underlying dimensions (axes) and should have uniform vector lengths, ideally approaching the value of one (the unit length of the circle).

It is essential that circle measures conform to a circumplex structure to allow for valid tests of interpersonal theory. On the circle, scales closer to one another should have higher correlations than scales that are farther apart; scales polar-opposite to each other should show high negative correlations approaching -1.00. These circular patterns are precisely represented in theoretical propositions that identify complementary, acomplementary, and anticomplementary categories of interpersonal behaviors (Carson, 1969; Kiesler, 1983; Orford, 1986). Similarities, opposites, complements, and anticomplements are also crucial in deriving central therapeutic constructs such as the goal and stages of therapy, the objective countertransferences a therapist (and others) will experience, and precise forms of “parallel process” that are predicted to characterize therapy and supervisory dyads (Kiesler, 1983, 1996). Thus, knowledge of the structural properties of a set of interpersonal scales is essential to test these or similar predictions.

Schmidt, Wagner and Kiesler (1999b) used three analytic strategies, which have become standard for interpersonal circle measures, to evaluate the circumplexity of the IMI-C scales: principal-components analysis (PCA) with post hoc inferential testing, multidimensional scaling analysis (MDS), and confirmatory factor analysis (CFA).

Results led to the following conclusions regarding the circumplex structure of the IMI-C. First, in support of circumplex structure, two of the three analyses indicated that the octants are ordered roughly in a circular fashion (within an average of 9 degrees of their predicted locations) around the dimensions of control and affiliation. Second, in support of the predicted two-dimensional structure of a circumplex, all three analyses showed that the IMI-C scales are best described in terms of the two interpersonal circle factors: control and affiliation. One analysis (MDS) found that the location of the IMI-C octants relative to the control and affiliation dimensions is stable from sample to sample, confirming that scales relate to one another (and to their underlying dimensions) in a similar fashion across highly heterogeneous samples. Third, all three analyses, especially the conservative CFA, confirmed that the placement of the scales in two-dimensional space is not perfect, with less than equal spacing about the circumference of the circle and with some compression of the control (i.e., dominance-submission) dimension. Nevertheless,
although locations of the individual octant scales deviated somewhat from the ideal, the IMI-C clearly measures the interpersonal circle dimensions of control and affiliation. Schmidt, Wagner and Kiesler (1999b) concluded that, overall, the IMI-C demonstrated adequate structural properties (structural validity): the octant scales conformed satisfactorily to a circular ordering with only minor departure from true circumplexity.

In a separate study, Schmidt, Wagner and Kiesler (1999a) found confirmation that the IMI-C scale structure converged substantially with an interpersonal circumplex trait measure, the IASR-B5. Wagner, Kiesler and Schmidt (1995) found strong support for the convergence and alignment of the circumplex structures of self-rating and peer-rating formats of the IMI-C and the Inventory of Interpersonal Problems-Circumplex version (IIP-C; Alden, Wiggins, & Pincus, 1990) supporting the notion that the IIP-C and IMI-C measure substantive interpersonal constructs. Strong, Hills, Kilmartin, et al. (1988) trained confederates to perform one of eight different scripted roles that conformed to one of Strong, Hills and Nelson’s (1988) Interpersonal Communication Rating Scale (ICRS) circle octant behaviors: leading, self-enhancing, critical, distrustful, self-effacing, docile, cooperative, and nurturant. Strong, Hill, Kilmartin, et al. (1988) found significant relationships between the confederates’ overt behaviors and the covert engagements of that behavior as reported by interactants on the IMI. These findings, together with those of Wagner, Kiesler and Schmidt (1995) provide strong confirmation of the structural validity of the IMI-C by demonstrating strong associations between an interactant’s covert engagements and a confederate’s overt actions.

Future similar demonstrations that the IMI-C scales share a single factorial plane with other interpersonal circumplex measures would strengthen the legitimacy of the tie-in of internal, covert reactions with interpersonal theory.

Internal Consistency Reliability of the IMI-C Scales

More recent studies have updated the reliability findings of the eight studies summarized in Schmidt, Wagner and Kiesler (1999b) by adding data from eight more recent samples. Recall that any IMI-C sample includes both targets (persons scored) and respondents (persons filling out the IMI-C). Within the Tables of this chapter, in all instances in which both persons are listed, the IMI-C target is listed first, followed by the respondent (e.g., Patient / Physician B IMI-C filled out on the patient by his/her physician).

Table 3-1 presents Cronbach (1951) alpha (internal consistency reliability) coefficients calculated on 16 different samples embedded within ten different IMI-C studies. As Table 3-1 shows, the median alpha coefficients obtained for each of the octant scales range from .69 to .85, indicating strong to excellent reliabilities for the IMI-C scales. Of the 128 individual coefficients presented for the 16 samples, 75.8% are above .70, and only 8.6% are below .60. Using as a criterion alpha values below .60, four octants (HD, H, FS, and F) have no or only one alpha below .60; two octants (HS, S) have only two alphas below .60; while the remaining octants (D, FD) have three alphas below .60. The median alphas obtained for the octants reflect the same interscale trend: HD, H, and F above .80; D, HS, S, FS in the mid 70s; and FD = .69. In sum, the two IMI-C octants anchoring the affiliation axis of the interpersonal circumplex (H, F) together with HD and FS show the highest internal consistencies; the two octants anchoring the control axis (D, S) show the next highest values (together with HS, FS), with the FD octant showing the least internal consistency.
### Table 3-1. Cronbach Alpha (Internal Consistency) Reliability Coefficients obtained for the 56-item IMI-C in the Individual Investigations cited Below (male and female targets combined, male and female respondents combined). [In this and subsequent tables, any alpha values that are bolded are of less than .60.]

<table>
<thead>
<tr>
<th>Study</th>
<th>D</th>
<th>HD</th>
<th>H</th>
<th>HS</th>
<th>S</th>
<th>FS</th>
<th>F</th>
<th>FD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Hafkenscheid (2003a)</td>
<td>.69</td>
<td>.75</td>
<td>.71</td>
<td>.73</td>
<td>.65</td>
<td>.79</td>
<td>.77</td>
<td>.75</td>
</tr>
<tr>
<td>2. Hafkenscheid (2004 Sept.)</td>
<td>.84</td>
<td>.76</td>
<td>.82</td>
<td>.75</td>
<td>.75</td>
<td>.79</td>
<td>.77</td>
<td>.73</td>
</tr>
<tr>
<td>3. Kiesler, Schmidt et al. (1990)</td>
<td>.86</td>
<td>.88</td>
<td>.79</td>
<td>.64</td>
<td>.67</td>
<td>.79</td>
<td>.89</td>
<td>.62</td>
</tr>
<tr>
<td>4. Schmidt (1989)</td>
<td>.82</td>
<td>.86</td>
<td>.88</td>
<td>.88</td>
<td>.84</td>
<td>.78</td>
<td>.91</td>
<td>.79</td>
</tr>
<tr>
<td>5. Auerbach, Kiesler et al. (1994)</td>
<td>.93</td>
<td>.80</td>
<td>.86</td>
<td>.48</td>
<td>.78</td>
<td>.41</td>
<td>.72</td>
<td>.29</td>
</tr>
<tr>
<td>6. Kiesler, Schmidt et al. (1991)</td>
<td>.74</td>
<td>.78</td>
<td>.68</td>
<td>.68</td>
<td>.73</td>
<td>.80</td>
<td>.60</td>
<td>.60</td>
</tr>
<tr>
<td>7. Wagner, Kiesler et al. (1995)</td>
<td>.72</td>
<td>.75</td>
<td>.72</td>
<td>.74</td>
<td>.66</td>
<td>.70</td>
<td>.82</td>
<td>.58</td>
</tr>
<tr>
<td>8. Schmidt, Kiesler et al. (1990)</td>
<td>.58</td>
<td>.86</td>
<td>.87</td>
<td>.78</td>
<td>.82</td>
<td>.77</td>
<td>.81</td>
<td>.64</td>
</tr>
<tr>
<td>9. Wagner, Riley et al. (1999)</td>
<td>.62</td>
<td>.81</td>
<td>.84</td>
<td>.88</td>
<td>.75</td>
<td>.76</td>
<td>.83</td>
<td>.66</td>
</tr>
<tr>
<td>10. Auerbach, Boll et al. (1995)</td>
<td>.59</td>
<td>.77</td>
<td>.79</td>
<td>.82</td>
<td>.51</td>
<td>.76</td>
<td>.89</td>
<td>.68</td>
</tr>
<tr>
<td>11. Pegg, Auerbach et al. (2005)</td>
<td>.85</td>
<td>.69</td>
<td>.80</td>
<td>.81</td>
<td>.78</td>
<td>.74</td>
<td>.88</td>
<td>.80</td>
</tr>
<tr>
<td>12. Pegg, Auerbach et al. (2005)</td>
<td>.89</td>
<td>.74</td>
<td>.76</td>
<td>.64</td>
<td>.80</td>
<td>.78</td>
<td>.88</td>
<td>.75</td>
</tr>
<tr>
<td>13. Pegg, Auerbach et al. (2005)</td>
<td>.86</td>
<td>.94</td>
<td>.94</td>
<td>.92</td>
<td>.86</td>
<td>.78</td>
<td>.82</td>
<td>.83</td>
</tr>
<tr>
<td>14. Pegg, Auerbach et al. (2005)</td>
<td>.88</td>
<td>.87</td>
<td>.90</td>
<td>.75</td>
<td>.84</td>
<td>.75</td>
<td>.88</td>
<td>.86</td>
</tr>
<tr>
<td>15. Pegg, Auerbach et al. (2005)</td>
<td>.44</td>
<td>.84</td>
<td>.61</td>
<td>.53</td>
<td>.65</td>
<td>.66</td>
<td>.71</td>
<td>.41</td>
</tr>
<tr>
<td>16. Pegg, Auerbach et al. (2005)</td>
<td>.74</td>
<td>.96</td>
<td>.96</td>
<td>.90</td>
<td>.54</td>
<td>.66</td>
<td>.90</td>
<td>.75</td>
</tr>
</tbody>
</table>

**Median** .78 .81 .81 .77 .75 .76 .85 .69
<table>
<thead>
<tr>
<th>N</th>
<th>Target / Respondent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>356 Psychiatric Outpatient / Therapist</td>
</tr>
<tr>
<td>2.</td>
<td>55 Psychiatric Inpatient / Psychiatric Nurse</td>
</tr>
<tr>
<td>3.</td>
<td>130 Liked &amp; Disliked Acquaintance / Undergraduate</td>
</tr>
<tr>
<td>4.</td>
<td>128 Videotaped DSM-III Personality Disorder / Undergraduate</td>
</tr>
<tr>
<td>5.</td>
<td>109 FBI-actor “terrorist” / Airline Personnel “hostage”</td>
</tr>
<tr>
<td>6.</td>
<td>158 Close Friend / Undergraduate</td>
</tr>
<tr>
<td>7.</td>
<td>143 Close Friend / Undergraduate</td>
</tr>
<tr>
<td>8.</td>
<td>91 Role-played Therapy Client / Undergraduate</td>
</tr>
<tr>
<td>9.</td>
<td>193 Psychiatric Outpatient / Intake Clinician</td>
</tr>
<tr>
<td>10.</td>
<td>157 Orthognathic Surgery Outpatient / Attending Physician, Counselor</td>
</tr>
<tr>
<td>11.</td>
<td>28 Acute TBI Patient / Information Intervention Provider (1-2 wks post admission)</td>
</tr>
<tr>
<td>12.</td>
<td>28 Acute TBI Patient / Information Intervention Provider (4-5 wks post admission)</td>
</tr>
<tr>
<td>13.</td>
<td>28 Acute TBI Patient / Rehabilitation Therapist (1-2 wks post admission)</td>
</tr>
<tr>
<td>14.</td>
<td>28 Acute TBI Patient / Rehabilitation Therapist (4-5 wks post admission)</td>
</tr>
<tr>
<td>15.</td>
<td>28 Information Intervention Provider / Acute TBI Patient (1-2 wks post admission)</td>
</tr>
<tr>
<td>16.</td>
<td>28 Information Intervention Provider / Acute TBI patient (4-5 wks post admission)</td>
</tr>
</tbody>
</table>

**Summary.** The alpha coefficients summarized in Table 3-1 are taken from Schmidt, Wagner and Kiesler (1999b) and Kiesler and Auerbach (2004). Internal consistency reliability coefficients were calculated for the IMI-C on 16 different samples embedded within ten different IMI-C studies. To summarize the findings, the median alpha coefficients obtained for each of the octant scales ranged from .69 to .85. Friendly, Hostile, and Hostile-Dominant octants had median coefficients above .80; Dominant, Submissive, Hostile-Submissive, and Friendly-Submissive octants had median alphas in the mid .70s; and Friendly-Dominant median alphas anchored the low end at .69. These alpha coefficients indicate strong internal consistency reliabilities for the IMI-C scales.
Internal Consistency Reliability of the Brief Version’s Four Scales

More recent IMI-C studies in medical settings (Kiesler & Auerbach, 2003, 2006) have found it necessary, for practical reasons of physician time and motivation, to use a briefer 28-item version of the IMI-C. Also other studies that require repeated administrations of the IMI-C have similarly found a briefer version useful, especially in initial investigations addressing more general control and affiliation axis hypotheses. The 28-item IMI-C brief version uses only the four octant scales that anchor the control and affiliation axes of the interpersonal circumplex: D, S, F, H. Each of these brief version scales consists of the same seven items found in the full 56-item octant version B yielding 4 x 7 = 28 total items. The internal consistency reliabilities of the brief-version four octant scales are expected to be mostly equivalent to those found in Table 3-1.

Table 3-2 provides Cronbach alpha values obtained for 14 separate samples within four separate studies that used the 28-item Brief Version. Table 3-2 shows that the obtained values are, in some cases, noticeably lower than those found for the same octants in Table 3-1. Although the median alphas reported for the four octant scales are respectable (.61 to .87), they basically misrepresent the bimodal values actually present. As can readily be seen, the alphas for the first six samples (all from Cook, 2004) are consistently high and equivalent to the highest of those reported in Table 3-1. In contrast, the alphas from the remaining samples (7-14) are substantially lower.
Table 3-2. Cronbach Alpha (Internal Consistency) Reliability Coefficients Obtained for the 28-item Brief Version of the IMI-C in the Individual Investigations Cited Below (male and female targets combined, male and female respondents combined).

<table>
<thead>
<tr>
<th>Study</th>
<th>Target/Respondent</th>
<th>D</th>
<th>H</th>
<th>S</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cook (2004)</td>
<td>Father/Mother</td>
<td>.84</td>
<td>.92</td>
<td>.54</td>
<td>.95</td>
</tr>
<tr>
<td>2. Cook (2004)</td>
<td>Mother/Father</td>
<td>.85</td>
<td>.92</td>
<td>.64</td>
<td>.94</td>
</tr>
<tr>
<td>3. Cook (2004)</td>
<td>Adolescent-Patient/Mother</td>
<td>.84</td>
<td>.90</td>
<td>.58</td>
<td>.92</td>
</tr>
<tr>
<td>4. Cook (2004)</td>
<td>Adolescent-Patient/Father</td>
<td>.84</td>
<td>.87</td>
<td>.72</td>
<td>.92</td>
</tr>
<tr>
<td>5. Cook (2004)</td>
<td>Mother/Adolescent-Patient</td>
<td>.84</td>
<td>.88</td>
<td>.58</td>
<td>.88</td>
</tr>
<tr>
<td>6. Cook (2004)</td>
<td>Father/Adolescent-Patient</td>
<td>.81</td>
<td>.90</td>
<td>.66</td>
<td>.95</td>
</tr>
<tr>
<td>7. Auerbach et al. (2002)</td>
<td>Diabetic-Pt/Physician</td>
<td>.51</td>
<td>.68</td>
<td>.77</td>
<td>.84</td>
</tr>
<tr>
<td>9. Auerbach et al. (2005)</td>
<td>Surgeon/FM-at Admis</td>
<td>.77</td>
<td>.82</td>
<td>.40</td>
<td>.88</td>
</tr>
<tr>
<td>10. Auerbach et al. (2005)</td>
<td>Surgeon/FM-at Disch</td>
<td>.62</td>
<td>.75</td>
<td>.67</td>
<td>.80</td>
</tr>
<tr>
<td>11. Auerbach et al. (2005)</td>
<td>Nurse/FM-at Admis</td>
<td>.46</td>
<td>.71</td>
<td>.68</td>
<td>.84</td>
</tr>
<tr>
<td>12. Auerbach et al. (2005)</td>
<td>Nurse/FM-at Disch</td>
<td>.66</td>
<td>.61</td>
<td>.20</td>
<td>.87</td>
</tr>
<tr>
<td>13. Orr (2004)</td>
<td>Chemotherapy-Pt/Oncologist</td>
<td>.77</td>
<td>.47</td>
<td>.76</td>
<td>.81</td>
</tr>
</tbody>
</table>

Median: .72 .79 .61 .87
The six separate analyses reported by Cook (2004) are from samples of respondents within the same family: mothers, fathers, and adolescent patients. In this instance, respondents had a considerable amount of time interacting with each other which, in turn, made their IMI-C reports more confident and stable, their alphas strong to excellent. The remaining studies in Table 3-2 all took place within medical settings, with patients (or family members of patients), physicians, and nurses as IMI respondents. All eight samples include dyadic interactions that are short-term and novel that is, physician-patient (nurse-family member) interactions (not acquainted with each other previously), relatively brief, and highly constrained by the structured physician (and nurse) task and role in the specific context. What the coefficients in Table 3-2 indicate is that these “powerful” medical situations influence most strongly patient reactions to the physician (e.g., samples 8, 14), and affect to a lesser degree both family member reactions to nurses (e.g., samples 11, 12) and physician reactions to patients (e.g., samples 7, 13). What seems responsible, then, for the low alphas in these studies is an extreme restriction of range for particular IMI-C items, substantially reducing the number of items used for the calculation. Least affected by the situational constraint seems to be octant scales that anchor the affiliation axis (F, H); most affected the scales that anchor the control axis (D, and especially S).
Influence of Relationship Context on IMI-C Internal Consistency Reliabilities

The Cronbach alpha coefficients just reviewed showed that the strong contextual constraints within a caretaker-patient interaction can increase the unreliability of IMI-C interactant scores, especially on the control dimensions. Other studies have shown that the specific interpersonal situation (e.g., friends vs. strangers vs. acquaintances, liked vs. disliked interactants, or other authority figures, etc.) can affect the circumplex structure of a state (vs. trait) interpersonal measure such as the IMI-C. The strength or intensity of impact messages registered by respondents along either the control or affiliation dimension can fluctuate as a result of the interpersonal situation. Moreover, the circumplex (e.g., MDS) structure of the IMI-C octant scales is sensitive to the particular type of target being rated. Schmidt, Wagner and Kiesler (1999b), in three separate samples, found an apparent compression of the control axis (relative to the affiliation axis) in the MDS analyses reported. The compression seemed to reflect a narrower variety of covert reactions along the dominance-submission dimension than along the friendliness-hostility dimension. The three samples were composed of close friends, orthognathic surgery patients rating their dental surgeons, and stress-reduction counselors.

In an IMI-C study comparing liked vs. disliked acquaintances, Schmidt, Kiesler and Wagner (1997) found noticeable clusterings of the D, HD, H as well as F, FS octants. Ipsatized scores with a principal components analysis with Procrustes rotation found clear departures from circumplex structure, with the dominant and submissive octants flattened or compressed in the direction of the affiliation axis. Hence, when filling out the IMI-C on acquaintances, liked (vs. disliked) participants seemed to attend less to interpersonal control than to affiliation; in fact, frankly dominant behavior seemed to be experienced covertly as unfriendly or slightly hostile. In contrast, Wiggins's IAS-R trait scores obtained for the same subjects had octant scores that departed only slightly from circumplex structure. The relative volatility of the state IMI scales compared to the IAS-R suggested that the internal reactions to another person are subject to more idiosyncratic processing than is the rating of another person using trait adjectives or problem descriptors. In short, interrelationships among covert impacts to a target individual are more prone to situational influences that are "fuzzy sets" of trait adjectives.

Owen (2005) studied workplace pairs of mostly friends and a few acquaintances. He found that the IMI-C scores were particularly skewed in contrast to the Inventory of Interpersonal Problems-Circumplex (IIP-C; Alden, Wiggins, & Pincus, 1990) scores. Factor analysis of the IMI-C octants revealed some similarity to circular structure, with the Friendly octant displaced and falling between the FS and S octants. This pattern suggested a compression of control octants flattened in the direction of the friendly-hostile affiliation axis, similar to that found by Schmidt, Kiesler and Wagner (1997).

Possible explanations have been offered for interpersonal-target influences on the octant placement and circumplex structure of IMI-C control versus affiliation behaviors. In these situations one may find noticeable restriction of the range of scores on one of the two dimensions (e.g., control) because of (a) corresponding reduced variability in control behavior among target individuals or (b) less perceptual sensitivity of IMI respondents to target individuals' control behaviors.

One study (Hafkenscheid & Kiesler, 2006) of psychotherapy patients and therapists/counselors found that IMI-C scores on control, relative to affiliation, octants were more generalizable and showed greater interobserver agreement. At the same time, differences in variance along the...
two axis dimensions were virtually non-existent, suggesting that a greater range of behavior on the affiliation vs. control axis did not explain the differences in interobserver agreement obtained.

Interpersonal researchers have given little systematic consideration to the effects on findings of context-bound (state) versus context-free (trait) assessments. Many circumplex measures can be adapted to both trait and state applications, although some are more clearly trait in emphasis (e.g., IAS-R, ICL) while others were designed for state measurement in various situational contexts (e.g., IMI-C, CLOIT-R, ICRS-R). The problems have emerged, not so much in interpersonal trait or style assessment, but are increasingly evident in state applications. It is clear from more recent state studies that strong interpersonal situations can override participant stylistic expressions of either control or affiliation behaviors. These demanding contextual factors often produce various measurement anomalies – reducing variance on one or the other circumplex axis scores, playing havoc with the internal consistencies of some octant scores, or flattening one or the other axis of circular MDS analyses.

Yet these anomalies are clearly contextual! Circumplex measurements obtained in other situational contexts will show different anomaly patterns, or in some cases no evidence whatsoever of any of the same psychometric difficulties. Nevertheless, existence of any one of these psychometric aberrations presents significant problems for testing interpersonal predictions in particular studies, especially those involving interpersonal complementarity. These un-conceptualized difficulties also encourage both interpersonal and other interested researchers to shy away from repeated applications of state circumplex measures. Although presenting something of a psychometric headache, findings of volatility on either the control or affiliation dimension partially confirm the unique nature of the IMI-C, in that one would expect certain dimensions of interpersonal impact messages to take on greater valence in different situations. When sitting in the dentist's chair, for example, there is little need or value in negotiating who is in control of the relationship. More important (from the patient's point of view, anyway) is whether the dentist is nice, friendly, and caring. Moreover, Schmidt, Wagner and Kiesler's (1999b) multiple dimensional scaling analysis suggested that, across different contexts, the importance of one interpersonal dimension relative to the other may change, whereas the relationship (i.e., the ordering) among the reactions assessed by the individual octants will not change. These same findings highlight also that any normative data for the IMI-C must be collected with keen respect for the valence of each interpersonal dimension to a particular sample.

It seems clear that IMI-C investigators need to continue tracking these contextual effects. For example, we can begin to catalogue the effects of extremely strong control situations (e.g., boss-worker interactions, surgeon-patient interactions) or extremely strong affiliation situations (e.g., close friends, lovers), thereby beginning to address the interpersonal correlates of situational, contextual factors. Over time, this examination would permit our methodologies, tests and theories to become more sophisticated and valid.
Internal Consistency Reliability for Male and Female Interactants

Table 3-3 presents the Cronbach alpha coefficients for male versus female targets and respondents from previous studies. Since all these studies used the 28-item IMI-C version, gender comparisons are available for only the four octants that anchor the control and affiliation axes of the interpersonal circumplex. What Table 3-3 shows is that gender may indeed affect to a substantial degree the resulting IMI-C internal consistency reliabilities. Of the eight samples listed, only one (sample 2) shows equivalency between the males vs. female alphas obtained. Obtained differences in alpha values in most instances take the form of substantially lower values for male subjects (either as targets or respondents). However, in all of these cases the respective Ns for males are substantially smaller than for females, which factor in itself could explain the lower values. The one clear case where female alphas are lower is sample 4 in which female patients filled out IMI-Cs on physicians.

In sum, what Table 3-3 suggests is that the gender of IMI-C targets, respondents, and target-respondent pairs may systematically affect the level of internal consistency reliability obtained for IMI-C octant scores. Unfortunately, however, none of these studies had equivalent numbers of male vs. female physicians to permit precise analyses of targets and respondents as well as target-respondent gender combinations. Future studies are needed that address the gender issue more systematically by building in comparable Ns of IMI-C targets, respondents, and their interactive mix.
Table 3-3. Cronbach alpha internal consistency coefficients for 28-item IMI-C Octant Version for male, female, and male+female respondents

1. Auerbach et al. (2002) Diabetic-Pt / Physician

<table>
<thead>
<tr>
<th></th>
<th>D</th>
<th>H</th>
<th>S</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>[n= 22] m</td>
<td>-.10</td>
<td>.39</td>
<td>.29</td>
<td>.78</td>
</tr>
<tr>
<td>[n= 32] f</td>
<td>.64</td>
<td>.77</td>
<td>.80</td>
<td>.88</td>
</tr>
<tr>
<td>[n= 54] m+f</td>
<td>.51</td>
<td>.68</td>
<td>.77</td>
<td>.84</td>
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</tbody>
</table>


<table>
<thead>
<tr>
<th></th>
<th>D</th>
<th>H</th>
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<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>[n= 22] m</td>
<td>.20</td>
<td>-.13</td>
<td>.35</td>
<td>.74</td>
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<tr>
<td>[n= 32] f</td>
<td>.19</td>
<td>.59</td>
<td>.39</td>
<td>.89</td>
</tr>
<tr>
<td>[n= 54] m+f</td>
<td>.14</td>
<td>.52</td>
<td>.36</td>
<td>.84</td>
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<table>
<thead>
<tr>
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<th>D</th>
<th>H</th>
<th>S</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>[n= 27] m</td>
<td>.69</td>
<td>.22</td>
<td>.85</td>
<td>.84</td>
</tr>
<tr>
<td>[n= 64] f</td>
<td>.80</td>
<td>.52</td>
<td>.72</td>
<td>.80</td>
</tr>
<tr>
<td>[n= 91] m+f</td>
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<td>.47</td>
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5. Auerbach et al. (2006) Physician / Family Member - Admission

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7. Auerbach et al. (2005) Nurse / Family Member - Admission

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8. Auerbach et al. (2005) Nurse / Family Member - Discharge

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<td>[n= 41]</td>
<td>m+f</td>
<td>.66</td>
<td>.61</td>
<td>.20</td>
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</tbody>
</table>
Normative Data for the IMI-C Octant Scales

In the case of traditional self-report trait inventories, establishment of norms is a relatively straightforward task. The researcher obtains large and/or representative samples of various subject populations (different ages, socioeconomic levels, gender, psychiatric status, etc.) who are administered the particular inventory. Norms are then presented as statistical tables of means, standard deviations, and percentile equivalents which permit an individual’s inventory scores to be compared precisely to the scores obtained by other respondents representative of various populations.

Obtaining relevant group norms for the IMI-C is neither an easy nor straightforward task. Two central factors cloud the issue. The first is that the IMI-C is predominantly an interpersonal state (in contrast to trait) measure. Most applications are in specific situations (e.g., doctor-patient, therapist-client, teacher-student transactions) in which the particular context contributes major variance to the covert impacts reported by respondents. Possible norms for IMI-C scores increase proportionately to the number of interactant-settings that are feasible and of interest. Also, state studies often sample multiple time-points within the particular situation to be able to characterize how subjects’ IMI-C scores increase or decrease over time. As a result of both state features, IMI-C norms quickly get more difficult to define, collect, and interpret.

The second, even more problematic factor in regard to IMI-C norms derives from the inventory’s being a transactional measure. Two persons, target and respondent, and their particular interactive fit all contribute variance to resulting IMI-C scores that characterize a target’s interpersonal behavior. Norms for traditional self-report trait inventories require scores of only one population of subjects (persons who are simultaneously both targets and respondents). In sharp contrast, obtaining IMI-C norms requires scores of two independent but transacting populations of subjects (targets and respondents).

Interpersonal theory, from which the IMI-C was derived, dictates that the interpersonal behavior of one person is conjointly expressed, interacting in lawful ways with the concurrent interpersonal behavior of the second interactant. Hence, in the IMI-C situation, not only does the target person contribute true variance to scale scores that characterize a target’s interpersonal behavior, but so also does the respondent person, as well as their particular target-respondent match. Hence, any relevant norms for IMI-C scores need to capture the target population, the respondent population, and the particular target-respondent-mix population.

It seems evident, then, that establishment of useful IMI-C norms demands separate sets for the three classes of subjects present in transactional studies: targets, respondents, and target-respondent mix. Until much larger numbers of IMI-C studies accumulate, an investigator can only search other available studies most similar to his or hers for normative data that might assist interpretation of IMI-C scores obtained. Other important transactional factors also need to be addressed if appropriate normative data are to accumulate for the IMI. For example, the extent of transactional history enjoyed by particular target-respondent dyads can vary considerably from study to study. The number and quality of previous transactions can vary between extremes such as strangers meeting for the first time to long-term dyads such as parent-daughter. Although as a state inventory the IMI-C is designed to tap the momentary (immediate) effects of one person’s interpersonal behavior on another at the time of filling out the Inventory, these transitory impacts result not only from the measurement encounter itself but also from construed memory traces of all previous transactions with the target.
Another factor confounded with interactional history is the range of environmental contexts or settings in which the two parties have interacted in the past. This range can vary from one situation only (e.g., a person and his or her hair stylist) to multiple situations (e.g., two interactants encounter each other frequently at work, at play, at parties, at church, as well as in the same neighborhood).

In sum, only future IMI-C research findings can begin to provide anything like appropriate normative data that captures the influence of these important historical and situational transactional factors. At present, the IMI-C investigator should carefully consider these temporal and situational parameters before attempting any comparative, across-study interpretation of IMI-C scores.

Recommendations. To facilitate this long-range normative task, investigators are urged to follow a few guidelines in reporting normative scores for their studies.

1. Tables should be routinely included that provide means and standard deviations for each of the eight octant scales, for the two axis scores, and for the three complementarity scores (whenever calculated).

2. The values reported in these tables should be in the form of the four-point scale used for individual IMI-C item responses. Conversion of sum scores back to means (sum score divided by its number of items) on the 4-point scale are essential to assist the reader to make standard comparisons of data from one study to another.

3. The research report should routinely provide precise empirical descriptions of both target and respondent samples on demographic and other subject variables (e.g., race, gender, age, psychiatric status). At present, investigators often provide these data only for the target samples.

The following two tables provide initial quite primitive normative information for IMI-C users. The reader, of course, is urged to keep in mind the cautions discussed above when perusing the table entries.

Table 3-4 presents means and standard deviations of IMI-C octant scales reported in 14 samples. In the Table all mean and SD values reported have been reduced to 4-point item scale equivalents—that is, the sums of 7-items divided by seven. This consistent scaling permits easy translation of the means and SDs in light of the 4-point item scale descriptors: 1 = not at all (descriptive of my reaction), 2 = somewhat, 3 = moderately, 4 = very much (descriptive of my reaction). The normative data in Table 3-4 come entirely from studies of the physician-patient interaction in which physicians and patients serve alternately as IMI-C targets and respondents. The data, thus, may have little generalizability to various IMI-C studies of psychotherapy or other relationships.
Table 3-4. Normative data obtained for the 56-item and 28-item versions of the IMI-C in the Individual Investigations cited below in Male and Female Targets Combined, Male and Female Respondents Combined (M=mean, SD=standard deviation; mean values bolded are at or above 2.00).

<table>
<thead>
<tr>
<th>Study</th>
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<th>H</th>
<th>HS</th>
<th>S</th>
<th>FS</th>
<th>F</th>
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Table 3-4 shows first that in studies using the 56-item octant version of IMI-C (samples 1-6), the peak (highest score) octant is F, followed next by FS (one exception), then next by FD (one exception). These data all come from the Pegg, Auerbach, Seel, et al. (2005) study in which traumatic brain injury patients rated and were rated by a medical professional who administered a videotaped information intervention over three separate sessions. The interactants consistently impacted each other as friendly and friendly-submissive, and in some cases also as friendly-dominant. The IMI-C means are all at 2.00 and above (only one above 3.00), indicating that the interactants experienced F and FD impacts that were "somewhat" to "moderately" characteristic of their reactions. Second, the remaining eight samples reported in Table 3-4 used the 28-item four-octant brief IMI-C and were all conducted in medical settings. In all samples but two, the IMI-C peak octant (for physician, nurse, or patient) was F; the means were consistently closer to 3.00 ("moderately" characteristic of the respondents' reactions). For the two exceptions (samples 11, 12) F was second highest following D; in both samples in which D was peak, the IMI-C target was the physician. In sum, the IMI-C octant means presented in...
Table 3-4 indicate that patients and medical personnel typically experience each other as "somewhat" to "moderately" friendly and friendly-submissive. In other instances patients appropriately characterized their physicians as "somewhat" dominant, consistent with the appropriate physician role. In virtually all samples in Table 3-4, means from the hostile side of the interpersonal circumplex (HD, H, HS) reflected "not at all" to "somewhat" characteristic reactions to each other.

**Normative Data for the IMI-C Complementarity Scores**

We have begun to collect normative data on the three "complementarity" index scores that are calculated to characterize psychotherapist-patient, physician-patient, and other relationships in which each participant fills out an IMI-C on the other. The indexes are calculated from each pair's control, affiliation, and combined-axis IMI-C scores using Wagner's formulas found in Chapter Two. Although the entire distribution of these complementarity scores in any particular study can be used by researchers in various multiple regression analyses (e.g., path analysis, structural equation modeling), other analyses may highlight dichotomous groups of interactant pairs high vs. low in interpersonal complementarity. The three samples included in Table 4-5 below, all from studies conducted within medical settings, provide preliminary normative data for the CON, AFF, and CON+AFF complementarity scores. Based on these three samples, future medical setting researchers could select median sample splits (high versus low complementarity) using c. 1.30 on control, c. 1.4 to 2.6 on affiliation, and c. 2.6 to 3.9 on the combined-axes. Of course, until more extensive normative data becomes available, the safest procedure for constructing high versus low complementarity groups is to split one's own sample using the median values for that sample.
Table 3-5. Normative Data on IMI Complementarity Scores (N=number of dyads, M=mean, SD=standard deviation, min=minimum obtained score, max=maximum score).

Study: Auerbach, Clore, Kiesler, et al. (2002)

<table>
<thead>
<tr>
<th>Study: Diabetic-Patient / Physician</th>
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<th>M</th>
<th>SD</th>
<th>min</th>
<th>max</th>
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<tbody>
<tr>
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<td>0.00</td>
<td>3.00</td>
</tr>
<tr>
<td>Complementarity on: AFF</td>
<td>49</td>
<td>1.38</td>
<td>0.80</td>
<td>0.14</td>
<td>3.71</td>
</tr>
<tr>
<td>Complementarity on: CON + AFF</td>
<td>48</td>
<td>2.61</td>
<td>1.03</td>
<td>0.43</td>
<td>5.14</td>
</tr>
</tbody>
</table>

Study: Pegg, Auerbach, Seel, et al. (2005)

<table>
<thead>
<tr>
<th>Study: TBI-Patient / Intervention-Admission</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>min</th>
<th>max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complementarity on: CON</td>
<td>28</td>
<td>1.34</td>
<td>1.12</td>
<td>0.03</td>
<td>5.44</td>
</tr>
<tr>
<td>Complementarity on: AFF</td>
<td>28</td>
<td>2.53</td>
<td>1.80</td>
<td>0.00</td>
<td>5.81</td>
</tr>
<tr>
<td>Complementarity on: CON + AFF</td>
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<td>3.86</td>
<td>2.33</td>
<td>0.20</td>
<td>9.76</td>
</tr>
</tbody>
</table>

Study: Pegg, Auerbach, Seel, et al. (2005)

<table>
<thead>
<tr>
<th>Study: TBI Patient / Intervention-Discharge</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>min</th>
<th>max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complementarity on: CON</td>
<td>28</td>
<td>1.62</td>
<td>1.00</td>
<td>0.08</td>
<td>3.44</td>
</tr>
<tr>
<td>Complementarity on: AFF</td>
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<td>2.61</td>
<td>1.46</td>
<td>0.77</td>
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</tr>
<tr>
<td>Complementarity on: CON + AFF</td>
<td>28</td>
<td>4.24</td>
<td>1.82</td>
<td>1.09</td>
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</table>
Chapter Four
Development of the IMI-C

The Original Impact Message Inventory (IMI)

The original Impact Message Inventory (IMI; Kiesler, 1987b; Kiesler, Anchin, Perkins, Chirico, Kyle, & Federman, 1976, 1985) was an interpersonal circle inventory designed to measure a target person's characteristic pattern of interpersonal behavior. It was constructed on the assumption that the interpersonal or evoking style of person A can be validly defined and measured by assessing the covert responses or impact messages evoked within person B who has interacted with or observed person A.

Scale construction for the IMI followed an empirical, in contrast to rational-deductive, strategy. At the time of original development of the IMI, precise complementary relationships existing between categories of interpersonal behavior on the Interpersonal Circle had not been clearly articulated. In addition, the Circle categories define overt behaviors, while the authors of the IMI sought to operationalize the distinctive covert reactions experienced by interactants during their transactions. Unfortunately, universes of item content for the three required subclasses of IMI items—transactional feelings, action tendencies, and perceived evoking messages—were not available in any form that might be systematically sampled.

Instead, development of the IMI followed the strategy of empirically anchoring distinctive covert impacts to "pure" categories of overt interpersonal behavior as available from the one interpersonal acts inventory in the literature at that time, Lorr and McNair's (1976) Interpersonal Behavior Inventory (IBI). Development of the original IMI followed the strategy of empirically anchoring distinctive covert impacts to the IBI's 15 "pure" categories of overt interpersonal circle behavior.

In a series of IBI investigations carried out within the context of psychotherapy with adult patients, Lorr and McNair (1963, 1965, 1967; Lorr, Bishop, & McNair, 1965) developed their own interpersonal behavior circle. The 140 items of manifest interpersonal behaviors that ultimately comprised the IBI (Lorr & McNair, 1967) yielded 15 category scores arranged on the circumference of their circumplex. The 15 IBI categories were labeled dominant, competitive, hostile, mistrustful, detached, inhibited, submissive, succorant, abasive, deferent, agreeable, nurturant, affiliative, sociable, and exhibitionistic. Table 4-1 provides definitions of the fifteen interpersonal categories of Lorr & McNair's (1967) Interpersonal Behavior Inventory: Form 4.
Table 4-1. Definitions of the 15 Scales of Lorr and McNair’s (1967) Interpersonal Behavior Inventory: Form 4.*

<table>
<thead>
<tr>
<th>Scale</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Dominant</td>
<td>lead, direct, influence and control others</td>
</tr>
<tr>
<td>Competitive</td>
<td>seek and compete for recognition and status</td>
</tr>
<tr>
<td>Hostile</td>
<td>criticize, ridicule, punish or aggress against</td>
</tr>
<tr>
<td>Mistrustful</td>
<td>doubt, or suspect the attitudes, feelings and intentions of other</td>
</tr>
<tr>
<td>Detached</td>
<td>stay apart from, be seclusive from, remain aloof from others</td>
</tr>
<tr>
<td>Inhibited</td>
<td>withdraw from attention, and be shy with others</td>
</tr>
<tr>
<td>Submissive</td>
<td>be passive and docile and appease others</td>
</tr>
<tr>
<td>Succorant**</td>
<td>get others to help and take the lead with problems and decisions</td>
</tr>
<tr>
<td>Abusive</td>
<td>accept blame, belittle oneself and apologize to others</td>
</tr>
<tr>
<td>Deferent</td>
<td>support and serve a person who is superior or a leader</td>
</tr>
<tr>
<td>Agreeable</td>
<td>be cooperative, helpful, considerate and equalitarian with others</td>
</tr>
<tr>
<td>Nurturant</td>
<td>actively support, be sympathetic to, give helpful advice to others</td>
</tr>
<tr>
<td>Affiliative</td>
<td>show liking, warmth, and friendship to others</td>
</tr>
<tr>
<td>Sociable</td>
<td>be gregarious and join groups</td>
</tr>
<tr>
<td>Exhibitionistic</td>
<td>seek attention, notice and approval from others</td>
</tr>
</tbody>
</table>

* Definitions are adapted from Lorr and McNair’s (1965) report

** This label is semantically incorrect. More precise labels would be "Succorance-seeking," "Helpless," or "Dependent"

Lorr and McNair’s (1967) IBI items provided the original IMI research group operational descriptions of the domain of overt interpersonal behaviors and actions. However, what was needed for our to-be-developed measure of impact messages was a representative sample of the corresponding emotional and other covert engagements that individuals exhibiting the 15 behavioral patterns produced in interactants. The strategy of scale construction we arrived at for the IMI was one in which descriptions of the overt interpersonal actions of a person would be employed as stimuli to elicit characteristic subjective reactions within interactants.

Accordingly, our team pursued the following procedure for generating samples of impact message items:

(1) A description of the overt interpersonal behaviors of a hypothetical person (person A) typifying each “pure” circle category (e.g. dominant, competitive, mistrusting, hostile, detached, etc.) was constructed in written paragraph form based on the items of Lorr & McNair’s (1967) IBI. Table 4-2 presents examples of three of the fifteen IBI paragraphs constructed.

DOMINANT. D is a person who makes decisions like what to do or where to go when with another person. She volunteers advice and information when people have decisions to make and often talks her friends into doing what she would like. She generally takes charge of things when with people and presently directs the activities of several clubs and associations to which she belongs. D generally seizes opportunities to instruct or explain things to others which often leads her to dominate conversations, interrupting when others speak, and talking others down. Moreover, she bosses friends and associates around and exploits or manipulates others for her own ends.

HOSTILE. H is a person who ridicules, belittles or depreciates other people. Usually she displays a contemptuous “chip on the shoulder” attitude. This is evident by her frequent use of sarcastic or biting type of humor and her criticism and defiance of persons in authority. H often makes unfavorable or hostile remarks about her peers, and belittles or criticizes the success and strengths of others. On the other hand, she shows impatience or intolerance of others’ mistakes or weaknesses. In dealings with people, she often shows anger or irritability and is known to tell people off when annoyed.

ABASIVE. A is a person who apologizes when criticized or blamed regardless of who is at fault. She accepts or assumes blame when things go wrong and blames herself when interpersonal friction with others occurs. A apologizes for not having done better when she completes a task, makes unnecessary apologies for her appearance or conduct, and often talks at length about her faults and failures, even in a group. In underrating her own skills and accomplishments, A expresses inferiority in relation to others and expresses more than ordinary gratitude for help or favors.

(2) Each of the paragraph descriptions of 15 "pure" classes of interpersonal behaviors was then used as a standardized interpersonal stimulus to elicit free-response internal reactions (direct feelings, action tendencies, perceived evoking messages) from samples of respondents (persons B) who were instructed to imagine themselves interacting with a person in their own lives who exemplified to a substantial degree one of the "pure" interpersonal categories.

(3) The multiple covert free-response reactions recorded by the sampled respondents were then standardized and scaled by psychometric procedures so as to align subsets of impact items with the corresponding circle category that distinctively evoked them.

(4) The result was an inventory that permitted systematic assessment of any person A’s interpersonal behavior by measuring respondent B’s self-reported covert reactions experienced while interacting with person A. In its original form (Kiesler, Anchin, Perkins, Chirico, Kyle, & Federman, 1976, 1985), items were combined to construct 15 scales that characterized the target individual’s interpersonal behavior as experienced by respondents. Reliability and validity evidence for these IMI scales were detailed in an original publication (Perkins, Kiesler, Anchin, et al., 1979).

Each of the 90 original IMI items (6 items per 15 scales) described one of three categories (direct feeling, action tendency, or perceived evoking message) of the covert emotional reaction
characteristically elicited or pulled by an interactant exhibiting interpersonal behaviors predominantly from one of 15 categories of interpersonal behavior described on the interpersonal circumplex. If items from a particular category were endorsed strongly (on 4-point scales) by respondent B, then the target transactant A received a high score on that circle category. The sum of the six items for each IMI scale provided the relative strength of A’s corresponding pattern of interpersonal behavior, as experienced interpersonally by respondent B. For example, following an interaction with person A, who manifested strongly dominant interpersonal behaviors, respondent B endorses as very descriptive of reactions to A the empirically keyed Dominant Scale items: he makes me feel bossed around, he should tell him he’s often quite inconsiderate, he wants to get away from him, he wants to be the center of attention, and so on. Person A’s Dominant Scale score was simply the sum of the scores marked on the original 4-point scale by respondent B to each of the six IMI items comprising that Scale. The 14 other Scale scores were obtained in an identical manner. A detailed description of the development of the original IMI can be found in the IMI manual (Kiesler, 1987b).

The ability to develop the IMI successfully in and of itself permitted us to conclude that the covert impacts a particular transactant evokes from interactants are indeed generalizable to a wide population, at least to normal college undergraduates. That is, our development of the IMI in and of itself provided strong confirmatory evidence for the principle of interpersonal complementarity (Carson, 1969; Kiesler, 1983) and for one’s ability to chart complementary covert interpersonal responses on the circumference of the interpersonal circumplex.

Development of the IMI-C

A major limitation of the original 15-scale IMI was inconsistent empirical support for its circumplex structure (Kiesler, 1987b). The basic shortcoming resulted from the apparent presence (Kiesler, 1983, 1987b; Perkins, Kiesler, Anchin, et al., 1979) of three interpersonal factors (dominance, affiliation, submission), rather than the theoretically required two (control, affiliation).

Wiggins (1989), in a personal communication described his research group’s identification of a 56-item octant scale version which they had extracted from the original 90 IMI:IIA items. Wiggins’s analyses (using indexes of angular location and vector length) led to construction of eight scales of seven items each that, as a whole, exhibited an excellent circumplex structure. The resulting eight scales (each constituted of seven of the original IMI:IIA items) had varying mixtures of the three IMI:IIA item subclasses (direct feelings, action tendencies, and perceived evoking messages).

Wiggins and colleagues’ analysis was based on a sample of 136 male and female undergraduates who filled out three original (90-item) IMI:IIA’s each on three designated target interactants (a total of 408 IMI:IIA protocols). Wiggins and colleagues first ipsatized all IMI:IIA scores, intercorrelated all 90 items, and extracted two principal components: Dominance and Love. These two components were then rotated to an a priori Procrustean pattern with the target matrix designed to minimize the least squares difference between the ideal and obtained angular locations of items for all octants.

Next, rotated factor scores were computed for all 136 subjects in the sample and the scores correlated with all available IMI:IIA items. The correlation of a given item with the Love factor scores provided the location of that item on the X axis; the correlation of that item with the Dominance factor provided the location on the Y axis. The arctangent of Y/X provided the
angular location and the square root of $Y^2 + X^2$ provided the distance of the item from the center of the circle according to the theorem of Pythagoras. This procedure yielded "communality" (distance from the center of the circle) and "angular location" values for each of the IMI:IIA items.

The item analysis resulted in identification of octant scales each containing seven items, the content of which made, according to Wiggins, "a good deal of sense;" also, "the interpersonal circle [was] well spanned by the 8 scales."

Schmidt, Wagner and Kiesler (1999b), using 1,109 subjects from eight separate IMI studies, evaluated the psychometric and circumplex properties of the 56-item IMI octant scales identified by Wiggins and his colleagues. Cronbach alpha reliability coefficients were clearly acceptable, ranging from .69 to .89. Three separate statistical analyses – Procrustes principal components, multidimensional scaling analysis (MDS), and confirmatory factor analysis – confirmed a clear cut order in which the octants were spaced in a circular pattern (within an average of 9 degrees of their predicted locations, according to one analysis) around two axes, the interpersonal dimensions of control and affiliation. The MDS indicated that the location of the octants relative to the primary dimensions was fairly stable from sample to sample, confirming that the octant scales relate to one another in a similar fashion across highly heterogeneous samples. Nevertheless, although the IMI-C met requirements of the more liberal traditional tests of circumplexity (e.g., octant scales fall within their defined circumplex space, thereby confirming their theoretically defined placements), the highly conservative CFA test revealed that it did not conform as closely to circumplexity as did Wiggins' Interpersonal Adjective Scales-Revised (IAS-R; Wiggins, Trapnell, & Phillips, 1988) and the Inventory of Interpersonal Problems-Circumplex version (IIP-C; Gaines, Panter, Lyde, et al., 1997; Gurtman & Pincus, 1998; Pincus, Gurtman, & Ruis, 1998).

In sum, the results suggested that the IMI-C showed dramatically improved circular structure over that reported for the original 15-scale version and that it achieved adequate internal consistency reliability in its measurement of the interpersonal dimensions. As a result of these findings, Kiesler and Schmidt (1993) recommended that researchers routinely adopt the IMI-C (octant scale version) as a standard replacement of the original IMI-IIa 15-scale version. Schmidt, Wagner and Kiesler (1999b) concluded that the IMI-C represented a significant development for researchers who wish to study interpersonal impacts occurring during human transactions, and especially in counseling and psychotherapy research. Further refinement of these scales would constitute an even greater addition to interpersonal measurement, bringing together the unique qualities of this measure and the benefits of conformance to true circumplexity. Until that time, the IMI-C will serve ably in the growing armamentarium of interpersonal circle measures (Schmidt, Wagner, & Kiesler, 1999b, p. 332).
Remaining Issues with the IMI-C

Schmidt, Wagner and Kiesler (1999b) were candid about the possibilities for continuing refinements of the IMI-C that would bring together the unique qualities of the measure and the benefits of conformance to excellent circumplexity.

Two major limitations of the IMI-C, as an optimal measure of impact messages, still linger (e.g., Schmidt, 1994). The first and most glaring shortcoming results from the fact that the IMI-C octant scales contain uneven and unbalanced numbers of items from the three subclasses of impacts measures. For example, as can be seen from Table 2-1, the Submissive scale contains 2 feeling items, 3 action tendency items, and 2 perceived evoking message items; while the Friendly-Dominant scales has 2 feeling items, 1 action tendency item, and 4 perceived evoking message items. As another example, while the Hostile scale contains 3 direct feeling items, the Hostile-Submissive scale contains none. This unbalance is undesirable, in the first place, in light of the principle of psychometric standardization. It also prevents any separate analyses using, for example, a set of total inventory scores for each of the three subclasses. In addition, the small number of subscale items for a given octant scale also prevents any reliable characterization of subscale impacts for that octant. Hence, although Kiesler (1987b) noted that situational context may dictate whether important differences are found among subscale profiles, exploration of this question is difficult given the poor reliability expected of subscales comprised of very few items each. Wiggins (1982) also argued that these subscale domains are distinct and deserving of individual attention, stating that a "more precise understanding of the links of interpersonal action-reaction might be achieved by developing separate and larger item pools for each of those domains" (p. 200). Keeping in mind that each subclass of impacts most likely taps a distinct aspect of covert emotional experience, it would make sense for these subscales of impacts to be balanced within octant scales. Even better would be the ability to produce separate profiles for each of the three subscales.

As our conceptualization of impact messages as covert emotional reactions grew more precise, it also became clear that the most prototypical of the three subscales of IMI-C items were direct feelings and action tendencies. As Wiggins (1982) noted, the perceived evoking message items share the most overlap or redundancy with items used in traditional trait interpersonal inventories. Ideally, then, we might eliminate the perceived evoking message subscale items from the IMI-C to facilitate a focus on the other two more unique and prototypical impact subclasses. This would permit each octant scale to contain a greater number of items for each of the two remaining subclasses without extraordinarily lengthening the measure.

Another major limitation we recognized in the IMI-C was that we had named the octant scales in a way that sabotaged the unique nature of our inventory and its place in interpersonal research. Both major versions (15-scale IMI-IIa, IMI-C octant version) do not provide scale scores for respondent B’s reported impacts i.e. to name B’s distinctive categories of emotional impacts (e.g. hostile-submissive) experienced with person A. Instead, both versions provide scales scores for transactant A’s overt interpersonal behavior i.e. respondent B’s item impacts are scored to name transactant A’s distinctive pattern of overt interpersonal actions (e.g. A’s pattern of competitive actions). We had no viable option, however, in that no systematic circumplex conceptualization of interpersonal feeling or action tendency impacts was available in the psychological literature. This still is the case at present.

It remains the case, however, that the IMI-C scoring obscures its unique nature as an interpersonal inventory. If interpersonal transactions are influenced, as stated in
complementarity theory, by reciprocity with regard to dominance and correspondence with regard to affiliation, this influence will be most apparent in the covert reactions of one person to the overt behavior of a transactant. As depicted in the interpersonal transaction cycle (cf. Figure 5-3), the direct link of influence is between person A’s overt actions and interactant B’s covert response. Whether interactant B’s covert impacts trigger, in turn, a corresponding overt reaction to person A depends on the particular threat to B present in the situational context in which the transaction occurs.

In sum, these issues would point to future revisions of IMI-C as follows: (1) to eliminate all IMI items that measured the perceived evoking message subclass, retaining each of the two remaining subscales: direct feelings and action tendencies; (2) to increase and standardize the number of items used to measure these two subclasses across the eight octant scales; and (3) to rename the octant scales to refer directly to interactants’ covert emotional reactions experienced in the presence of a particular transactant A (thereby abandoning our previous scale names that characterized transactant A’s overt interpersonal actions).

**Attempt at a Revised IMI-C: IMI-C2**

Schmidt (1994) was the first to attempt to construct a revised IMI-C octant scale toward establishment of an IMI-C2 that would balance octant scales with respect to Direct Feeling and Action Tendency impact items while maintaining acceptable circumplexity. Thirty-one undergraduate students created a pool of 1531 items describing covert emotional reactions to written descriptions of individuals displaying patterns of overt interpersonal behaviors depicted on the interpersonal circle. From this pool, 416 items measuring either direct feeling or action tendency impacts were selected and administered to an independent sample of 242 undergraduates who were asked to rate each item’s accuracy in describing the subject’s covert reactions to liked or disliked acquaintances. Item selection occurred on the basis of the items’ relationship to the Interpersonal Adjectives Scales-Revised (IAS-R; Wiggins, Phillips & Trapnell, 1988). The location of items in the two-dimensional, circumplex space was calculated relative to the orthogonal axes of control and affiliation as measured by the IAS-R. On the basis of each item’s angular location and vector length, eight revised IMI scales were constructed.

Findings were partially confirmatory of the goals of the study. Convergence of the octant scale structure to that predicted by interpersonal circle theory was found in the initial sample of 242 undergraduates and was replicated in an independent sample of 194 undergraduates. The new scales were generally successful in meeting a circumplex criterion, at least with respect to the angular location of the scales relative to the control and affiliation axes. In both samples a high level of agreement was found between the scales obtained versus theoretically-prescribed locations. This indicated that the types of impacts represented by the scales related to one another in the predicted circular pattern. Exploratory analyses of the Direct Feeling and Action Tendency subscales also revealed successful but imperfect circumplex structure for both sets of subscales similar to the structure found for the octant scales themselves. The greatest shortcoming of the revised scales was the variability of vector lengths found across octants, greater than desirable, with octant scales measuring dominant impacts showing shorter vector lengths. Vector length was most problematic for the D and HD scales which were marked by shorter vector lengths than other octants. In general, the restriction of variability found was associated with dominant impact messages, indicating that the control dimension did not figure heavily in the impact messages students experienced in response to acquaintances. Schmidt hypothesized that the use of acquaintances as targets of the ratings and the instruction for respondents to select a liked or disliked acquaintance de-emphasized the control dimension in the obtained IMI scores. The resulting restriction of range in correlations between individual
items and the control dimension hampered item placement with respect to the dominant pole of the vertical, control axis.

Schmidt (1994) summarized his findings as follows. "The current study demonstrates the viability of this method of item selection and scale evaluation for circumplex measures. It is particularly notable that, despite some unexpected results, this method nevertheless enabled the creation of octant scales that are balanced (in six of eight cases) with respect to their type of impact message measured, whose overall structure conforms to that of a circumplex and whose item content, for the most part, is consistent with than expected of an octant measure of interpersonal impact messages" (p. 127). He goes on to conclude: "This study clearly has demonstrated a need to consider a wider class of interpersonal relationships in selection of items, if a robust set of IMI octant scales are to be developed for general use. Further attempts at revision of these scales, similar to the current project but focusing on different types of relationships are necessary" (p. 126).

**Subsequent IMI-C2 Developmental Studies**

Subsequent to Schmidt’s (1994) dissertation study, Schmidt and Kiesler continued efforts toward a final satisfactory IMI-C2 version. After several large scale study attempts provided improved circumplex and psychometric findings, the project continued to fail in constructing scales in the hostile-dominant quadrant of the circle that demonstrated satisfactory fit to our criteria. As a result, the IMI-C2 project was abandoned and, unfortunately, has not resumed.
Chapter Five

The Theoretical Background of the IMI and IMI-C


Contemporary Interpersonal Theory

Since Sullivan (1953), a central construct of interpersonal theory has been the reciprocity or "complementarity" governing the exchanges of human interactants. That is, our interpersonal actions are designed to invite, pull, elicit, draw, entice, or evoke "restricted classes" of reactions from persons with whom we interact, especially from significant others (Kiesler, 1983, p. 198).

According to contemporary interpersonal theory (Carson, 1969; Kiesler, 1982a, 1983, 1991, 1996; Leary, 1957; Wiggins, 1982), our interpersonal behavior serves the function of establishing distinctive kinds of relationships with others -- relationships that are comfortable, anxiety-free, and that serve to confirm our conceptions of who we are as individuals. In order to establish these comfortable relationships, it is necessary that we, in automatic and minimally aware ways, maneuver persons who are interacting with us to adopt relationship positions that are "complementary" or reinforcing of the positions we proffer (Carson, 1969; Kiesler, 1983). The first effect of this transactional negotiation is that we begin to restrict the internal, covert experience (feelings, actions tendencies, images, cognitions) of persons interacting with us in a manner that makes it more likely they will respond overtly in the manner we desire.

When the self-confirmation process is unsuccessful, anxiety results and individuals escalate their bids in the form of more extreme and rigid interpersonal behaviors. Over time, this anxiety-driven escalation can result in the various patterns of abnormal behavior that characterize maladjusted individuals. During psychotherapy sessions, it is crucial for therapists to identify the abnormal patterns of interpersonal behavior being enacted by their patients. A major way this is accomplished is for therapists to monitor the internal engagements (the countertransference feelings) being evoked from them during the therapy transaction. The repetitive central patterns being enacted with the therapist and with significant others outside therapy constitute the patient's major problems to be targeted by interpersonal psychotherapy.

From this contemporary interpersonal perspective, the understanding of personality, maladjustment, and the psychotherapeutic process requires the ability to comprehend the "restricted classes" of reactions or impacts that persons evoke from others through their interpersonal behaviors. The IMI was designed to measure the distinctive covert reactions that persons experience to the full range of interpersonal behaviors found around the circumference of the interpersonal circle.
The Interpersonal Circle or Circumplex

A person’s interpersonal behaviors are designed to evoke reactions (complementary responses) from interactants that confirm, reinforce, or validate the person’s self-presentation and that enable the person to continue to enact favored interpersonal acts. At the core of this bidirectional influencing process we find individuals negotiating two major relationship issues, control and affiliation (Freedman, Leary, Ossorio, et al., 1951; Leary, 1957; Wiggins, 1979). Transacting partners continually negotiate who is to be more or less in control of their interactions and the level of friendliness or hostility that will predominate. These two basic dimensions fall on the vertical and horizontal axes of what is called the interpersonal circle or interpersonal circumplex. Figure 5-1 presents the most recent version of the interpersonal circle or circumplex (Kiesler, 1983).
Figure 5.1

On the interpersonal circle, behaviors are evenly distributed in a circular manner around the orthogonal dimensions (axes) of control (dominance versus submission) and affiliation (friendliness versus hostility). Various categories of behavior found around the circumference are conceptualized as blends of these two basic behaviors. Circle measures or inventories may be comprised of as many scales as desired (original circumplexes had sixteen), with the scales being spaced equidistantly around the circumference of the circle. The latest versions of virtually all available circle inventories are scored as octant scales, partitioning the circumplex space into eight "slices" rather than the original sixteen. This reduction of categories occurred in response to deficiencies in psychometric or circumplex properties of earlier 16-scale versions.
Any person’s interpersonal actions can be classified at a distinct point around the circumference of this circle. Contemporary interpersonalists typically measure interpersonal behavior using a battery of inventories designed to measure the comprehensive array of interpersonal acts depicted on the interpersonal circle or circumplex (cf. Kiesler, 1983, 1996). Accordingly, the first key model used by contemporary interpersonal theory to frame the description and measurement of human transactions is the interpersonal circle or circumplex.

The comprehensive array of contemporary interpersonal circle inventories presently available includes the Interpersonal Check List (ICL; LaForge & Suczek, 1955; Leary, 1957) and the Interpersonal Adjective Scales (IAS-R; Wiggins, Trapnell & Phillips, 1988) which both measure interpersonal traits; the circumplex version of the Inventory of Interpersonal Problems (IIP-C; Alden, Wiggins and Pincus, 1990) which measures interpersonal problems presented in psychotherapy; the Interpersonal Behavior Inventory (IBI; Lorr & McNair, 1965, 1967); the Check List of Interpersonal Transactions-Revised (CLOIT-R; Kiesler, 1987a; Kiesler, Goldston, & Schmidt, 1991) which both measure behavioral acts; and the IMI-C.

The Interpersonal Reflex and Interpersonal Complementarity

Within contemporary interpersonal theory the ED-evoking message finds its equivalent in the interpersonal reflex (Leary, 1957) or interpersonal act. An interpersonal act imposes a condition or command as a result of which a transactant tends to behave as person A signaled. At mostly automatic levels interpersonal actions are designed to push or force others to respond in ways that confirm our self-definitions and self-presentation — that make it more likely that we will act in our preferred (and similar) manner again. ED-evoking messages, translated as interpersonal acts, express relationship messages or presentational claims that fall in the two-factor space of control and affiliation as represented on the interpersonal circle. Also, in interpersonal theory the DE-impact message is translated as the first stage of the “complementary” response (Carson, 1969; Kiesler, 1983; Orford, 1986). Our interpersonal acts are designed to evoke restricted classes of reactions from those with whom we interact. Reactions by others to these acts are not random, nor are they likely to include the entire range of possible reactions; rather, they tend to be restricted to a relatively narrow range of interpersonal responses.

Complementarity is specifically defined in terms of interpersonal behavior as operationalized by the two-dimensional Interpersonal Circle (Carson, 1969; Kiesler, 1983; Leary, 1957). Complementarity occurs on the basis of (a) reciprocity in respect to the control dimension (dominance pulls submission, submission pulls dominance) and (b) correspondence in regard to the affiliation dimension (friendliness pulls friendliness, hostility pulls hostility). That is, complementarity exists among interactants when person B reacts to person A with interpersonal acts that are reciprocal in terms of control and corresponding in terms of affiliation. Through complementary responses, interactant B essentially confirms person A’s self-presentational bids on both the control and affiliation axes. Figure 5-2 presents the complementary octants of the interpersonal circle: D (dominant), HD (hostile-dominant), H (hostile), HS (hostile-submissive), S (submissive), FS (friendly-submissive), F (friendly), FD (friendly-dominant). It illustrates the fact that, on the circle the complementary response always occurs vertically either within the right or within the left half.
A given instance of successful negotiation for the complementary response consists of a two-stage sequence occurring rapidly in transactant B: (a) a covert response, labeled the DE impact message, and (b) the subsequent overt reaction, labeled the complementary response (Kiesler, 1983, pp. 205-206). To illustrate, person B enters a transaction with person A, whose characteristic interpersonal behaviors are measured at the circle octant, hostile-submissive. As their transaction proceeds, B increasingly experiences the covert first stage of complementarity "pull" by registering covert hostile-dominant impacts that are complementary to person A's circle categories: direct feelings such as feeling "superior to him" and "frustrated that he won't defend his position; action tendencies such as "I should be very gentle with him" and "I could tell him anything and he would agree"; and perceived evoking messages such as "he thinks he is inadequate" and "he would accept whatever I said." As B continues to experience these pulled-for complementary internal engagements, his actions (the second-stage of the complementary response) increasingly reflect overt behaviors from the same (hostile-dominant) complementary circle octant.

The Interpersonal Transaction Cycle

A second key model for framing the description and measurement of human transactions is called the interpersonal transaction cycle (Carson, 1969; Kiesler, 1986, 1996; Safran, 1984; Wagner, Kiesler, & Schmidt, 1995). In contemporary interpersonal theory, valid measurement of interpersonal behavior requires, at a minimum, measurement of at least two people's conjoint behaviors during their interactions with each other. Assessment focuses on what person A and person B do reciprocally to and with each other during their transactions (Kiesler, 1991, p. 438). What needs to be measured is inter-action (action-reaction) rather than action. Interpersonal behavior encompasses recurrent patterns of reciprocal relationship present among two people's covert and overt actions and reactions studied over some period of their transactions with each other.

The interpersonal transaction cycle is a model that represents the ongoing relationship between two or more interactants' overt interpersonal behavior and covert internal experiences. The transaction cycle specifies four reciprocally chained links. Within the sequence person A's covert behaviors (1) instigate person A's overt actions (2), which evoke person B's covert experiences (3), which instigate person B's overt response (4). The transaction cycle model incorporates the notion of circular causality in social transactions, which denotes that within any transaction between two or more individuals the interpersonal behavior of each is simultaneously both a cause and an effect of the behavior of the other (Danziger, 1976; Kiesler, 1982a).

Within the transaction model, the elements of each interactant's overt behavior and covert experiencing are posited to function as a unit. That is, the overt behavior of one individual evokes a distinctive covert reaction in the interactant. This covert reaction, in turn, partially mediates the overt behavioral reaction of the interactant. Within interpersonal theory, recurrent patterns of these transaction cycles, in conjunction with the action of other personality traits, are central to the development and maintenance of individual differences in personality.
Figure 5-3 depicts the transaction cycle (adapted from Kiesler, 1986), highlighting the way in which interpersonal transactions may reinforce consistent, stable interaction patterns through confirmation of an individual's "self-system" (Sullivan, 1953). Focusing on the upper left corner and moving clockwise, the covert cognitions and emotions of person A instigate his or her congruent overt interpersonal behaviors, which function as A's "bid" to person B to establish a particular momentary relationship. A's overt behaviors evoke particular covert feelings, attributions, and action tendencies within person B; in turn, the covert reactions of person B lead to his or her overt responses, which may confirm or challenge the relationship definition advanced by person A, depending on whether it is congruent with B's own preferred pattern of interpersonal behavior.

Comprehensive interpersonal assessment, accordingly, needs to address all four basic components of the transactional behavior occurring between two persons as shown in Figure 5-3: (1) person A's (e.g. a client's) covert experience of his relationship with person B (e.g. therapist); (2) person A's (e.g. client's) overt interpersonal behaviors when with person B (e.g. therapist); (3) person B's (e.g. therapist's) covert engagements (impacts) in response to interactions with person A (e.g. the client); and (4) person B's (e.g. therapist's) overt interpersonal responses when interacting with A. Available interpersonal circumplex inventories can be used to characterize the relevant interpersonal responses of the interactants by targeting one of the four points of the cycle. Analysis of any one of these four elements in isolation provides valuable information about human transactions. However, when all four points are targeted to measure the complete covert-overt transactional sequence a unique, comprehensive, and synergistic body of interpersonal information is produced.

Contemporary interpersonal theory also highlights the interpersonal patterns that underlie interpersonal problems and psychopathology (cf. Kiesler, 1986, 1988, 1991, 1996). An individual's interpersonal patterns become maladaptive or pathological when they are rigidly
adopted or are recurrently expressed at an extreme level with transactional partners and when the person communicates "mixed messages" across verbal and nonverbal channels. In these instances, the person’s rigid, extreme, or incongruent behavior evokes a constricted range of responses from interactants, responses that are complementary to the initiating behaviors. Unfortunately, these complementary reactions from others, in confirming the individual’s rigid relationship bid, actually confirm and reinforce the maladaptive behavior. Figure 5-4 presents the general "abnormal" version of the interpersonal transaction cycle called the maladaptive transaction cycle. Figure 5-5 depicts the maladaptive transaction cycle as applied to a DSM dysthymic disorder patient’s prototypical transactions with an interactant (adapted from Kiesler, 1986).
Figure 5.4

STAGE 1

COVERT EXPERIENCE

Expectancies
Cognitions
Emotions
Vulnerable self-system

ACTION

Automatic rigid & extreme self-presentations

REACTION

Constructive
Automatic complementary responses

PRODUCES

CONTINUES

STAGE 2

COVERT EXPERIENCE

Expectancies
Cognitions
Emotions
Anxiety
Vulnerable self-system

ACTION

Escalated automatic rigid & extreme self-presentations

REACTION

Leakage of hostility-rejection
Constructive
Escalated automatic complementary responses

PRODUCES

"Discrepant Messages"

PRODUCES

COVERT EXPERIENCE

Hostility-rejection
Guilt
Complementary impacts

PRODUCES

Feelings
Attributions
Imagery
Action tendencies

PRODUCES

Updated
Figure 5.5

STAGE 1

COVERT EXPERIENCE

- Pessimism (Things seem never to work out)
- Self-effacement (Something is wrong with me)
- Melancholy (God, I'm hurting)

Vulnerable self-system

PROMOTES

ACTION

J. Defera (I'm glad I came to you)
I. Submissive (What do you think?)
H. Unassured (I'm really sorry)

REACTION

Constricted

- A. Assured (We can get on top of this)
- D. Dominant (I want you to try this)
- B. Competitive (You can count on me)

STAGE 2

COVERT EXPERIENCE

- Hopelessness (No one will ever care for me)
- Helplessness (Nothing I do matters)
- Depression (Self, it's all my fault)

Anxiety

Vulnerable self-system

PROMOTES

ACTION

J. Submissive (You must tell me what to do)
I. Unassured (I never do anything right)
H. Inhibited (I'm too timid to think)

REACTION

"Discrepancy Messages"

- Leakage of hostility-rejection
- Delays returning A's phone call

- A. Dominant (Call me every night)
- B. Competitive (Don't give up! We'll fix it)
- C. Mistrusting (I tell your roommate to call me)

HOSTILITY-REJECTION

- Guilt

GUILT

PROMOTES

Discrepancy Messages

- He desperately needs me
- He's given up
- He's a "foundering ship"
- I have to take over right now

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This figure illustrates how a person who behaves in a rigid or extreme fashion (person A) can gain control of a transaction through constriction of the range of person B’s possible reactions through evocation of distinctive emotional pulls or impacts. As illustrated in Figure 5-4, the deferent, submissive, and unassured behaviors of the depressed individual (A, e.g. the patient) elicit predictable assured, dominant, and competitive overt behaviors from B (e.g. the therapist) through evocation of the interpersonal emotions or impacts (covert experience) triggered within B.

Contemporary interpersonal researchers seek to gain information about these four basic elements of transaction cycles using appropriately targeted interpersonal circumplex inventories and other measures. They consider it essential, further, to obtain information from multiple sources or perspectives regarding each of the four targeted components -- e.g. measuring person A’s (the client’s) overt interpersonal behavior by obtaining both the client’s self-report as well as the therapist’s (person B’s) ratings of the client’s overt interpersonal behaviors.

The IMI-C is a self-report instrument since one transactant in a dyadic interaction (respondent B) reports the characteristic emotional engagements he or she experiences during interactions with a targeted interpersonal transactant (person A). The IMI-C is a transactional measure since Respondent B’s reported engagements (scored at one of eight categories on the interpersonal circumplex) characterize the peak emotional impacts he or she experiences as the direct effects of interactant A’s overt interpersonal behaviors. The IMI-C, thus, measures the distinctive emotional consequences of individuals’ interpersonal behaviors (both normal and maladjusted) during transactions with other persons.

**Impact Messages and Transactional Emotion**

Kiesler, Schmidt, & Wagner (1997) documented (a) how the IMI-C measures central covert components of the complex emotional response as defined by contemporary emotion theorists; (b) how the IMI-C measures these important covert events within the context of specific interpersonal encounters; and (c) how IMI-C can serve as an operational bridge between the areas of emotion and interpersonal behavior -- permitting closer integration of their respective conceptualizations of personality, psychopathology, and psychotherapy.

(1) Emotions are triggered by interpersonal transactions. A growing consensus among present-day emotion theorists is that a central, if not ubiquitous, class of environmental objects or events triggering the human emotion sequence is social, interpersonal, and/or transactional in nature. Averill (1980) details the necessity of understanding the social antecedents and consequents that comprise the emotional experience. In his view, emotion arises from social situations (e.g. anger might be caused by another person blocking one’s goals) and serves social functions (e.g. expressed anger might stop the person from blocking one’s goals in the future). Berscheid (1983) proposes a model in which emotional interdependence is a vital component of close interpersonal relationships. Emotion is defined as autonomic arousal caused by interruptions of well-practiced, organized action sequences, coupled with cognitive appraisal of that arousal. In close relationships, members’ action sequences are closely intertwined -- members have frequent, strong, and diverse impacts on each other over a long period; they consequently are especially capable of interrupting each other’s well-practiced action sequences and eliciting arousal and emotion.

Lazarus and colleagues (Lazarus, Kanner & Folkman, 1980; Lazarus & Launier, 1978) offer a transactional or relational principle of emotions. It asserts that "emotions arise out of ongoing relationships or transactions ... in which the person influences and is influenced by the environment, especially the social environment... To understand any given encounter in which
there is an emotional episode, attention must be given to the changing relationship between the person and environment as the encounter proceeds" (Lazarus, Kanner & Folkman, 1980, p. 195).

The strongest transactional statement to date comes from Kemper's (1978) social interactional theory of emotions. Kemper's basic argument is that "events in the social environment instigate emotions. The most important events are the ongoing or changing patterns of social relations between actors" (Kemper, 1978, p. 26). "I do not claim that all emotion is of this [interpersonal] character, nor that any given emotion results only from social relationships" (p. 347). Kemper's general hypothesis is that "a very large class of emotions results from real, imagined, or anticipated outcomes in social relationships. To account for emotions that have a social locus, we must be able to specify the full range of real, imagined, and anticipated relational outcomes" (Kemper, 1978, p. 43). Kemper presents in detail a model of relational outcomes based upon the two basic interpersonal dimensions, which he labels "power" (coercive control of one's action by another as in domination, threat, force, control, etc.) and "status" (voluntary compliance and giving to others as in friendship, support, affection, warmth, etc.). "Whether the relationship is in equilibrium or not, I propose that each actor is either satisfied or dissatisfied in some degree with his own and the other's positions on the power and status dimensions" (p. 49). To illustrate, (1) When actor A appraises his/her own power as adequate, A feels secure; when interpreted as excessive, A feels guilty and anxious; when appraised as insufficient, A feels fear. On the other hand, when B's power is appraised by A as adequate, A feels secure; when appraised as excessive, A feels fear; when appraised as insufficient, A feels guilt. (2) When actor A appraises his/her own status as adequate, A feels happy; as excessive, A feels shame; as insufficient, A feels depressed. On the other hand, when B's status is appraised by A as adequate, A feels happy; when B's status is appraised as excessive, A feels anger, contempt, and shame; when B's status is appraised as insufficient, A feels guilt-shame and anxiety.

One can conclude from this brief survey that the interpersonal behavior of other individuals (within specific transactional episodes and over larger periods of transactional history) forms the major, most significant class of environmental events and objects that trigger the human emotion sequence. This interpersonal behavior includes both that imposed by social roles and conventions (Averill, 1980) and that emerging from more enduring interpersonal dispositions and self-presentation (e.g., Carson, 1969; Kiesler, 1982a, 1983, 1988; Leary, 1957). Further, as considerable evidence documents and Kemper (1978) highlights, this interpersonal behavior -- this major class of environmental stimuli -- forms a domain depicted on various interpersonal circumplexes (Kiesler, 1983; Wiggins, 1982) around the bipolar axes of control and affiliation.

(2) Emotion refers to a chain of covert human responses. A sizeable group of emotion theorists (Arnold, 1960a, 1960b; Averill, 1980; Frijda, 1986; Kemper, 1978; Lazarus and colleagues (Lazarus & Averill, 1972; Lazarus & Folkman, 1984; Lazarus, Kanner & Folkman, 1980); Plutchik, 1962, 1980, 1991) agree substantially with the notion that emotion is triggered by an individual's intuitive appraisal of an environmental event or object as significant or important (that is, as desirable or undesirable, valuable or harmful). This appraisal, in turn, triggers a complex, distinctive set of covert behaviors including: (a) subjective feeling reactions, (b) urges to action (action impulses, action tendencies), (c) physiological/somatic reactions, and (d) somatic kinesthetic feedback emerging from expressive facial reactions. This set of distinctive covert reactions, in turn, serves to moderate the individual's subsequent actual overt response. Further, each component of this emotional process (cognitive appraisal, subjective feeling, urge to action, physiological response, facial feedback, overt reaction) can be subjected to inhibitory
and regulatory processes that serve as normal to abnormal defensive operations in protection of the self system.

Lazarus, Kanner & Folkman (1980) define emotions as "complex, organized states ... consisting of cognitive appraisals, action impulses, and patterned somatic reactions. Each emotion quality (e.g. anger, anxiety, joy) is distinguished by a different pattern of components" (p. 198). Plutchik (1980) states that "an emotion is an inferred sequence of events set in motion by some stimulus. The components of the sequence are: an inferred cognition (e.g. danger); a subjective feeling (e.g. fear); a physiological arousal (e.g. rapid heart-beat); a motor impulse (e.g. to run); and behavior (e.g. running)" (p. 333).

The action tendency component of the complex set of covert emotional reactions is considered by several theorists to be the criterial component of the emotion process. Arnold (1960a) states that emotion is felt action tendency: "the intuitive appraisal of the situation initiates an action tendency that is felt as emotion, expressed in various bodily changes, and that eventually may lead to overt action" (p. 177). Emotion is "the felt tendency toward anything intuitively appraised as good (beneficial), or away from anything intuitively appraised as bad (harmful). This attraction or aversion is accompanied by a pattern of physiological changes organized toward approach or withdrawal. The patterns differ for different emotions" (Arnold, 1960a, p. 182).

Frijda (1986) defines action tendencies as "states of readiness to execute a given kind of action," (p. 70), to execute a given class of actions having the same intent. "One action tendency is readiness for attacking, spitting, insulting, turning one's back, or slandering, whichever of these appears possible or appropriate at a given moment; a different action tendency is readiness to approach and embrace, fondle, look at avidly, or say sweet things, again according to what the circumstances favor" (pp. 70-71). In sum, "action readiness change" is the defining feature of emotion: "Emotional experience largely consists of experienced action readiness or unreadiness: impulse to flee or strike or embrace; lack of impulse, apathy, listlessness" (Frijda, 1986, p. 469).

Plutchik (1980) notes that "emotions are complex sequences of events that include impulses to action as an important part of the sequence" (p. 360, emphasis added). He anchors his analysis partly in Bull's (1951, 1952) attitude theory of emotion which conceives emotion as "a sequence of neuromuscular events in which postural set or preparatory motor attitude is the initial step. This preparatory attitude is both involuntary and instinctive and is the end result of a slight, tentative movement which gives a new orientation to the individual, but does not immediately go into the consummatory stage of action" (Bull, 1952, cited in Plutchik, 1980, p. 355). Plutchik (1980) cautions that "although feelings of fear and anger are often associated with the behaviors of flight or fight, they need not necessarily result in such behaviors. This is simply because the situation may prevent the carrying out in action of the feelings... However, the impulse to run or the impulse to attack may still be present" (p. 353).

Several theorists add fantasy processes (Singer, 1973, 1974) and additional cognitive components (Lazarus, Kanner & Folkman, 1980; Kemper, 1978) to the complex of four inner reactions detailed above (feeling reactions, action tendencies, physiological reactions, feedback from facial reactions). Singer (1973, 1974) offers the proposition that fantasy processes, dreams, and imagery provide the key link between cognition and affect; he provides extensive examples of how positive and negative emotion imagery can be used to attenuate or inhibit the other within the context of psychotherapy.

Singer's (1973, 1974) analysis of the central link that fantasy serves between cognition and emotion suggests that we might, at some later date, gain considerably from construction and
addition of IMI-C items that measure an additional component of covert emotion -- that measure our fourth class of impact messages (i.e., fantasies and metaphors). Especially in the psychotherapeutic context one of the safest, least-threatening modes of interpersonal feedback from the therapist is in the form of fantasy or metaphor in contrast to feedback of direct feelings, action tendencies, or perceived evoking messages (Kiesler, 1988).

This brief review makes clear that the IMI-C measures two key (subjective feeling reactions, action tendencies or impulses), but not all, components of the covert emotion process defined by recent emotion theorists. It measures these covert emotion behaviors (adds perceived evoking messages) exclusively in reaction to an interactant's distinctive pattern of interpersonal behavior within a specific transaction. In the case of the IMI-C, the specific environmental event or object, appraisal of which activates respondent B's set of covert emotional responses, is the overt interpersonal behavior of target person A. The direct feelings triggered by respondent B's covert appraisals include (but may not be limited to) the domain of feeling responses found to fall in a circular pattern on two-dimensional circumplexes by emotion researchers (e.g. Russell, 1979, 1980). A second essential concomitant of respondent B's covert feeling responses is a distinctive set of action tendencies of at least two sorts: (a) automatic tendencies or pulls to emit a class of overt reactions that would constitute the exact interpersonal complementary response to person A's interpersonal pattern; and (b) automatic tendencies or pulls (in reaction to perceived threat), ranging from minimal to very intense, to set into motion various inhibitory or defensive behaviors (at any stage of the emotion process: appraisal, feeling, action tendency, overt reaction) that would interfere with enactment of the pulled-for overt complementary response. Respondent B's resulting enactment in response to target person A is some form of complementary or non-complementary interpersonal behavior that depends directly on the relative strength of these two sets of covert tendencies.

This reconceptualization of impact messages within the framework of emotion theory makes the following point abundantly clear: Whether interpersonal feelings plus action tendencies that reflect the pulled-for complementary response get enacted or not depends upon the presence and strength of competing inhibitory-defensive processes. These inhibitory-defensive processes arise when inconsistencies exist between person B's characteristic style of self-definition and self-presentation and: (a) behaviors inherent in the pulled-for complementary response; (b) behaviors under the control of environmental factors such as physical setting and social/interpersonal (i.e. role expectations; status, gender, and other interactant factors) variables.

The IMI-C, then, is a key measure of covert events occurring during various instances of transactional emotion. It is a measure of interpersonal or transactional emotion. The two classes of emotional response that it measures (direct feelings and action tendencies) are the most central and distinctive of the four covert emotion components; scores assessed from these two components can be expected to correlate strongly and positively with the remaining two classes of covert emotion events (perceived evoking messages and fantasies). Finally, the circumplex model of overt interpersonal behavior to which IMI-C is empirically linked, provides a comprehensive model both of the classes of interpersonal/social behavior that constitute the significant environmental events that trigger the emotion sequence, as well as the corresponding classes of complementary overt reactions that are mediated by covert components of the emotion process.
Chapter Six

IMI and IMI-C Studies

Three Types of IMI-C Studies

Three distinct possibilities of IMI-C studies can be differentiated depending on the design focus of a particular investigator: Target-Focused, Respondent-Focused, and Transaction-Focused (Target-Respondent) studies.

Target-Focused IMI-C Studies. In this first group of studies, the aim of the investigator is to characterize target A's (or a sample of A individuals') distinctive interpersonal behaviors by measuring respondent B's (or a sample of B respondents') covert impact responses. For example, an investigator may wish to characterize the distinctive interpersonal behaviors enacted by depressed patients. The investigator seeks to minimize any variance that might derive from respondents' various interpersonal styles by naturally selecting a wide-band sample of intact respondents, or by randomly selecting respondents, or by selecting respondents whose peak styles are representative of the entire circle circumference. By controlling for individual differences in respondents' typical interpersonal behavior by one of these procedures, the investigator expects respondents' average covert impacts to target depressive patients' distinctive interpersonal behaviors during interactions with others. IMI-C results might show, for example, that the covert responses distinctively evoked from interactants by depressive patients target submissive and deferent overt interpersonal behaviors.

As an example of this design strategy, Howes and Hokanson (1979) trained target confederates to portray either depressed, physically ill, or normal roles in a contrived waiting-room situation paired with undergraduate respondents. By measuring the covert impacts evoked from undergraduate respondents, the authors sought to characterize the distinctive interpersonal behaviors enacted by depressed confederates (in contrast to physically ill or normal confederates).

Respondent-Focused IMI-C Studies. In the second group of studies, the aim of the investigator is to identify the specific interpersonal behaviors of targets that a group of homogeneous respondents are distinctively sensitive to and distinctively register through their covert reactions. For example, an investigator may wish to characterize the distinctive impacts extraverted respondents tend to register during transactions with interactants in general. The investigator seeks to minimize any variance that might derive from targets' various interpersonal styles by randomly selecting the sample of targets, or by selecting targets whose peak styles represent the entire circle circumference, or by selecting targets who represent a standard quadrant of the interpersonal circle. By controlling, through one of these procedures, for individual differences in targets' typical interpersonal behavior, the investigator hopes to characterize the specific behaviors of interactants that extraverted respondents seem especially sensitive to as registered in their covert impacts. IMI-C results might show, for example, that extraverted individuals tend to react internally to other persons, regardless of their presenting behavior, as if all targets presented agreeable and sociable behaviors.

Chirico's (1977, 1980) decoding communication studies are good examples of this design strategy. Chirico (1977) had groups of carefully selected obsessive and hysteroid respondents view a standard videotaped portrayal of a submissive interviewee in a job interview setting. He sought to measure the differential intensities of emotional impacts registered by the two
respondent groups to the trained interviewee's submissive behavior on an unedited audiovideotape, on a typescript, on a content-filtered audiotape, and on a silent videotape presentation of the interview session.

**Transaction-Focused (Target-Respondent) IMI-C Studies.** The third group of studies is called *Transaction-Focused* and attempts to address the full complexity of interpersonal behavior. It incorporates the most complicated design strategy but the one most relevant to testing many hypotheses derived from interpersonal theory. In these studies, the investigator's central purpose is to provide conjoint, transactional characterizations of some sample of target-respondent dyads. A distinguishing feature of these studies is the administration of IMI-C inventories to both interactants of a dyad. Target and respondent designations are interchangeable in that each interactant fills out an IMI-C on the other (or IMI-Cs are obtained from groups of observers on both interactants). The focus of analysis is on the degree of match or fit of the interpersonal behavior of the dyad participants; neither the interpersonal behavior of the target nor that of the respondent is of interest in and of itself. The degree and/or kind of fit, match, or complementarity of interpersonal behavior is the central focus. Assessment of the effects of various fits or matches is accomplished by analyzing complementarity scores (or other indices) calculated for each target-respondent pair in the sample. For example, an investigator might study the different patterns of interpersonal "complementarity" and anxiety that result from matching friendly-dominant targets with friendly-submissive vs. hostile-submissive respondents. IMI results might confirm, for example, the interpersonal prediction that the friendly-dominant targets with friendly-submissive respondents would show higher levels of complementary impacts and less dyadic anxiety than the friendly-dominant targets with hostile-submissive respondents.

As an example of this design strategy, Auerbach, Penberthy and Kiesler (2004) measured the impacts occurring between dentists and their patients in the context where patients were being fitted for dentures. They sampled low socioeconomic status patients coming to a university dental school who were routinely assigned dentists. Two sets of IMI protocols were collected: one from the patients recording the emotional impacts they experienced with their dentists; the other from the dentists reporting their impacts evoked by the patients. Analyses calculated the association between complementary patient-dentist impacts and patient adjustment to surgery and satisfaction with the dentures received. Another example of the transaction-focused design is a study by Holiday (1983), who examined the distinctive emotional impacts experienced by marital spouses when one partner was depressive. Married couples were classified into one of three groups based on the wife's reported level of depression and based on her status as a psychiatric patient: couples in which the wife was a depressed psychiatric patient, couples in which the wife was a non-depressed psychiatric patient, and couples in which the wife was normal. Spouses in each of the three groups filled out IMIs on each other. Dyadic covert impacts were analyzed to determine the distinctive patterns of dyadic interpersonal behavior that differentiated the three groups of marital couples.
Earlier Summaries of IMI Studies

Since original publication of the IMI, a large number of IMI studies have appeared. The IMI Manual (Kiesler, 1987b) reviewed more than 40 studies that had used the IMI up to that date. These studies examined such issues as the impact of psychiatric patients on therapists; the behavior of maladjusted groups such as depressives, obsessive, and hysterics; the differences between various personalities (high and low self-disclosers, assertive and nonassertive individuals) and blacks and whites possessing high versus low power; and the nature of relationships in health settings (e.g. between patients and their dentists or surgeons). Many of these studies took the form of thesis and dissertation projects or unpublished studies. Kiesler (1996) offered an expanded summary adding IMI studies published since the appearance of the IMI Manual.

An Annotated Bibliography of IMI and IMI-C Studies

A recent annotated bibliography made available on the internet by Kiesler (2001) provided abstract summaries of 137 IMI and IMI-C publications, of which 42 were journal articles. The yield of publications included 64 Ph.D. dissertations, 42 journal articles, 12 unpublished master’s theses, 9 unpublished studies, 5 paper or poster presentations at annual conferences, 2 book chapters, and 2 books—a grand total of 137 IMI and IMI-C publication references.

Investigators interested in more detail on IMI and IMI-C studies are urged to peruse the Subject Index found at the end of Kiesler’s (2001) annotated bibliography. The most popular study topics found there include: Coyne’s interpersonal theory of depression; DSM mental disorders; gender and sex roles; group psychotherapy process and outcome; aspects of interpersonal behavior (e.g. consistency across situations, subcultural groups); interpersonal complementarity; maladjusted personality groups (e.g. anxious, depressive, obsessive); marital relationships; physical/medical disorders and health care patients; nonverbal behavior; personality traits; psychotherapy (e.g. countertransference, cognitive behavioral-analysis therapy, metacommunication); various types of relationships; and psychotherapy supervision (including parallel process). Of special note are three large-scale psychotherapy treatment projects that incorporate contemporary interpersonal psychotherapy principles and measures, highlighting central and liberal use of the interpersonal circumplex and the IMI-C (Cristi, Ravitz, & Leszcz, 2001; Keller, McCullough, Klein, et al., 2000; McCullough, 2000; Murrell, Hartson, Nichols, et al., 1998).

The IMI also was found to differentiate the therapeutic behaviors of Albert Ellis, Fritz Perls, and Carl Rogers during the “Gloria” interviews (Zians, 1981) and to show that husbands of depressed women see their wives as hostile, mistrusting, detached, and submissive (Holiday, 1983). Through the use of the IMI, couples with one depressed member were found to perceive each other negatively more than couples with no depressed member (Kahn, Coyne, & Margolin, 1985), and poorly adjusted couples were shown to experience each other as less friendly and more hostile than better-adjusted couples (Milestone, 1984).

Auerbach, Kiesler and colleagues (Kiesler & Auerbach, 2003, 2006) have systematically applied the IMI-C and IMI-C Brief Version in a series of studies on the interpersonal behavior of patients (diabetes, prostate cancer, trauma care, oral surgery) and their physicians (surgeons, nurses). They examine patient-physician interpersonal behavior (including degree of complementarity) as it interacts with information provision and shared decision making in affecting patient medical and related outcomes.
As an attempt to stimulate further excitement about the possibilities of research, a list of interpersonal hypotheses that were supported by IMI and IMI-C studies found in Kiesler’s (2001) annotated bibliography are repeated below.


2. Husbands of depressed wives report more negative (hostile, mistrusting, detached, inhibited) impacts than do husbands of nondepressed outpatients or normal controls (Holiday, 1983).


4. Eating disordered subjects show incongruence between verbal and nonverbal hostile interpersonal behaviors (Krinsky, 1989).

5. Compared to typical callers to crisis intervention hotlines, chronic callers impact volunteers as being more controlling, self-absorbed, and angry (Decarli, 1988).

6. In their experience of interactants’ interpersonal behaviors, personality groups (e.g. obsessive and hysteroid) show differential responsiveness to verbal versus nonverbal cues (Chirico, 1977, 1980).

7. Favorable diabetes outcome occurs when the patient and physician’s interpersonal control behaviors are complementary (Auerbach, Clore, Kiesler, et al., 2002).

8. Psychotherapists’ nonverbal behaviors continually influence the impacts clients experience with them as well as clients’ level of anxiety with, and disclosure to, their therapists (Bale, 1983).

9. The greater the agreement between therapists and observers’ experiences of impacts with clients, the more favorable the treatment outcome (Sofair-Fisch, 2000).

10. Countertransference, as measured by the IMI, is stronger in therapists than in observers of their sessions, and the discrepancy increases as the sessions progress (Sofair-Fisch, 2000).

11. Therapists experience more countertransference when implementing the interpersonal intervention of metacommunication than when applying the psychoanalytic intervention of interpretation (Friedman, 1994).

12. Among premature terminators from psychotherapy: (a) the more the client and the therapist have complementary hostile interpersonal behaviors, the better is their working alliance; (b) the more the client and therapist show complementary friendly behaviors, the poorer the working alliance (Crowder, 1999).

13. Counseling supervisors who impact their supervisees as friendly receive the highest interpersonal influence ratings (Williams, 1984).

15. Individuals who self-disclose to strangers at a high (versus low) intimacy level impact them as being less friendly, affiliative, and nurturant (Cheek, 1977).


17. Separate interpersonal measures of person A’s overt behavior (IIP-C) and person B’s resulting covert reactions (IMI-C) converge and align themselves on identical locations of the interpersonal circumplex (Wagner, Kiesler, & Schmidt, 1995).
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Appendix

IMI-C ANSWER SHEET
Impact Message Inventory-Circumplex Form
(For the 56-item Octant Inventory)

1 - Not at all          3 - Moderately so
2 - Somewhat           4 - Very much so

1. _____  16. _____  31. _____  46. _____
2. _____  17. _____  32. _____
3. _____  18. _____  33. _____  47. _____
4. _____  19. _____  34. _____
5. _____  20. _____  35. _____  48. _____
6. _____  21. _____  36. _____  49. _____
7. _____  22. _____  37. _____  50. _____
8. _____  23. _____  38. _____  51. _____
9. _____  24. _____  39. _____  52. _____
10. _____  25. _____  40. _____  53. _____
11. _____  26. _____  41. _____  54. _____
12. _____  27. _____  42. _____
13. _____  28. _____  43. _____
14. _____  29. _____  44. _____
15. _____  30. _____  45. _____

Respondent: ______________________  Date: ________________
Target: ________________________
Profile Summary Sheet

IMPACT MESSAGE INVENTORY: FORM IIA OCTANT VERSION

Donald J. Kiesler and James A. Schmidt

Target Person ____________________________
Respondent ____________________________
Date ____________________________

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Form for Female Target

IMI-C

Impact Message Inventory-Circumplex

This inventory contains words, phrases and statements which people use to describe how they are emotionally engaged or impacted when interacting with another person.

You are to respond to this Inventory by indicating how accurately each of the items describes your reactions to the particular person under consideration. 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 reactions using the following scale: 1-Not at all, 2-Somewhat, 3-Moderately so, 4-Very much so.

First, imagine you are in this person's presence, interacting with her. Focus on the immediate reactions you would be experiencing. Then read each of the items and fill in the number on the separate answer sheet which best describes how you would be feeling and/or would want to behave if you were, at this moment, in the person's presence. There are no right or wrong answers since different people react differently to the same person.

At the top of each page is a statement which is to precede each of the items on that page. Read that statement with each item; it will aid you in imagining the presence of the person described.

Be sure to make all your marks on the separate answer sheet.
When I am with this person she makes me feel...

1. bossed around.
2. distant from her.
3. important.
4. entertained.
5. like an intruder.
6. in charge.
7. appreciated by her.
8. part of the group when she's around.
9. forced to shoulder all the responsibility.
10. complimented.
11. as if she's the class clown.
12. uneasy.
13. dominant.
14. welcome with her.
15. as important to her as others in the group.
16. annoyed.
17. taken charge of.
1 - Not at all          3 - Moderately so
2 - Somewhat          4 - Very much so

When I am with this person she makes me feel that...

18. I want to tell her to give someone else a chance to make a decision.
19. I want her to disagree with me sometimes.
20. I could lean on her for support.
21. I'm going to intrude.
22. I should tell her to stand up for herself.
23. I can ask her to carry her share of the load.
24. I could relax and she'd take charge.
25. I want to stay away from her.
26. I could tell her anything and she would agree.
27. I should tell her she's often quite inconsiderate.
28. I should tell her not to be so nervous around me.
29. I could ask her to do anything.
30. I want to get away from her.
31. I should do something to put her at ease.
32. I want to point out her good qualities to her.

When I am with this person it appears to me that....

33. she wants to be the center of attention.
34. she doesn't want to get involved with me.
35. she is most comfortable withdrawing into the background when an issue arises.
1 - Not at all  
2 - Somewhat  
3 - Moderately so  
4 - Very much so

When I am with this person it appears to me that....

36. she wants me to put her on a pedestal.
37. she'd rather be alone.
38. she thinks she can't do anything for herself.
39. her time is mine if I need it.
40. she thinks it's every person for him/her self.
41. she thinks she will be ridiculed if she asserts herself with others.
42. she would accept whatever I said.
43. she wants to be the charming one.
44. she thinks she's always in control of things.
45. she thinks she is inadequate.
46. she thinks I have most of the answers.
47. she enjoys being with people.
48. she weighs situations in terms of what she can get out of them.
49. she'd rather be left alone.
50. she sees me as superior.
51. she wants to be with others.
52. she's carrying a grudge.
53. she's nervous around me.
54. whatever I did would be okay with her.
55. she trusts me.
56. she thinks other people find her interesting, amusing, fascinating and witty.
Form for Male Target

**IMI-C**

**Impact Message Inventory-Circumplex**

This inventory contains words, phrases and statements which people use to describe how they are emotionally engaged or impacted when interacting with another person.

You are to respond to this Inventory by indicating how accurately each of the items describes your reactions to the particular person under consideration. 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 him when he's around, and/or the descriptions of him that come to mind when you're with him. Indicate how each item describes your reactions using the following scale: 1-Not at all, 2-Somewhat, 3-Moderately so, 4-Very much so.

First, imagine you are in this person's presence, interacting with him. Focus on the immediate reactions you would be experiencing. Then read each of the items and fill in the number on the separate answer sheet which best describes how you would be feeling and/or would want to behave if you were, at this moment, in the person's presence. There are no right or wrong answers since different people react differently to the same person.

At the top of each page is a statement which is to precede each of the items on that page. Read that statement with each item; it will aid you in imagining the presence of the person described.

Be sure to make all your marks on the separate answer sheet.
When I am with this person he makes me feel...

1. bossed around.
2. distant from him.
3. important.
4. entertained.
5. like an intruder.
6. in charge.
7. appreciated by him.
8. part of the group when he's around.
9. forced to shoulder all the responsibility.
10. complimented.
11. as if he's the class clown.
12. uneasy.
13. dominant.
14. welcome with him.
15. as important to him as others in the group.
16. annoyed.
17. taken charge of.
When I am with this person he makes me feel that...

18. I want to tell him to give someone else a chance to make a decision.
19. I want him to disagree with me sometimes.
20. I could lean on him for support.
21. I'm going to intrude.
22. I should tell him to stand up for himself.
23. I can ask him to carry his share of the load.
24. I could relax and he'd take charge.
25. I want to stay away from him.
26. I could tell him anything and he would agree.
27. I should tell him he's often quite inconsiderate.
28. I should tell him not to be so nervous around me.
29. I could ask him to do anything.
30. I want to get away from him.
31. I should do something to put him at ease.
32. I want to point out his good qualities to him.

When I am with this person it appears to me that...

33. he wants to be the center of attention.
34. he doesn't want to get involved with me.
35. he is most comfortable withdrawing into the background when an issue arises.
When I am with this person it appears to me that....

36. he wants me to put him on a pedestal.
37. he'd rather be alone.
38. he thinks he can't do anything for himself.
39. his time is mine if I need it.
40. he thinks it's every man for himself.
41. he thinks he will be ridiculed if he asserts himself with others.
42. he would accept whatever I said.
43. he wants to be the charming one.
44. he thinks he's always in control of things.
45. he thinks he is inadequate.
46. he thinks I have most of the answers.
47. he enjoys being with people.
48. he weighs situations in terms of what he can get out of them.
49. he'd rather be left alone.
50. he sees me as superior.
51. he wants to be with others.
52. he's carrying a grudge.
53. he's nervous around me.
54. whatever I did would be okay with him.
55. he trusts me.
56. he thinks other people find him interesting, amusing, fascinating and witty.
## IMI-C SCORING SHEET

**Impact Message Inventory: Circumplex**
(For 56-item Octant Scale Inventory)

**Respondent**

**Target**

<table>
<thead>
<tr>
<th>Octant</th>
<th>Item Numbers</th>
<th>Score</th>
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<tbody>
<tr>
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<td>H: Hostile</td>
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<tr>
<td>FS: Friendly-Submissive</td>
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IMI-C Brief Version Answer Sheet
Impact Message Inventory-Circumplex: 28-Item Version

1 - Not at all  
2 - Somewhat

1. _____  
2. _____  
3. _____  
4. _____  
5. _____  
6. _____  
7. _____  
8. _____  
9. _____  
10. _____  
11. _____  
12. _____  
13. _____  
14. _____

3 - Moderately so  
4 - Very much so

15. _____  
16. _____  
17. _____  
18. _____  
19. _____  
20. _____  
21. _____  
22. _____  
23. _____  
24. _____  
25. _____  
26. _____  
27. _____  
28. _____

Respondent: ________________________  Date: ________________
Target: ___________________________
Form for Female Target

**IMI-C**

**Impact Message Inventory: Circumplex (Brief Version)**

This inventory contains words, phrases and statements which people use to describe how they are emotionally engaged or impacted when interacting with another person.

You are to respond to this Inventory by indicating how accurately each of the items describes your reactions to the particular person under consideration. 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 reactions using the following scale: 1 - Not at all, 2 - Somewhat, 3 - Moderately so, 4 - Very much so.

First, imagine you are in this person's presence, interacting with her. Focus on the immediate reactions you would be experiencing. Then read each of the items and fill in the number on the separate answer sheet which best describes how you would be feeling and/or would want to behave if you were, at this moment, in the person's presence. There are no right or wrong answers since different people react differently to the same person.

At the top of each page is a statement which is to precede each of the items on that page. Read that statement with each item; it will aid you in imagining the presence of the person described.

Be sure to make all your marks on the separate answer sheet.

_____________________________________________
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. like an intruder.  
4. in charge.  
5. appreciated by her.  
6. part of the group when she's around.  
7. forced to shoulder all the responsibility.  
8. complimented.  
9. dominant.  
10. welcome with her.  
11. as important to her as others in the group.  
12. taken charge of.

**When I am with this person she makes me feel that...**

13. I want to tell her to give someone else a chance to make a decision.  
14. I want her to disagree with me sometimes.  
15. I could lean on her for support.  
16. I'm going to intrude.
1 - Not at all  
2 - Somewhat  
3 - Moderately so  
4 - Very much so

When I am with this person she makes me feel that...
17. I should tell her to stand up for herself.
18. I can ask her to carry her share of the load.
19. I want to point out her good qualities to her.

When I am with this person it appears to me that....
20. she wants to be the center of attention.
21. she doesn’t want to get involved with me.
22. she wants me to put her on a pedestal.
23. she’d rather be alone.
24. she thinks she’s always in control of things.
25. she thinks I have most of the answers.
26. she weighs situations in terms of what she can get out of them.
27. she’d rather be left alone.
28. she sees me as superior.
Form for Male Target

IMI-C

Impact Message Inventory-Circumplex (Brief Version)

This inventory contains words, phrases and statements which people use to describe how they are emotionally engaged or impacted when interacting with another person.

You are to respond to this Inventory by indicating how accurately each of the items describes your reactions to the particular person under consideration. 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 him when he's around, and/or the descriptions of him that come to mind when you're with him. Indicate how each item describes your reactions using the following scale: 1-Not at all, 2-Somewhat, 3-Moderately so, 4-Very much so.

First, imagine you are in this person's presence, interacting with him. Focus on the immediate reactions you would be experiencing. Then read each of the items and fill in the number on the separate answer sheet which best describes how you would be feeling and/or would want to behave if you were, at this moment, in the person's presence. There are no right or wrong answers since different people react differently to the same person.

At the top of each page is a statement which is to precede each of the items on that page. Read that statement with each item; it will aid you in imagining the presence of the person described.

Be sure to make all your marks on the separate answer sheet.
When I am with this person he makes me feel...

1. bossed around.
2. distant from him.
3. like an intruder.
4. in charge.
5. appreciated by him.
6. part of the group when he’s around.
7. forced to shoulder all the responsibility.
8. complimented.
9. dominant.
10. welcome with him.
11. as important to him as others in the group.
12. taken charge of.

When I am with this person he makes me feel that...

13. I want to tell him to give someone else a chance to make a decision.
14. I want him to disagree with me sometimes.
15. I could lean on him for support.
16. I'm going to intrude.

1 - Not at all  
2 - Somewhat  
3 - Moderately so  
4 - Very much so
1 - Not at all                     3 - Moderately so
2 - Somewhat                     4 - Very much so

When I am with this person he makes me feel that...

17. I should tell him to stand up for himself.
18. I can ask him to carry his share of the load.
19. I want to point out his good qualities to him.

When I am with this person it appears to me that...

20. he wants to be the center of attention.
21. he doesn't want to get involved with me.
22. he wants me to put him on a pedestal.
23. he'd rather be alone.
24. he thinks he's always in control of things.
25. he thinks I have most of the answers.
26. he weighs situations in terms of what he can get out of them.
27. he'd rather be left alone.
28. he sees me as superior.
IMI-C Brief Version Scoring Key
Impact Message Inventory-Circumplex
28 Item Version

D: Dominant
1. feel bossed around (DOM)
12. feel taken charge of (EXH)
13. that I want to tell him to give someone else a chance to make a decision (DOM)
20. appears that he wants to be the center of attention (DOM)
22. appears that he wants me to put him on a pedestal (COM)
24. appears that he thinks he's always in control of things (DOM)
26. appears that he weighs situations in terms of what he can get out of them (COM)

H: Hostile
2. feel distant from him (MIS)
3. feel like an intruder (DET)
7. feel forced to shoulder all the responsibility (INH)
16. that I'm going to intrude (DET)
21. appears that he doesn't want to get involved with me (MIS)
23. appears that he'd rather be alone (DET)
27. appears that he'd rather be left alone (DET)

S: Submissive
4. feel in charge (SUC)
9. feel dominant (SUC)
14. that I want him to disagree with me sometimes (DEF)
17. that I should tell him to stand up for himself (SUC)
19. that I want to point out his good qualities to him (ABA)
25. appears that he thinks I have most of the answers (DEF)
28. appears that he sees me as superior (SUC)

F: Friendly
5. feel appreciated by him (AGR)
6. feel part of the group when he's around (SOC)
8. feel complimented (NUR)
10. feel welcome with him (AGR)
11. feel as important to him as others in the group (SOC)
15. that I could lean on him for support (AFF)
18. that I can ask him to carry his share of the load (AGR)
IMI-C Brief Version Scoring Sheet
Impact Message Inventory-Circumplex
28-Item Version

Respondent: ____________________________
Target: ____________________________
Date: ____________________________

1. D: Dominant
   1. _____
   12. _____
   13. _____
   20. _____
   22. _____
   24. _____
   26. _____
   Total: _____
   Mean: _____

2. H: Hostile
   21. _____
   3. _____
   7. _____
   16. _____
   21. _____
   23. _____
   27. _____
   Total: _____
   Mean: _____

3. S: Submissive
   4. _____
   9. _____
   14. _____
   17. _____
   19. _____
   25. _____
   28. _____
   Total: _____
   Mean: _____

4. F: Friendly
   5. _____
   6. _____
   8. _____
   10. _____
   11. _____
   15. _____
   18. _____
   Total: _____
   Mean: _____
Impact Message Inventory-Circumplex Version
Self-Report for Generalized Others

This inventory contains words, phrases and statements which people use to describe how they believe others are emotionally engaged or impacted when interacting with them.

You are to respond to this inventory by indicating how accurately each of the items describes what you think others’s typical reactions to you are during your interactions. Respond to each item in terms of how precisely it describes the feelings you think you typically arouse in others, the behaviors you think others want to direct towards you when they are around you, and/or the descriptions of you that you think come to other people's minds when you are present. Indicate how each item describes what you think others' typical reactions to you are using the following scale:

1 - Not at all, 2 - Somewhat, 3 - Moderately so, 4 - Very much so.

First, imagine a typical interaction you have with these other persons. Focus on the immediate reactions you think they would be experiencing in reaction to you. Then read each of the items and fill in the number on the separate answer sheet which best describes how you think they would be feeling and/or would want to behave if you were, at this moment, in their presence. There are no right or wrong answers since people react differently to different people and you are reporting their typical reactions as you see them.

At the top of each page is a statement which is to precede each of the items on that page. Read that statement with each item; it will aid you in imagining a typical interaction.

Be sure to make your marks on the separate answer sheet.
When people are with me, they typically feel ...

1. bossed around.
2. distant from me.
3. important.
4. entertained.
5. like an intruder.
6. in charge.
7. appreciated by me.
8. part of the group when I'm around.
9. forced to shoulder all the responsibility.
10. complimented.
11. as if I'm the class clown.
12. uneasy.
13. dominant.
14. welcome with me.
15. as important to me as others in the group.
16. annoyed.
17. taken charge of.
When people are with me, I typically make them feel that...

18. they want to tell me to give somebody else a chance to make a decision.
19. they want me to disagree with them sometimes.
20. they could lean on me for support.
21. they're going to intrude.
22. they should tell me to stand up for myself.
23. they can ask me to carry my share of the load.
24. they could relax and I'd take charge.
25. they want to stay away from me.
26. they could tell me anything and I would agree.
27. they should tell me I'm often quite inconsiderate.
28. they should tell me not to be so nervous around them.
29. they could ask me to do anything.
30. they want to get away from me.
31. they should do something to put me at ease.
32. they want to point out my good qualities to me.
When people are with me, it typically appears to them that:

33. I want to be the center of attention.
34. I don't want to get involved with them.
35. I am most comfortable withdrawing into the background when an issue arises.
36. I want them to put me on a pedestal.
37. I'd rather be alone.
38. I think I can't do anything for myself.
39. My time is theirs if they need it.
40. I think it's everyone for herself or himself.
41. I think I will be ridiculed if I assert myself with others.
42. I would accept whatever they said.
43. I want to be the charming one.
44. I think I'm always in control of things.
45. I think I am inadequate.
46. I think they have most of the answers.
47. I enjoy being with them.
48. I weigh situations in terms of what I can get out of them.
49. I'd rather be left alone.
50. I see them as superior.
51. I want to be with them.
52. I'm carrying a grudge.
53. I'm nervous around them.
54. Whatever they did would be okay with me.
55. I trust them.
56. I think other people find me interesting, amusing, fascinating and witty.
Impact messages: Definitions of the four subclasses
(Kiesler, 1989)

An Impact Message refers to the various ways a particular person engages you internally as you are interacting with him or her. There are four major classes of Impact Messages: Direct Feelings, Action Tendencies, Perceived Evoking Messages, and Fantasies.

Direct Feelings. While you are in the presence of a certain person, he or she arouses specific feelings in you— you are made to feel certain distinctive ways. This person pulls particular emotions, feelings, or attitudes from you makes you experience them while he or she is present.

Examples:
When I am with this person she (he) makes me feel:
1. bored
2. angry
3. complimented
4. competitive
5. admired
6. put down
7. uneasy
8. distant from him

Action Tendencies. While you are in a person’s presence you also experience definite urges to do something, or not do something, to him. These are behaviors or actions you want to direct toward her when she is around -- things you like doing or not doing when you’re with that person.

Examples:
When I am with this person he (she) makes me feel that:
1. I want to tell him off
2. I could tell her anything
3. I should leave him alone.
4. I want to insult her.
5. I can trust her.
6. I can ask him to do anything
7. I should defend myself

... and so on
Perceived Evoking Messages. When you're with a person various ideas run through your head about what you think this person is trying to do to you, or what he or she is trying to get you to do. You're aware that he seems to have some definite ideas about what he wants you to do or not do when you're present. Also, certain descriptions come to your mind about how this person sees your relationship to him or her -- statements she might make to herself about how she feels about you, what she thinks of you, generally what she may be saying to herself about you.

Examples:

When I am with this person it appears to me that he (she):

1. thinks I can't be trusted                           5. is considerate of me
2. doesn't care what I want                           6. would rather be left alone
3. wants me to put him on a pedestal                   7. is determined to outdo me
4. wants to be the center of attention                 . . . and so on

Fantasies. Sometimes when you're with a person specific metaphors, images, or fantasies develop in your mind that seem to capture important aspects of your reactions to that person.

Examples:

Sometimes when I am with this person it seems to me that:

1. we're playing poker with our cards clutched closely to our chests
2. often he drives a steamroller right over me
3. he's drowning in quicksand and can't bring himself to grab my hand
4. she's a fine glass figurine who must be handled delicately
   . . . and so on
Impact Messages Free-Response Sheet  
(Kiesler, 1989)

Think of the particular person described to you. Or think of a person who seems to fit very closely the description you have received. 

(1) First, imagine that you are in this person’s presence, in the process of interacting with him or her. Try to visualize what he or she looks like, what he or she would be doing and saying while with you. 

(2) Then, focus on the impacts you would be feeling with that person -- the immediate reactions you would be experiencing. Keep in mind the four types of Impact Messages described to you. 

(3) Finally, fill in your answers below as to what your impacts are while interacting with this person. Fill in what your predominant impact responses would be in each of the four groups. For each group, write in your strongest response beside 1., your next strongest beside 2., and so on. 

What we want are your own personal reactions! Be sure to fill in at least one of your impact responses for each group.

Group 1: Direct Feelings  (emotions the other person makes you feel) 

When I am with this person he (she) makes me feel: 

1. __________________________________________________
2. __________________________________________________
3. ___________________________________________

Group 2: Action Tendencies  (what you want to do or not to do to him or her) 

When I am with this person he (she) makes me feel that: 

1. __________________________________________________
2. __________________________________________________
3. __________________________________________________

Group 3: Perceived Evoking Messages  (what he or she wants you to do or not do, what he or she thinks of you) 

When I am with this person it appears to me that he (she): 

1. __________________________________________________
2. __________________________________________________
3. __________________________________________________

Group 4: Fantasies  (an image or picture that come to mind as capturing the real character of this person) 

When I am with this person the image that comes to mind is that: 

1. __________________________________________________
2. __________________________________________________
3. __________________________________________________
INTERPERSONAL TREATMENT PLAN
THERAPIST’S WORKSHEET

1. Patient’s Maladaptive Interpersonal Style:
(Peak 1982 Circle segments: from CLOPT-CLOIT profile)

PATIENT NEEDS TO ACT LESS:


2. Patient’s Therapeutic Goal:
(1982 Circle segments semimorphic-
accompanying to patient’s peak segments)

PATIENT NEEDS TO ACT MORE:


3. Therapist’s “Hooked” Position:
(1982 Circle segments complementary to
patient’s peak segments)

THERAPIST NEEDS TO ACT LESS:


THERAPIST NEEDS TO ACT MORE:


4. Asocial Position:
(Ambiguous as to location on 1982 Circle
therefore, at the origin of the Circle)

5. Acomplementary Positions:
   a. Isomorphic:

   

6. Semimorphic:

   

7. Anticomplementary Position:
(1982 Circle segments complementary to
patient’s therapeutic goal)


A-P subscripts:
1. “mild-moderate” level acts (normal)
2. “extreme” level acts (abnormal)

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