

1983

# Marital Shared Problem-solving: Conceptualization And Assessment

Gary Wayne Austin

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LA THÈSE A ÉTÉ  
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MARITAL SHARED PROBLEM-SOLVING:  
CONCEPTUALIZATION AND ASSESSMENT

by  
Gary Wayne Austin

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Submitted in partial fulfillment of  
the requirements for the degree of  
Doctor of Philosophy

Faculty of Graduate Studies  
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London, Ontario

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## ABSTRACT

Marital shared problem-solving, the process by which couples attempt to resolve relationship conflict, has generally been thought to be jointly composed of communication and problem-solving skills. However, behavioral marital therapy and couple interaction investigations have tended to confound the definitions of these components in both theory and assessment domains. This research project's objectives were to: 1. re-conceptualize the problem-solving and supportive communication (the communication skill set) components as separate skills; 2. develop and validate a self-report measure of shared problem-solving; and 3. investigate the interrelationship of problem-solving, supportive communication and marital satisfaction.

Following a construct approach to test construction, shared problem-solving concepts from the research and theoretical literature were surveyed, the component skills of problem-solving and supportive communication were defined, items were written based on those definitions, and items were judged for their conformity to the definitions.

A novel test format was chosen for the Shared Problem-Solving Inventory in an attempt to simulate marital discussions. Two series of multiple-choice items were developed as separate discussions on the marital issues of "money" and "contact". The stimuli were written as statements that could be made by a "spouse" and the six alternative responses were statements from which the respondent could choose a reply. Each statement was weighted for problem-solving and supportive communication values.

In the first study, designed for empirical item selection, 25 married couples responded to the preliminary Shared Problem-Solving Inventory, marital satisfaction and social desirability tests. On the basis of these data, items

demonstrating poor item characteristics were eliminated. The resulting inventory showed sufficiently promising psychometric characteristics to warrant a validity investigation to further understand the meaning of the scales.

In the second study, the content, criterion, and construct validity of the Shared Problem-Solving were evaluated using data provided by 42 married couples. One assumption for adequate content validity was that the two simulated discussion issues would be commonly considered as severe relationship issues. This assumption was supported. For criterion validity, the external criterion was a rating of a ten minute couple interaction on problem-solving and supportive communication. These criterion ratings and the inventory scales were evaluated for convergent and discriminant validity using the multitrait-multimethod matrix. Supportive communication scales showed more consistent and adequate criterion validity than the problem-solving scales which seemed contaminated with supportive communication and were dependent on the nature of issue content. Construct validity was examined by separating subjects into maritally distressed and nondistressed groups and examining their performance on the Shared Problem-Solving Inventory and interaction ratings. Results paralleled those found for criterion validity. In addition, strong evidence was obtained for a reciprocation of negative supportive communication on the inventory, a typical finding in the interaction research.

Since problem-solving skill level was found to interact with the problem content, both the model forming the basis of this research and the utility of the Shared Problem-Solving Inventory required re-evaluation. A revised model was proposed with the key element being the ability to stay on-task with the spouse's concern especially when the issue was contact in the relationship. In addition, it was speculated that some of the difficulties in the earlier research,

as well as this present project, may have resulted from the adoption of an individual problem-solving model for marital shared problem-solving.

Given the mixed results for problem-solving, it was suggested that Shared Problem-Solving Inventory utility is most appropriate for the assessment of supportive communication in applications such as the evaluation of marital skill training interventions.

A major limitation of this project was the question of generalizability since the size of the item pool and the number of issues simulated were small. Furthermore, test-retest evaluation either over time or with intervening intervention was considered beyond the project's scope.

The implications of the findings for behavioral marital therapy and future interaction research were also discussed.

## ACKNOWLEDGEMENTS

The author wishes to acknowledge and express his appreciation to his thesis advisor, Dr. David R. Evans for his concern, guidance and patience; to the members of his thesis committee, Dr. Clive Seligman, and Dr. David Wolfe for their constructive comments and support; to Nancy Evans, for her persistence and accomplishment in the challenging task of item writing and for her assistance in data collection and rating; to Blanca Morales for her support, enthusiasm, and contribution throughout the entire project; to Dr. George VanOstrand, Monica Gemeinhardt and Lynn Brown for their time and patience in the difficult role of judge and for their continuing support; to Marianne and Steven Fisher for always being there.

The author would also like to express his appreciation to Dr. Kal Csapo, Dr. Peter Jaffe, and Dr. Brian Shaw for their encouragement and confidence which contributed to the decision to enter the doctoral program.



Words move, music moves  
Only in time; but that which is only living  
Can only die. Words, after speech, reach  
Into the silence. Only by the form, the pattern,  
Can words or music reach  
The stillness, as a Chinese jar still  
Moves perpetually in its stillness.  
Not the stillness of the violin, while the note lasts,  
Not that only, but the co-existence,  
Or say that the end precedes the beginning,  
And the end and the beginning were always there  
Before the beginning and after the end.  
And all is always now. Words strain,  
Crack and sometimes break, under the burden,  
Under the tension, slip, slide, perish,  
Decay with imprecision, will not stay in place,  
Will not stay still. Shrieking voices  
Scolding, mocking, or merely chattering,  
Always assail them. The Word in the desert  
Is most attacked by the voices of temptation,  
The crying shadow in the funeral dance,  
The loud lament of disconsolate chimera.

T. S. Elliot  
From Burnt Norton

DEDICATION

The author wishes to dedicate this work to his parents, Norman and Victoria Austin.

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CHAPTER I  
GENERAL INTRODUCTION

Overview of Research Issues and Objectives

The original initiative for this research arose from a preliminary investigation into the nature of high quality marital relationships and, subsequently, the skill components of those relationships that were emphasized by certain marital enrichment programs (Gurman & Kniskern, 1977). However, it soon became obvious that difficulties with skill assessment, especially with marital interaction skills, necessitated a review of the current understanding of those skills and finally a reformulation of two prime components of the marital interaction process. The attempt to deal with these conceptual and assessment difficulties was the central purpose of this research project.

In the last decade, considerable attention has been given to the empirical investigation of the specific elements and patterns of marital interaction. Researchers have been guided in their investigations by social learning theory (cf. Weiss, 1978) and information exchange theory (cf. Gottman, 1979). Both the theory and the results of empirical studies have been successfully applied to help couples improve their interaction through marital therapy (Jacobson & Margolin, 1979) and marital enrichment (Gurman & Kniskern, 1977). Researchers in all these marital areas have considered the process by which couples resolve relationship conflicts, referred to in this study as shared problem-solving, to be a central facet of marital interaction (Birchler, 1979). In spite of the range of research on this process, the construct of shared problem-solving has lacked a clear and consistent delineation of the contribution of the component abilities of problem-solving and communication skills. As a possible consequence, there have been virtually no self-report measures of the shared problem-solving

construct, and the existing behavioral observation measures, in addition to being uneconomical and cumbersome, have confounded the roles of problem-solving and communication skills. To address these issues, this research project had five objectives: 1) to review the diverse conceptualizations of shared problem-solving; 2) to reformulate the shared problem-solving construct; 3) to develop a convenient, economical self-report measure of shared problem-solving; 4) to investigate the relationship of this measure to measures of marital distress; and 5) to speculate on the interrelationship of the component skills of shared problem-solving.

#### Shared Problem-Solving as a Marital Relationship Skill

The marital relationship can be considered a complex on-going process, the quality of which to a great extent depends on the level of skillfulness of the couple in diverse areas of functioning (Weiss, 1978). In an effort to impose some order on the great variety of marital relationship skills, Austin (note 1) has assembled a taxonomy of skills that emphasizes those skills that are believed central to a high quality relationship. This taxonomy, which relies heavily on Weiss' (1978) ideas, was derived primarily from two areas of investigation that have evaluated the contribution of the skills to successful marital relationships. In the first area, studies that have compared nondistressed with distressed couples were reviewed for those skills that differentiated the nondistressed from the distressed group. The second area, marital enrichment, provided experimental evidence that training in certain skills can further strengthen the relationship of nondistressed couples taking marital enrichment programs. The skills identified in these two research areas were collapsed into a six category taxonomy that includes: 1) objectification; 2) basic communication skills; 3) shared problem-solving skills; 4) emotional management; 5) partner pleasing behavior; and 6) solutions to specific problems. Although some writers have



argued that some of these categories can be thought of as prerequisites for other categories, there exists little evidence for this logically based assumption (Weiss, 1978). However, most of the skills and especially shared problem-solving have been demonstrated to provide an important contribution to the quality of marital relationships.

Although diversely labelled as problem-solving, conflict resolution, decision-making, negotiating or contracting, the set of shared problem-solving skills which a couple needs to tackle the problem issues in their relationship is considered crucial for the maintenance of marital satisfaction (Billings, 1979). Support for this assertion comes from separate but related areas of study. Cross-sectional studies have divided samples of couples into distressed and nondistressed groups on the basis of their self-reported marital satisfaction and then compared their ability in conflict resolution. On the basis of behavioral observation measures, nondistressed couples have consistently demonstrated more ability in resolving problem issues than distressed couples (Billings, 1979; Gottman, 1979; Margolin & Wampold, 1981; Vincent, Weiss, & Birchler, 1975). As might be expected, since distressed couples have skill deficits in this area, they also have more unresolved problems and conflict episodes (Birchler & Webb, 1977). In a more experimental mode, studies of the effectiveness of marital therapy have evaluated the impact of training on distressed couples' problem-solving performance and marital satisfaction. Training in shared problem-solving skills has been found to increase both problem-solving ability and satisfaction with the relationship (Birchler, 1979; Jacobson, 1979; Jacobson & Margolin, 1979; Patterson, Hops, & Weiss, 1975; Bornstein, Bach, Heider, & Einst, note 3). Taken together, these findings strongly suggest that couple shared problem-solving consists of a modifiable set of skills that is central to the satisfaction of the marital relationship. Given this central role of shared

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problem-solving, it is essential that the components of this skill area be unambiguously specified. However, it will be argued that this situation has not been the case.

#### Confounding in Shared Problem-Solving Concepts

Although shared problem-solving has been a widely used construct in both the marital therapy and marital interaction literature, there has been a strong tendency, as Weiss (1978) points out, for therapy studies to confuse the skills believed to be components of this process. Investigators have often acknowledged two skill areas by labelling them as problem-solving and communication skills but then have proceeded to intermix them when constructing therapy guidelines or interaction coding systems. This confounding has ensured difficulty in attempts to understand the relative contribution of these components to the marital interaction process. For example, in marital therapy, one frequent objective is to train couples to resolve conflicts using some effective blend of these two sets of skills with little attention to the way in which the skills may interact. In one of the best examples of a problem-solving manual (Jacobson & Margolin, 1979), a set of twelve guidelines for couples often seem to mix problem-solving and communication skills. As an illustration, consider guideline 1: "In stating a problem, always begin with something positive" (Jacobson & Margolin, 1979, p. 219). No doubt this is good advice; however, the suggestion combines the problem-solving step of problem definition with what might be considered a communication strategy for positiveness. One question that could arise is, is positiveness only important at this step or in other steps as well? Other guidelines suggested by Jacobson and Margolin (1979) such as "paraphrase" and "focus on solutions" seem to represent separate skills, yet their relationship to each other is unspecified. Other marital therapy programs that train shared problem-solving skills present a similar pattern of

confounding these problem-solving and communication skills (for a review of programs, see Birchler, 1979). Such programs have proven useful for therapeutic purposes but none has provided a clearcut conceptual model of the shared problem-solving process on which to base either the development of a new assessment device or the development of more efficient intervention procedures.

The existing behavioral observation coding schemes used to assess marital therapy outcome and to study marital interaction also present a somewhat confused picture of the conceptual relationship between problem-solving skills and communication skills in shared problem-solving. The widely used Marital Interaction Coding System (MICS) (1979) consists of thirty items which are used to code the verbal and non-verbal behavior segments of couples who are usually asked to discuss one of their relationship problems for ten or fifteen minutes. The codes do represent what might be considered relatively distinct problem-solving behaviors (e.g., Problem Description, Positive Solution, Negative Solution) and communication skill behaviors (e.g., Paraphrase, Criticize, Approve). Some codes are clearly non-verbal (e.g., smile) while others mix verbal and non-verbal components (Problem Description - any statement said in a neutral or friendly tone of voice). Since the codes often do not occur with sufficient frequency to be analyzed separately, they are usually collapsed into a priori categories (Weiss & Margolin, 1977). Unfortunately, even the proponents of this coding system tend to vary the composition of the categories and often mix problem-solving and communication skills. Table I presents the MICS codes that have been used to define the summary category of problem-solving in several studies investigating marital interaction. Although some codes are common to all the studies, (e.g. Compromise), there is a considerable difference in the variety of the other codes that were selected. Furthermore, even though the category is labelled "problem-solving" some of the selected codes are

Table 1  
 Variations in the Composition of the MICS Problem-Solving  
 Category in Representative Studies

Source	Problem-Solving Codes
Weider & Weiss (1980)	Accept Responsibility, Compromise, Paraphrase, Positive Solution
Birchler, Weiss & Vincent (1975)	Problem Solution, Accept Responsibility, Compromise
Vincent, Weiss & Birchler (1975)	Problem Solution, Accept Responsibility, Compromise (all scored positive); Complain, Criticize, Deny Responsibility, Excuse, Put Down, Interrupt, Disagree (all scored negative)

problem-solving skills (e.g., problem solution) and others communication skills (e.g., criticize). Other studies (Margolin & Wampold, 1981; Jacobson & Anderson, 1980) collapse the categories even further to positive, negative and neutral, blurring any distinction even further.

The confounding in this coding system leads to a number of conceptual and empirical difficulties. The variability in the composite skills and the mixing of the skill areas reduce: 1) the clarity of the concept of shared problem-solving; 2) the understanding of the interrelationships of problem-solving and communication skills; and 3) the comparability of studies. Resick, Welsh and Zitomer (note 6) have questioned the validity of the composition of the summary categories on an empirical basis. Using the MICS codes in a step-wise multiple regression analysis to predict marital satisfaction, they have shown that the codes cluster into categories that differ from the a priori categories. Vincent (note 7), in a multitrait-multimethod analysis of the MICS, found low convergent validity for the codes and questioned the practice of adding together conceptually similar behaviors into summary codes.

The second major behavioral coding scheme, the Couples Interaction Scoring System (CISS) (Gottman, 1979), also has some problems in the code concepts. In the CISS, each thought unit of the couple's discussion is coded separately for its content and affect. The twenty-five content codes are grouped into eight summary codes partly on empirical and partly on rational grounds. These eight summary codes, designed to represent the content of the couple's verbal behavior, include: Problem Feeling, Mindreading, Problem Solving and Information Exchange, Communication Talk, Agreement, Disagreement, Summarize Other, and Summarize Self. (See Appendix M for behavioral examples of summary codes.) In addition, there are three codes, positive, neutral, and negative, to represent the affect of the interaction. These codes are applied to

facial, vocal and body non-verbal behavior. The CISS's clear separation of content and affect concepts is a definite improvement over the MICS.

Unfortunately, the CISS codes do confound important elements of the interaction. This problem became evident during the investigation of the CISS's ability to discriminate distressed and non-distressed couples. When Gottman and his colleagues (Gottman, Markman & Notarius, 1977) analyzed the discriminating power of the content summary codes, only the agreement codes for wives differentiated distressed and nondistressed couples. They then analyzed the content codes separately under each of the three non-verbal affect codes. None of the thought units stated with positive affect discriminated the couples. For the neutral affect thought units, only the content code, Agreement, was an effective discriminator. For the negative affect thought units, the four codes, Problem Feeling, Mindreading, Agreement, and Disagreement discriminated the couples. Gottman (1979) interpreted these results as indicating that the affect codes, especially negative affect, discriminate the distressed and nondistressed couples better than the content codes.

The failure of the content codes to discriminate distress levels in couples might be explained by two elements of confounding in the content codes. First, with the exceptions of the Agreement and Disagreement codes, none of the other content codes are separated into qualitative positive and negative valences. Therefore, problem-solving codes such as Problem Feeling and Problem Solution would have to contain, and thus, confound both the negative content of the interaction such as "criticize" and positive content such as "compliment" (each of which could be delivered with neutral affect). Thus, it is understandable that when these summary codes are tested to evaluate whether their frequencies will discriminate two qualitatively differentiated groups, i.e., distressed and nondistressed couples, no differences appear. If the content codes

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were divided into qualitative sub-components, they might demonstrate better discriminatory power. The second element of confounding can also be illustrated by the examples of "criticize" and "compliment". These examples, which would likely occur in couples' interactions, might be considered polar opposites of a communication skill and yet, with the present CISS, they would be coded under the problem-solving codes. It can be concluded, then, that the positive and negative qualitative sub-components of the codes are undifferentiated and second that the codes for the communication and problem-solving skills are confounded. Inferences based on CISS results must thus be viewed as tentative.

These illustrations from the marital therapy and marital interaction areas are typical of the present confusion in the shared problem-solving construct. The clear definition of the critical components of shared problem-solving is considered an important step in the formation of a model from which to construct a new shared problem-solving measure.

#### Revised Conceptualization of Shared Problem-Solving

It is generally agreed that shared problem-solving is comprised of problem-solving and communication skills (Koren, Carlton, & Shaw, 1980; Jacobson & Margolin, 1979; Stuart, 1980; Thomas, 1977; Weiss, 1978). However, before beginning to construct a new shared problem-solving measurement instrument, these two factors had to be disentangled and their relationship to each other specified. This task was accomplished by the following three steps: 1) the delineation of the general characteristics of the two skill areas; 2) the organization of shared problem-solving behaviors found in the literature into a taxonomy; 3) the definition of the shared problem-solving construct based on the taxonomy and a review of the empirical support for this construct.

General Characteristics of Problem-Solving. Problem-solving is a process that can be undertaken by an individual alone or by two or more people. In

either case there seems to be a consensus among writers that there are some common characteristics to the process. Given a problem situation, problem-solving is generally considered to be composed of a sequence of steps (D'Zurilla & Goldfried, 1971; Jacobson & Margolin, 1979), with an outcome orientation (Weiss, 1978) that uses a behavioral process to select the best solution from a variety of effective alternatives (D'Zurilla & Goldfried, 1971) in order to resolve or bring about changes in the problem situation.

Problem-solving can, thus, be considered a sequential task and the quality of the performance on this task will depend on the degree to which the problem-solver stays on-task or goes off-task. In the marital situation, a couple will face a variety of problem situations throughout the course of their relationship and it is expected that their successful handling of these problems will depend in part on their ability to stay on-task in problem-solving.

General Characteristics of Communication Skills. The successful application of problem-solving skills in two person shared problem-solving necessarily requires the use of a variety of communication skills in order to permit the exchange of requisite information. A difficulty arises in the attempt to isolate and focus measurement on a sub-set of communication skills that may be crucial to shared problem-solving. Even if this sub-set is "teased" out, other communication skills will still be undifferentiated in the shared problem-solving process. An argument is presented for the isolation of a sub-set of communication skills that have been demonstrated to be central to the shared problem-solving process of conflict resolution. Implicit in this argument is the acknowledgement that other communication skills remain undefined in the shared problem-solving process but that the structure of the measurement device that will be proposed limits the possibility of tapping the remaining and perhaps less crucial skills.



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The process of the selection of the sub-set of communication skills for inclusion in the definition of shared problem-solving must take into account the often potentially emotionally aversive nature of a two-person dispute. Relationship conflict, often the cue to initiate shared problem-solving, may be considered to pose a threat to each spouse, who can respond in several different ways. As Raush, Barry, Hertel, Swain (1974) and Gottman (1979) have found, a response to conflict-induced threat involves either avoidance or engagement and that engagement can be either of an aggressive or a constructive nature. To accomplish the shared problem-solving task, a constructive manner of engagement would require the couple to use those communication skills that would specifically reduce the potentially threatening, competitive and devaluing aspects of the conflict. The importance of this set of communication skills has been emphasized by a number of investigators who have referred to it in such terms as: facilitating (versus disrupting) behaviors (Patterson, Hops, & Weiss, 1975); responsiveness (versus criticism) (Koren et al., 1980); mutual support (Raush et al., 1974); collaborative set (Jacobson & Margolin, 1979); support and understanding (Weiss, 1978); and supportive (versus defensive) behaviors (Alexander, 1973). These writers are suggesting that successful shared problem-solving depends on the degree of skill in, what might collectively be called, supportive communication. Implicit in the concept of supportive communication is the notion of communication actions that convey the message of either low or high valuing of the spouse during shared problem-solving. Actions that emphasize the high value of the spouse and the spouse's ideas during a conflict reduce the interpersonal threat of personal devaluation for that spouse. Given that two spouses mutually provide this high valuation in order to reduce the mutual risk of devaluation in conflict, they should each be able to make a more positive contribution to the task in the

shared problem-solving process. Spouses poor in supportive communication skill would likely spend much time exchanging negative or aggressive comments (Weiss & Birchler, 1978) or avoid engaging in problem-solving all together. Thus, supportive communication is considered to be the central set of communication skills for shared problem-solving in the present research.

A Survey of Shared Problem-Solving Behaviours

In order to evaluate the support for the proposition that shared problem-solving can be considered to be composed of mainly problem-solving and supportive communication components, the relevant research and theoretical literature was searched and the resulting list of variables organized. The clearest emergent pattern, as given in Table 2, represents shared problem-solving as on-task and off-task problem-solving actions and as high and low valuing supportive communication.

With reference to the first column the most significant feature of the on-task actions is that they can be viewed, as item 1 suggests, as best occurring in a regular sequence. These actions may be grouped together under the commonly agreed upon summary stages of Agenda and Problem Definition (items 3-7), Goal Setting (item 7), Solution Generation and Selection (items 9-17), Action (item 18), and Evaluation (item 19). (Items 20 and 21 note the general importance of clarity and causality.) The sequence implied in these stages is considered the most effective one (D'Zurilla & Goldfried, 1971) even though people may not always follow it in practice. It is easy to imagine how much difficulty a couple would have if they started negotiating solutions when they had failed to first reach some agreement on the nature of the problem. This organization of the steps represents a normative model that requires the requisite tasks be accomplished at each stage of problem-solving at the same time recognizing, as D'Zurilla and Goldfried (1971) point out, that "the stages

Table 2

Summary of Shared Problem-Solving Inventory Actions Represented as Problem-Solving and Supportive Communication Components

Problem-Solving	Off-Task Actions	High Valuing Actions	Supportive Communication
On-Task Actions			Low Valuing Actions
<ol style="list-style-type: none"> <li>1. problem-solve in sequential steps. (d,b,k)</li> <li>2. set procedural rules. (d)</li> <li>3. set agenda. (d,b,k)</li> <li>4. discuss one problem at a time. (d,b,k)</li> <li>5. gather information. (d,b,k,j,g)</li> <li>6. separate relevant from irrelevant information. (a,k)</li> <li>7. formulate problem. (a,k)</li> <li>8. transform problem into long &amp; short term goals. (a,f,c)</li> <li>9. propose solution. (e,g,k,d,a,b)</li> <li>10. brainstorm solutions. (a,d)</li> <li>11. consider workability of outcomes &amp; solutions. (h,k)</li> <li>12. consider utility &amp; likelihood of outcomes. (a,h,f)</li> <li>13. consider outcome effects on relationship. (k)</li> <li>14. select solution. (k,a,d)</li> <li>15. decide on action. (f,k)</li> <li>16. state clear behavioral description of agreement. (b,d,k)</li> <li>17. write contract. (b,d)</li> <li>18. take action. (a,d,g,k)</li> <li>19. evaluate action. (a,d,k)</li> <li>20. be clear, specific, &amp; unambiguous. (b,d,k)</li> <li>21. think of causal relationships between events. (h)</li> </ol>	<ol style="list-style-type: none"> <li>1. not isolate problem. (k)</li> <li>2. discuss only problem and no solutions. (k,j)</li> <li>3. discuss past too much. (k)</li> <li>4. not evaluate alternatives. (k)</li> <li>5. propose irrelevant solutions. (h)</li> <li>6. propose no solutions (h)</li> <li>7. take premature action before considering alternatives. (k,f)</li> <li>8. not evaluate outcomes. (k)</li> <li>9. make vague general statements. (b)</li> <li>10. get off problem-solving track. (b,d,j,i)</li> <li>11. act on decisions not agreed upon. (b)</li> </ol>	<ol style="list-style-type: none"> <li>1. seek agreement. (c,b,i)</li> <li>2. agree to work together. (d,k)</li> <li>3. seek mutual payoff. (j)</li> <li>4. ensure each has say. (k)</li> <li>5. admit own role. (d,b)</li> <li>6. start with positive. (d)</li> <li>7. be polite. (b)</li> <li>8. see situation from other's point of view. (h)</li> <li>9. paraphrase. (d,b)</li> <li>10. criticize ideas not person. (b)</li> <li>11. express feelings. (d,b)</li> <li>12. summarize. (b,d)</li> <li>13. validate. (b,d,i)</li> <li>14. inquire about other's feelings. (d)</li> <li>15. be neutral. (d)</li> <li>16. collaborate. (d,j)</li> <li>17. suggest positive changes. (b,d)</li> <li>18. offer aid. (d)</li> <li>19. compromise. (d,k)</li> <li>20. use good ideas of other. (f)</li> <li>21. praise good problem-solving. (k)</li> <li>22. be responsive: acknowledgment, agreement, acceptance. (e)</li> </ol>	<ol style="list-style-type: none"> <li>1. reject. (i,d)</li> <li>2. criticize. (e,d,b)</li> <li>3. insult. (b)</li> <li>4. cross-complain. (b)</li> <li>5. coerce. (i,d,j)</li> <li>6. demand, prescribe. (k,b)</li> <li>7. avoid. (i,d,j)</li> <li>8. give in. (k)</li> <li>9. blame. (d)</li> <li>10. mindread. (d,b)</li> <li>11. exaggerate importance of outcome. (k)</li> <li>12. not listen to all other say, impulsive. (b,d)</li> <li>13. propose all-or-none suggestion. (j)</li> <li>14. deny. (j)</li> </ol>

Reference codes: a-D'Zurilla & Goldfried (1971); b-Gottman, Notarius, Gonso, & Markman (1979); c-Hunt & Rydman (1979); d-Jacobson & Margolin (1979); e-Koren et al. (1980); f-Maple (1977); g-Priestly et al. (1978); h-Platt & Spivack (1975); i-Raush et al. (1974); j-Stuart (1980); k-Thomas (1977); l-Weiss (1978).

usually overlap and interact with each other" (p. 112). A review of the second column suggests that the off-task actions have been frequently stated as what "not to do" and need to be translated into concrete actions that impede the process. These actions will be proposed later when problem-solving is more specifically defined.

The items in the supportive communication columns of Table 2 can be treated as a form of valuing actions. Neither the high nor low valuing actions fall readily into summary categories and seem especially devoid of any clearcut evidence of sequence. They are thus considered as a range of supportive actions that can be applied at any or all stages of problem-solving with varying degrees of facilitation of the interaction. The high valuing actions are seen in the role of providing encouragement or reinforcement of the spouse's contribution to the discussion and continued constructive engagement in the attempt to resolve the dispute. In contrast, the low valuing actions would likely invite an avoidance or reciprocally aggressive response. If couples made statements that contained neither high nor low valuing action, these statements could be considered as neutral with respect to supportive communication.

#### Definition of and Support for the Shared Problem-solving Construct

As a necessary preparatory step to the construction of a self-report measure of shared problem-solving, this construct will be defined and the set of actions comprising its two major components will be specified. In addition, the empirical support for the inclusion of these actions will be reviewed.

For the purposes of the present research, shared problem-solving is defined as consisting of the two sub-sets of process skills, problem-solving and supportive communication, by which an individual in a couple situation can contribute to the resolution of a problematic issue. The effectiveness of this process is seen to depend on primarily two skill factors: 1) the level of ability

of the individual to provide information that will establish and maintain on-task problem-solving, and 2) the ability of the individual to provide high level supportive communication. On-task problem-solving accomplishes the resolution of the problematic issue by finding a workable solution. High supportive communication provides the interpersonal valuing that both reduces the conflict threat and reinforces continued engagement in problem-solving. Spouses who are accomplished in both sets of skill factors should be able to effectively resolve most relationship issues while maintaining the value of each others' contribution during the process of the conflict. The use of the term skill "factors" implies that the two skills could be relatively independent. An individual could be high or low on either of these skills and being high on one skill set would not necessary entail ability in the other.

Problem-Solving. Table 3 presents the definition of on-task and off-task behaviour for three stages of problem-solving: problem definition; goal setting; and solution finding. The three stages are a simplification of the array of actions selected from the literature that was reported in Table 2. Support for the occurrence of the three stages in actual couple problem-solving comes from Gottman (1979) who used the Couples Interaction Scoring System (CISS) to code couples' discussions as they attempted to resolve a relationship issue. When he arbitrarily divided their interactions into three equal time segments, he found consistent patterns in the frequencies of certain codes which led him to label the three time segments as Agenda Building, Arguing, and Negotiating. The first segment, characterized by Gottman's codes as problem information exchange, is represented in Table 3 as problem definition. Gottman's second segment, Arguing, was characterized by the codes Disagreement and Summarizing Self. He considers that the purpose of this stage is "airing disagreements and exploring common ground in opinion and feelings about a problem" (p.113). Stage 2 of

Table 3  
Problem-Solving Categories

On-Task	Off-task
<u>Problem Definition</u>	
<ol style="list-style-type: none"> <li>1. Seeks/gives fact, opinion, or feeling relevant to problem issue (i.e. leads to clear on-topic problem definition)</li> <li>2. Disagrees but adds/seeks relevant information</li> <li>3. Suggests a formulation of the problem on-topic (near the end of this stage)</li> </ol>	<ol style="list-style-type: none"> <li>1. Seeks/gives information or suggests formulation off-topic (i.e. to irrelevant issue)</li> <li>2. Seeks/gives information related to another stage</li> <li>3. Disagrees without clarification</li> </ol>
<u>Goal Setting</u>	
<ol style="list-style-type: none"> <li>1. Seeks/gives goal or want that is relevant (if reached, would resolve problem)</li> <li>2. Seeks/gives goal priorities</li> <li>3. Disagrees and adds/seeks relevant goals</li> </ol>	<ol style="list-style-type: none"> <li>1. Seeks/gives off-topic goal</li> <li>2. Seeks/gives information related to another stage)</li> <li>3. Disagrees without clarification</li> <li>4. Treats all goals as necessary</li> </ol>
<u>Solution Finding</u>	
<ol style="list-style-type: none"> <li>1. Seeks/gives solution relevant to goals(i.e. can achieve end goal and is feasible) using either or both of the following               <ul style="list-style-type: none"> <li>- suggest solution as increase in behavior (especially for spouse change)</li> <li>- offers own action or what both can do</li> </ul> </li> <li>2. Considers consequences of solution to relationship</li> <li>3. Disagrees and adds/seeks relevant solutions</li> </ol>	<ol style="list-style-type: none"> <li>1. Seeks/gives off-topic solution</li> <li>2. Seeks/gives information related to another stage</li> <li>3. Suggests solution as decrease in behavior (especially for spouse)</li> <li>4. Repeats solution stated earlier (not generate new solution)</li> <li>5. Disagrees without clarification (or suggests doing nothing)</li> </ol>

Table 3 is meant to represent the most constructive outcome of this "airing" process, namely, the setting of common goals. His third segment of the discussion contained the codes Problem-Solving and Information Exchange, Agreement, Communication Talk (comments made by the couple about the discussion itself), and Summarizing Other. The Communication Talk may serve the purpose of keeping the couple on-task in order to bring the discussion to a close. The other codes in this segment are similar to, and thus support, stage three solution finding. Thus, Gottman's (1979) organization of the segments of marital interaction parallels the three stages proposed for the problem-solving factor.

In Table 3, each stage of problem-solving is further subdivided into the two columns of on-task and off-task actions which were derived from the taxonomy of Table 2. The concept of "on-task" action represents the task to be accomplished at each stage of problem-solving. Generally, on-task action accomplishes all the required activity at each stage (given in the first column of Table 3) and avoids jumping to another stage prematurely or back to an earlier stage unnecessarily. Off-task actions either do not meet the requirements of each stage or represent an inappropriate disruptive jump to another stage. The on-task and off-task behaviour in Table 2 defines the qualitative range of actions for a problem-solving scale.

A special problem arose over the behavior that can be labelled disagreement, which is often considered the opposite of agreement and thus a low supportive communication action. Given that when couples are in conflict over an issue, some disagreement will be a necessary part of the discussion. The question was, how to handle it in the shared problem-solving process. Gottman's (1979) interaction studies showed that the Disagreement code only discriminated the distressed and nondistressed couples when the affect was negative. Thus

Disagreement with positive or neutral affect could be an important element in the discussions if it was accompanied by further relevant information. With this distinction in mind, the question was resolved for this project by considering a statement containing disagreement with added relevant information as an on-task action. Disagreement by itself was considered as off-task. Since disagreement was included in all six responses of an item, its contribution was held constant and the main source of variation became the presence or absence of relevant information which is a characteristic of other problem-solving actions.

In reviewing Table 3, it is important to recognize, first, that the definitions of on-task or off-task actions depend on the stage the discussion has reached and the progress in development of the topic or content. The definitions are sensitive to the sequential nature of the problem-solving process and thus represent a radical departure from the problem-solving concepts inherent in coding systems such as the CISS and MICS. Second, the definitions provide qualitatively different categories for problem-solving in an attempt to improve on the coding systems' discriminative ability.

Since the conceptualization of problem-solving as on-task and off-task actions differs from that found in the coding research literature (where the qualitative codes are often confounded), direct comparisons are only cautiously advanced in support of this concept. The MICS summary code of Problem Solving, as defined in some studies, comes closest to the notion of on- and off-task action. Using this code to compare couples' rate of problem-solving while discussing one of their problems, it was found that non-distressed couples emitted more problem-solving (Birchler, Weiss, & Vincent, 1975), and more positive problem-solving behaviours (Vincent, Weiss, and Birchler, 1975) than distressed couples. Birchler (note 2) in a similar study, found that only the



nondistressed wives evidenced more problem-solving behaviour. Gottman (1979) found that the CISS code Problem-solving did not discriminate distressed and non-distressed couples. As has been argued earlier in this proposal, this code contains no distinction between positive and negative problem-solving behaviours and thus would not be expected to show differences in marital contrast groups. Given the tentative evidence that couples can be discriminated as distressed and nondistressed by problem-solving codes which include reference to separate positive and negative behaviours, it is expected that an assessment instrument that measures problem-solving based on on-task and off-task actions would successfully discriminate these criterion groups.

Supportive Communication. The actions defining the range of supportive communication have been summarized from the taxonomy of Table 2 into seven high valuing actions and seven low valuing actions in Table 4. In Table 4, items one and two, (Agreement, Acceptance of Modification) were selected from the CISS and MICS codes and represent high valuing by the acknowledgement of various forms of agreement with the spouse's comment. Items three to five (Repeat, Summarize Other, Reflect Feeling) were derived from a variety of sources (see Table 2) and impart valuing by including the spouse's comment in some fashion thereby giving recognition to what the spouse has said or felt. These items are often referred to as listening skills or, more appropriately, behaviours which demonstrate to the spouse that listening has occurred. Item six (Validate), acknowledges valuing or recognition of part of the spouse's comment despite the fact that there is disagreement. Item seven (Reinforcement) values by positive labelling.

In contrast to the high valuing list in Table 4, a reading of the low valuing list suggests a tone which is quite decidedly negative. Items one to five (Insult, Exaggerate, Prescribe, Blame, Threaten Negative Consequences) imply

Table 4

## Supportive Communication Categories

## High Valuing Categories

1. Agreement: Acknowledge agreement or compliance with spouse's point of view. Eg.: "Ok." "Yes." "That could be true." "I'll try it."
2. Acceptance of Modification: Change own opinion as a result of spouse's influence. Eg.: "I never saw it that way. Maybe they can do it."
3. Repeat: Repeat main element of spouse's statement in own comment or in a question. Eg.: "I'm concerned about the girls and all the chores we haven't finished." / "What concerns you about the girls."
4. Summarize Other: Re-state and integrate main elements of one or more of spouse statements in a tentative manner. Eg.: "You seem to be saying that I could do more."
5. Reflect Feeling: State belief of how spouse may be feeling, based on spouse's immediately previous behavior, in a tentative manner. Eg.: "You seem really upset."
6. Validate: Acknowledge understanding of spouse's position whether agree or not. Eg.: "I don't like what you said, but I can understand how you came to feel that way."
7. Reinforcement: Attach positive value labels to spouse's ideas, acts, and feelings. Eg.: "That's a good idea."

## Low Valuing Categories

1. Insult: Attach negative value descriptors to spouse's ideas, acts, and feelings. Eg.: no good, terrible, useless, frivolous, silly.
2. Exaggerate: Attach extreme descriptors to spouse's ideas, acts, and feelings. Eg.: all, none, never, perfect, always.
3. Prescribe: Imply standards against which to judge and direct spouse's behavior. Eg.: should, must, ought, have to, (or negative variations).
4. Blame: Attribute single sided cause or responsibility to spouse. Eg.: "You did X." "You caused X." "Why did you do X."
5. Threaten Negative Consequences: (Ultimatum or coercion) Suggest that an aversive event will follow spouse's actions. Eg.: "If you do X, then (aversive)." "You better not do X or I'll (aversive)."
6. Mindread: State an assumption of the contents of the spouse's thoughts or feelings (spouse has given no indication in previous statement) in an absolute manner with out verification. Eg.: "I just know that you're thinking of leaving of leaving me."
7. Denial: Deny spouse's experience or feeling about an issue. Eg.: "I don't think you are as upset-as you say."

devaluation of the spouse by reducing spouse self-worth and by threat. Item six (Mindread) invites disagreement especially if the assumption is wrong, or if the statement carries one of the other low valuing items as well (e.g., "You never think about me.") Item seven (Denial) may provoke frustration since denial in effect says, "I don't trust what you are saying".

Some of the verbal components of supportive communication listed in Table 4 have consistently discriminated the criterion groups of distressed and nondistressed couples. Agreement, a major theme of the high valuing categories, has been assessed by the behavioural coding of couple conflict resolution discussions. Percentage agreement ( $(\text{agreement} / (\text{agreement} + \text{disagreement})) \times 100$ ) has usually been higher for nondistressed couples (Gottman, 1979; Riskin & Faunce, 1970). Gottman (1979), using the CISS, found that nondistressed husbands and wives differed by one and one half times and two times larger percentage agreement, respectively, than their distressed male and female counterparts. Haynes, Follingstad and Sullivan (1979), using the MICS, showed that nondistressed couples were higher on agreement and lower on disagreement, and also on criticism. Birchler (note 2), also using the MICS, found that both husbands and wives in nondistressed couples were lower on negative verbal behaviour (complain, criticize, deny responsibility and disagree) and higher on positive verbal behaviour (approve, agree). Similar results were found in an earlier study by Birchler et al. (1979). In a different testing context, Billings (1979) had couples role-play conflict scenes and coded their interaction using the Interpersonal Behaviour Rating System (Leary, 1957) and the Coding Scheme for Interpersonal Conflict (Rausch et al., 1974). Even in the simulated conflict, nondistressed couples were rated as less hostile-dominant, hostile-submissive, and more friendly. They were also less likely to use rejection and coercion. In summary, the studies cited provide considerable evidence that the valuing factor

of supportive communication is an important dimension in the the quality of a marital relationship.

The skills involved in several of the supportive communication components in Table 4 (Repeat, Paraphrase, Reflection of Feeling, Summarize Other, and Validate) have been major global components of behavioural marital therapy (cf. Jacobson & Margolin, 1979) and marital enrichment (Otto, 1976) programs but have received little individual investigation. They have been included in the supportive communication factor since they are generally believed to be important in shared problem-solving and could possibly be examples of higher skill levels that might be found in very high functioning couples. Thus a measure which includes these upper level components may be protected from "ceiling" effects that sometimes occur when strictly abnormal behaviour oriented measures are applied to a normal population (Evans, Burns, Lidkea, & Shatford, note 4). Such a measure would be more useful for detecting improvement in couples who undergo shared problem-solving training in either marital therapy or marital enrichment programs.

Before concluding this section, one further set of studies, relating the importance of the combined factors of problem-solving and supportive communication in shared problem-solving, will be briefly considered. Gottman (1979), in his many investigations of couple interactions with the CISS, has gone beyond the analysis of simple frequency counts of codes to the point of devising a statistical method to analyze sequences of CISS codes over the time of the interaction. He first fixes on a particular thought unit code, say, Problem Feeling of husband and then determines the probability that any other code, say, Agreement of wife would have of following the fixed code as compared to its base rate occurrence. Thus the conditional probability of any sequence of

codes of the interaction process (e.g., "Husband Problem Feeling --> Wife Agreement") can be assessed for the criterion groups.

The findings using the sequential analysis technique have confirmed the hypothesis of other writers (Jacobson & Margolin, 1979; Stuart, 1980; Thomas, 1977) that distressed couples tend to get "locked in" to certain circular patterns of interaction from which exits are difficult. Agreement serves the purpose of unlocking these patterns. In Gottman's Agenda phase of the discussion, distressed couples tended to use sequences such as "Husband Problem Feeling --> Wife Problem Feeling --> Husband Problem Feeling" thus "mirroring" each other's codes in what Gottman calls a "cross-complaining" manner. Similarly, these couples mirror Problem Solving codes ("Wife Problem-Solving --> Husband Problem-Solving --> Wife Problem-Solving") in the Negotiation phase, a pattern that Gottman refers to as "counter-proposal". These mirroring patterns seem difficult to terminate unless a code is followed by agreement. Nondistressed couples mirror codes to some extent, but also break the mirroring pattern by using sequences such as "Problem Feeling --> Agreement" and "Problem-Solving --> agreement" that Gottman labels "validate" and "contract" respectively. Thus, as Gottman (1979) speculates, it is possible that the high percentage agreement found for nondistressed couples throughout their discussions may act as an exit tool from potentially circular patterns of interaction and assist the couple to move to the ultimate agreement, the solution of the problem. These findings give further weight to the importance of the supportive communication factor (much of which is valuing through agreement) in the facilitation of shared problem-solving. Any instrument which attempts to assess this skill must permit the testing of the individual's ability to break a potentially circular pattern by the use of supportive communication.

### Rationale For the Development of a Shared Problem-Solving Inventory

A review of the marital assessment literature strongly suggests a need for an economical, convenient measure of a clearly defined shared problem-solving construct. Such a measure could be especially important as a diagnostic tool for planning marital therapy and also could be used in the evaluation of marital skill training programs.

There have been a wide variety of "pencil and paper" self-report inventories used in marital studies (see Cromwell, 1976 for an extensive review), but there appears to be no device that clearly taps the shared problem-solving construct as defined in this project. In their review of the instruments which are available for the assessment of marital conflict, Weiss and Margolin (1977) describe no such self-report test. In one multivariate test, Prepare II, designed as an aid to the counselling of premarital couples, Olson, Fournier, and Druckman (1979) have written a brief ten-item sub-scale of conflict resolution that includes some behaviorally descriptive content but mainly asks for personal judgements about the quality of the interaction. Recently, Baugh, Avery, and Sheets-Haworth (1982) reported a new nine-item self-report Marital Problem-Solving Scale. Respondents are asked to make judgements on global aspects of their behavior, such as "problem-solving abilities" on a seven-point Likert scale. Within a number of the items, emotional factors such as satisfaction and comfort are mixed together with abilities in problem-solving thus obscuring the underlying construct. In summary, there is a deficit in the assessment literature in the area of self-report measurement of shared problem-solving. Even if a self-report inventory were composed of primarily clear behavioral descriptors, it would be of limited value since it would only tap

the respondent's viewpoint of the interaction and not the actual performance skill.

A number of behavioral coding schemes have been developed to measure the essential elements of the interaction process. These include: the Verbal Problem Checklist (VPC) (Thomas, Walter, and O'Farerty, 1974); the Coding Scheme for Interpersonal Conflict (CSIC) (Rausch, Barry, Hertel & Swain, 1974); the Inventory of Marital Conflicts (IMC) (Olson & Ryder, 1970); Marital Interaction Coding System (MICS) (Hops, Wills, Patterson, & Weiss, note 5); the Couples' Interaction Scoring System (CISS) (Gottman, Markman, & Notarius, 1977). Couples have been asked to enact conflict inducing roles (CSIC), discuss conflict inducing vignettes (IMC) or discuss one of their own problems (VPC, MICS, CISS). Code behaviors have ranged from problems in verbal behavior (and thus are only negatively scored, VPC), to broad categories of interaction (cognitive acts, CSIC; opinion, IMC) to more precisely defined behaviors (MICS, CISS). Of the two most sophisticated instruments, the MICS and CISS, the MICS has been employed in numerous studies to evaluate the outcome of therapy and to discriminate between distressed and nondistressed couples (Weiss & Margolin, 1977). The CISS, a newer instrument, was partly derived from the MICS and IMC and has received less attention. However, as outlined, Gottman (1979) has used the CISS to go beyond the typical simple frequency counts of codes to develop an analysis technique that permits a study of the sequential interaction process.

The coding schemes for marital interaction, despite some confounding in the code concepts, have provided a means of studying the marital interaction process in detail. They are, however, very costly in terms of maintaining recording equipment, transcription services and trained coding personnel. The coding time, which can be up to 28 hours per hour of interaction, (Gottman,

1979) renders these approaches to assessment beyond the feasibility of most researchers and practitioners. As Birchler (1979), who has had considerable experience with the MICS, points out, "eventually more practical and less cumbersome procedures will have to be developed if this technology is to be widely adopted in the field" (p. 306).

A modified approach would be to present the respondent with a description of a problem situation and ask for a verbal or written response (Goldfried & D'Zurilla, 1969). Such an approach was taken by Gottman (1979) however, the scoring of the responses still required training coders on the CISS.

In summary, a review of the existing measures of marital shared problem-solving reveals several significant limitations. First, there are no self-report measures of a specific shared problem-solving construct. Second, the behavioral coding schemes have not been developed from a clear conceptualization of the roles of problem-solving and supportive communication. Furthermore, these coding schemes are cumbersome and very expensive to use.

The limitations of the existing measures warrant the development of a shared problem-solving measure whose properties would address these problems. The new measure should be a self-report device which would be economical to administer and score. Its items should be based on a clear definition of the nature of shared problem-solving and its component skills. Its structure should attempt to simulate a two person interaction so as to permit a test of a respondent's ability in marital shared problem-solving. Finally, it should provide a basis to study the components in the interaction process.

To meet these objectives, two studies were completed. In the first study the structure of the Shared Problem-Solving Inventory was planned and the initial form of the instrument was produced using the construct approach to test



development. The second study investigated the validity of the new instrument and explored the relationship of problem-solving and supportive communication.

## CHAPTER II

### DEVELOPMENT OF THE SHARED PROBLEM-SOLVING INVENTORY

#### Introduction

The Shared Problem-Solving Inventory was developed not only for the discrimination of criterion groups, such as distressed and non-distressed couples, but also for the assessment of the specific skill factors of problem-solving and supportive communication demonstrated by an individual. Thus an attempt was made to base its development on the more relevant findings from the marital interaction and treatment literature outlined in the introduction. To accomplish these objectives the instrument was :1) designed to incorporate the qualitative range of skill levels of problem-solving and supportive communication as proposed in Tables 3 and 4; and 2) organized in a sequential fashion to represent the reciprocal interaction patterns of marital discussions. The instrument, because it was based on a reciprocal interaction model, is rather complex. Thus to facilitate understanding, the structure of the Shared Problem-Solving Inventory is introduced first, and the details of test construction are presented in the method.

#### Structure of the Shared Problem-Solving Inventory

The definition of the problem-solving component of shared problem-solving was an attempt to model the skills present during the process of actual discussions and as such, presented a special problem in the choice of a test format. Skills such as the ability to stay on topic and on the appropriate problem-solving stage can be assessed only by considering both the context of the content flow and the given problem-solving stage at any point in the discussion. Thus, for this model of problem-solving to be translated into an

inventory format, the structure of that format had to simulate the process of a real discussion. This conclusion may appear at first as a constraint on the type of test that is possible given this definition of problem-solving. However it can also be viewed as an extension of Loevinger's (1957) recommendation that tests should have "structural fidelity", here meaning that the structure of the items themselves and their interrelationship in a set would parallel the non-test behavior i.e. a real marital discussion. Thus the definition of the problem-solving component had forced the choice for a complex test format that may have a higher structural validity than conventional test formats.

Inventory Format. The Shared Problem-Solving Inventory was designed to preserve the interactional nature of marital shared problem-solving. Each of the two sets of 34-35 items was written on a different typical problematic issue (e.g. money problems) in a marital setting. To give an interactional flavour to the multiple choice item sets, the stimulus portion and the response alternatives were written as actual statements that could be spoken in a discussion. The respondent was presented with stimulus statements of varying difficulty that could be made by a spouse, was then offered a set of six differentially weighted response alternatives and asked to choose the one closest to what his/her response would be to the real spouse. After choosing, the respondent went on to the next item and moved the discussion along one step. After the item set was finished, the discussion ended. By focusing the content of the items on a specific marital issue and arranging the series of items in a sequential, conversational manner, the Shared Problem-Solving Inventory attempted to simulate a couple discussion.

This test format did not permit the respondent free interaction but did allow a choice of responses from a number of alternatives in a highly structured form of role play. No other studies have taken exactly this approach. However,

in a study in which distressed and nondistressed couples were asked to take on roles given in short vignettes on different problem issues and to try and resolve them, Gottman (1979) found that many of the non-sequential and sequential code patterns found in interactions on real issues were replicated. Other investigators have also used role-play tasks and produced interaction patterns similar to real-issue discussions (cf. Birchler, Weiss, & Vincent, 1975). Thus it was expected that the Shared Problem-Solving Inventory, in which the issues were pre-selected and the respondents placed in a simulated discussion, would show similar discriminatory results.

#### Composition of the Multiple-Choice Items

The items for each simulated discussion sampled the three problem-solving stages, problem definition, goal setting, and solution finding and were presented in that sequence. In conformity with the shared problem-solving construct, the problem-solving and supportive communication content of each stimulus and the six alternative response statements of the multiple-choice items was systematically varied. The two levels of problem-solving were on-task and off-task (as specified in Table 3). Supportive communication was varied in three levels from high to low (see Table 4) with a middle neutral level (contained no high or low support elements of Table 4). This neutral level was included to match Gottman's (1979) interaction research results. He reported CISS codes similar to supportive communication categories occurred in low frequencies thus implying that many statements were made with neutral supportive communication.

The stimulus statements made to the respondent by the "spouse" had either on-task or off-task content. The on-task distinction depended on which of the three stages the discussion had reached (Table 3 provides the categories for each stage). Each stimulus also contained either a neutral or low supportive

communication level. No high supportive communication level (eg. paraphrase) was included since the stimulus would have had to respond to the respondent's choice from the previous item. Clearly this condition was impossible in this format. The resulting four combinations of stimulus statements were: on-task, neutral; on-task, low; off-task, neutral; off-task, low. The combinations were designed so that the on-task, neutral stimulus was expected to be the least challenging since the "spouse" was performing reasonably well. The last combination was considered the greatest challenge since the "spouse" was both off-task in problem-solving and low in supportive communication.

Each stimulus statement was followed by six response alternatives that were also systematically varied for the problem-solving and supportive communication levels. Three of the alternatives had on-task content and each was stated at one of a high, neutral or low level of supportive communication. The three other alternatives had off-task content and each was stated at one of the three levels of supportive communication. The resulting six combinations were: on-task, high; on-task, neutral; on-task, low; off-task, high; off-task, neutral; off-task, low.

In order to illustrate a typical item, Table 5 presents the stimulus and response statements that would occur in the problem definition stage. The problem-solving and supportive communication components are described in brackets after each statement.

Problematic Issues. It might be expected that distressed and non-distressed couples would have different issue domains, however, the evidence is that the issues are very similar for each group but the frequency and intensity are not as great for non-distressed couples (Birchler, 1979; Gottman, 1979). The major issues have been empirically identified (Gottman, 1979) and include: sex, money, communication, in-laws and children. Since it was considered important to make

Table 5

## Sample "Money" Issue Item from Problem Definition Stage

---

Stimulus Statement

I expected that you had made all the arrangements for the trip.  
You never know what's going on. (off-topic/exaggerate)

Response Statements

- a. I'm confused about what's been done with the savings.  
(on-topic/neutral)
  - b. If you had helped to plan a holiday, we wouldn't be stuck now.  
(off-topic/blame)
  - c. Sounds like you think you can't depend on me. Well, I'm at a loss over where the savings have gone. (on-topic/summarize)
  - d. Perhaps you're saying you can't depend on me even though we both knew a trip was planned. (off-topic/summarize)
  - e. You don't keep track of the savings either. (on-topic/blame)
  - f. We both knew a trip was planned. (off-topic/neutral)
-

the inventory a reasonable length, only two problematic issues were selected from among those reported most often by couples. With 34 to 35 multiple-choice items for each issue, the resulting inventory was planned to be 68 to 70 items in length and thus possible to complete in approximately one hour.

Test Construction Approach. The Shared Problem-Solving Inventory was constructed by following in part Jackson' (1970) sequential system for scale development. This is a construct approach to test construction that has its roots in the classical theorizing of Campbell and Fiske (1959), Cronbach and Meehl (1955), and Loevinger (1957). The system, which blends rational and empirical strategies in item writing, editing and selection, is designed to maximize the construct validity of an instrument. Four interrelated principles form the foundation of this approach: "first, the overriding importance of psychological theory; second, the necessity for suppressing response style variance; third, the importance of scale homogeneity, as well as generalizability; and fourth, the importance of fostering convergent and discriminant validity at the very beginning of a program of test construction" (Jackson, 1970, p. 63). Using these principles, Jackson (1970) has recommended a number of procedures for different stages of test construction and those procedures relevant to this project are outlined at the applicable stage in the method.

The first study was comprised of two phases with the objectives of item generation, item evaluation, and empirical item selection followed by a preliminary scale evaluation.

## Method

### Phase I: Item Generation

Initial test construction stages involved: selection of the two problematic issues, item writing, item editing and item evaluation.

#### Issue Selection

The array of issues for the simulated discussions in the Shared Problem-Solving Inventory was derived from those most frequently noted by couples in reports by Gottman (1979), Birchler (1979) and a pilot study using Gottman's (1979) Couple's Problem Checklist. Four issues, money, communication, sex, and children were of greatest concern to the couples. However, to keep testing time to approximately one hour, it was necessary to select only two issues. The issue of children was omitted since not all couples had children. Sex as an issue was omitted because of its potential sensitivity and the difficulty of writing items unbiased for men and women. The remaining two topics permit the assessment of shared problem-solving skills in both a concrete area (money) and a process area (communication). A problem arose over the use of the label "communication" in conjunction with the skill label, supportive communication. Communication (issue) supportive communication is awkward phrasing. More importantly, "communication" doesn't carry the meaning Gottman(1979) associates with it, namely, "sharing events of the day" (p.151), "spending time together, conversations, sharing of feelings, recreation, and life style" (p.208). To reflect this meaning, the label chosen for the issue was "contact". Thus the "money" and "contact" issues were selected for the two simulated discussions.



### Item Writing

Jackson (1970) has recommended a number of steps be taken before and during the item writing stage and several of these were applicable to the development of the Shared Problem-Solving Inventory. He suggests that a well developed theory be used as the basis for defining the constructs that the scales purport to measure. As outlined in the main introduction, the shared problem-solving model with the central constructs of problem-solving and supportive communication, has received some substantiation in the research literature and is possibly the best available at present. Next for each construct, mutually exclusive, specific definitions are to be written to promote convergent and discriminant validity of the items which are based on these definitions. This step was accomplished with the writing of the specific category definitions for problem-solving and supportive communication which were present in Tables 3 and 4. Item writing then proceeded in three steps.

Step 1. Each simulated discussion had two sections: several paragraphs of background information followed by a set of multiple-choice items. The background established the scene and the items revealed further details about the issue as in a natural discussion. A male (for the "money" issue) and a female (for the "contact" issue) item writer were each directed to develop a scenerio to act as a guideline for developing the two sections of the discussions. Suggestions for scenerio content came in part from Gottman's (1979) Situations for Individual Competence Assessment. The scenerio included both relevant and distractor information (the latter provided a basis for off-topic statements) for the background description as well as content highlights for the three problem-solving stages, problem definition, goal setting, and solution finding. As item writing progressed, it was necessary to revise the scenerios at times to facilitate the content flow.

Step 2. The structure of the three problem-solving stages and the item content was delineated before item writing began. Approximately 30 to 35 items were planned for each issue with problem definition, goal setting, and solution finding comprised of 12 to 14, 8, and 12 to 14 items respectively. Goal setting was difficult to completely separate from solution finding and thus had to be defined by fewer items. An item content checklist was employed to ensure that the problem-solving and supportive communication categories were used in balanced numbers throughout the item set. While this plan was more easily accomplished for supportive communication, the problem-solving categories related to information giving had to be used more frequently so as to reveal details of the issue.

Each item consisted of a stimulus statement made by the "spouse" and six alternative statements from which the subject could choose a response. The stimulus statement was written with either on-task or off-task problem-solving content and with either neutral or low supportive communication resulting in four possible combinations. High supportive communication was not possible since the "spouse" could not possibly "know" how the subject had responded on the previous item.

For the six response statements, three had on-task and three off-task content. The same on-task category was used for all three on-task statements and likewise for the off-task statements. One pair of the on-task and off-task statements had high supportive communication (same category), one pair had low (same category), and one neutral. Items were scored: 2 for any on-task response, 1 for any off-task problem-solving response; 3 for high, 2 for neutral and 1 for low supportive communication. Thus for any response chosen, a subject would receive a separate problem-solving and supportive communication score.

Step 3. In preparation for their task, item writers received transcripts of ten couple interactions (obtained in a pilot study) for models of typical phrasing. Then with the scenarios in mind the writers began by composing the first and last items of a problem-solving stage and then filled in the intervening items. This procedure maintained the content direction throughout the item sequence.

For each item, writers usually wrote the stimulus first and then the on-task, neutral and off-task, neutral responses. Then the high and low supportive communication components were added to the remaining responses. Writers were free to select the problem-solving and supportive communication categories for each item so as to promote a smooth flowing sequence. However, they were required to use the categories in a balanced frequency across a given stage to ensure adequate representativeness.

Writers were given several further guidelines. When a question format was used in a response, it was used in all six responses to avoid creating another variable. In order to reduce social desirability bias (Jackson, 1970), low and high supportive communication components were not to be too extreme (Edwards, 1970). Specific references, unless detailed in the background information, were to be avoided so that the subject could read in his/her own situation.

As stages were completed, they were exchanged between writers and edited for sexual bias in the phrasing or references (Jackson, 1970), category consistency, and logical flow. The entire complex process of generating items for the two issues required four months. The final length of the issues were, "money", 35 items, "contact", 34 items.

### Item Evaluation

At this stage of test development, Jackson (1970) suggests that items be judged for their conformity to the definition of the construct in order to enhance the test's convergent validity. A second important goal for this evaluation stage was to determine if the response alternatives could be scored with confidence according to the scale values for which they were keyed, i.e. was a given response that was keyed for off-task problem-solving (score = 1) and high supportive communication (score = 3) judged to have those values.

Three judges with varying initial levels of familiarity with shared problem-solving (from the areas of social work, psychology and music education) were trained for five hours in the application of the problem-solving and supportive communication categories to statements. They were then given the background information and item sets for the two issues and asked to read an entire item, stimulus and six responses, before making a judgement. The judges attempted to classify each statement according to the exact problem-solving and supportive communication categories.

The level of agreement on a statement between judges and the scoring key for that statement was calculated as  $\text{percentage agreement} = (\text{number of agreements} / \text{number of agreements} + \text{disagreements}) \times 100$ .

Those statements for which the percentage agreement was less than 66% were revised using the information provided by the judgements. Statements were not re-judged after revision.

### Results

Two criteria were established for the analysis of the judgements. For the first criterion, the judges' percentage agreement for the match of the exact

category (eg. seeks goal priorities/validates) with the category key was evaluated to determine if the content of the statements represented the intended problem-solving and supportive communication categories. A less stringent criterion, the match of the scoring level of a statement (off/on; high/neutral/low) with the planned scoring key, was also calculated. A high level of agreement on this criterion was required so that confidence could be placed in the original scoring key.

Table 6 presents the judge's percentage agreements for the "money" and "contact" issues. Examination of the columns reveals that all judgements across the two issues were within a few percentage points of each other indicating that, even with separate item writers for each issue, comparable levels of confidence could be placed in the two criteria. The range of the exact category criterion for the stimulus statements was 74.3 to 82.8% and for the response statements, 69.4 to 75.1%. Agreement was lower for the problem-solving component. These results suggested that the statements represented their intended categories moderately well.

The agreement on the scoring key criterion for the stimuli varied from 82.8 to 90.5% with the problem-solving component at the lower end of the range. This range was high enough to permit the formation of scores for responses falling under the different types of stimuli. The scoring key criterion for the responses ranged from 86.5 to 91.9%, again allowing considerable confidence to be placed in the original scoring key for the responses.

In summary, for both issues, there was moderate agreement on the exact category criterion meaning that the item content reasonably matched the planned content and, second, high agreement on the scoring key criterion permitting confident use of the planned scoring key. In all cases the agreement on the problem-solving component was lower than the supportive communication

Table 6  
 Judges' Percentage Agreement on "Money" and "Contact" Issues  
 For Exact Category and Scoring Key

Issue	Stimuli				Responses			
	Exact		Key		Exact		Key	
	PS	SC	PS	SC	PS	SC	PS	SC
"Money"	74.3	80.0	85.7	90.5	69.4	75.1	86.5	91.9
"Contact"	75.8	82.8	82.8	87.9	72.7	72.4	87.2	88.1
Average	75.1	81.4	84.3	89.2	71.1	73.8	86.9	90.0

Note. PS = problem-solving; SC = supportive communication.

component. Statement revision was carried out for low agreement judgements and was expected to improve item performance although no further judgements were made.

### Phase 2: Empirical Item Selection and Preliminary Scale Evaluation

The purpose of this phase of test development was to evaluate the Shared Problem-Solving Inventory's psychometric properties as a basis for item selection. Following this step, the revised inventory's relationship with marital satisfaction and social desirability was evaluated.

#### Subjects

Twenty five married couples, who responded to a newspaper advertisement, served as subjects. No selection criteria were imposed. Initially they signed a consent form (Appendix A) and filled out a demographic information sheet (Appendix B). At the completion of the testing session, each subject received a five dollar subject fee.

The means for the main demographic descriptors of the sample were: age, 28.2 years ( $SD= 5.15$ ); years of education, 13.9 ( $SD= 1.3$ ); years married, 5.44 ( $SD= 4.2$ ); number of children, 1.3 ( $SD= 1.3$ ). Husbands and wives did not differ on age,  $t(47)= 1.58$ , N.S. or years of education,  $t(48)= -1.28$ , N.S.. Spouses did differ on income level ( $CHI^2(6)= 20.7$ ,  $p<.002$ ) with the mean category for husbands \$ 10,000 - 14,000 and for wives, under \$ 4,999.

#### Procedure

In addition to the Shared Problem-Solving Inventory, the assessment battery included a simulation effectiveness rating and marital satisfaction and social desirability tests. Couples completed the battery of four instruments in

one session in either their own home or the researcher's home setting. Testing time ranged from 2 to 2 and 1/2 hours.

Shared Problem-Solving Inventory. The original format of the Shared Problem-Solving Inventory was to be a booklet of multiple choice items with a stimulus statement on one page and the six alternative responses on the following page so as to simulate a discussion. However, in pilot testing, volunteers reported difficulty in recalling the stimulus once the page was turned. To increase the recall of the stimulus and to further enhance the simulation of a discussion, the items were recorded on audio tape so that husbands heard the stimulus read by a female ("wife") and their six response alternatives by a male (themselves). To familiarize the husbands with the male voice, the instructions were also read by the same male. This audio format was reversed for the wives. Further pilot testing indicated this combined audio tape and booklet presentation met subject's individual preferences for listening to or reading the items.

A complete Shared Problem-Solving Inventory package included: a set of instructions; a sample item; background information for the first issue and the item set (for "money", 35 items and "contact", 34 items); the background for the second issue and the second item set. Subjects were provided with a Sony TC 67 tape recorder, earphone (for private listening) and a hand switch (to stop the tape after an item so that a response choice could be recorded). Separate multiple choice answer sheets were provided for each issue (Appendix D).

Since responding to the first issue in the booklet could have possibly influenced subjects' responses on the second issue, two sets of booklets were constructed, "money" followed by "contact" and the reverse order thereby counterbalancing presentation order. Thirteen couples received the first order and twelve the second order.



Scoring of the Shared Problem-Solving Inventory responses was as follows: problem-solving, off-task=1, on-task=2; supportive communication, low=1, neutral=2, high=3. Scale scores were formed for "money" problem-solving, "money" supportive communication, "contact" problem-solving and "contact" supportive communication. (See Appendix C for Shared Problem-Solving Inventory instructions, background information and sample items.)

Simulated Discussion Rating. The scenarios of the Shared Problem-Solving Inventory's two issues were not expected to necessarily parallel the real life experiences of all the subjects. However it was important that subjects perceive that among the six responses, there was one that might come close to what he/she might say if such a problem situation were to occur. To assess this aspect of the simulated discussion, subjects were asked to rate the percentage of the responses they chose that came somewhat close to what they might have said if their spouse were ever to make similar stimulus statements. Each issue was rated on 0 to 100% scales in 10% units. (See Appendix E for rating sheet.)

Marital Adjustment Test. The Marital Adjustment Test (Locke & Wallace, 1959) (Appendix F) was included in the battery to permit an evaluation of the relative importance of the Shared Problem-Solving Inventory skills to a global measure of the quality of a marital relationship. The Marital Adjustment Test is a 15 item scale that is widely used as a test of marital satisfaction (Weiss & Margolin, 1977). The differentially weighted items sample domains of overall marriage happiness, the amount of agreement in specific areas (eg. friends), the extent of mutual activity and decision making and the present confidence in the original decision to marry. Total scores range from 2 to 158 (high satisfaction) with 100 as the generally accepted cut-off value for discriminating distressed from nondistressed spouses (Jacobson & Margolin, 1979). The scale has

demonstrated high internal consistency (.90) and adequate validity for discriminating well adjusted and maladjusted couples (Locke & Wallace, 1959).

Marital Conventionalization Scale. Social desirability is generally considered a contamination factor in the attempt to measure the content of some characteristic (Edmunds, 1970; Jackson, 1970; Wiggins, 1973). When social desirability response style is present to a high degree in a scale, correlations between the scale and other measures may be spuriously high, not because of the scale's content, but because of high degrees of response style in common.

The Marital Conventionalization Scale (Edmunds, 1967) (Appendix G) was devised to evaluate a person's tendency to distort the appraisal of their marriage in the socially desirable direction of strongly endorsing marital happiness. This scale is comprised of 15 weighted items, 10 keyed in a positive and 5 in a negative direction. A high score represents an extremely positive description of either the mate or marriage (eg. "My mate and I understand each other completely."). Edmunds, Withers, and Dibatista (1972) found correlations between the Marital Conventionalization Scale and the Marital Adjustment Test ranging from .53 to .70 in different samples and concluded that the Marital Adjustment Test was contaminated with a tendency to respond in a desirable fashion.

In this study the test was renamed the Marriage Attitude Inventory to neutralize any negative associations with the original title.

Results

Item Evaluation Strategy

Jackson (1970) has proposed a set of seven steps for the evaluation and selection of items. The decisions in each of these steps are based on empirical data obtained from subjects who have responded to a large pool of items that theoretically measure the constructs of interest. Items meeting the criteria for all steps are retained. In this study, because of the sequential nature of the problem-solving stages, it was not possible to generate a large item pool. If all item selection steps were followed many items might be deleted and the item sequence be disrupted. Thus a compromise strategy was to select several of the more crucial steps. The three modified surviving steps were: 1) an evaluation of the proportion of subjects endorsing an item and the elimination of items with  $p$  values below .05 or above .95; 2) an evaluation of the item's correlation with its total scale and the elimination of items with low item-total correlations until a minimum Cronbach's alpha (1951) was obtained; and 3) an evaluation of the number of items correlating higher with its opposite factor scale (i.e. problem-solving items with supportive communication scales) than with its own scale.

Further scale psychometric properties, interscale relationships and relationships of the Shared Problem-Solving Inventory scales with other marital measures were examined.

Item Selection

To evaluate the information value of the items,  $p$  values were determined by calculating the frequencies of the response alternatives (Thorndike, 1949). For the "money" and "contact" problem-solving scales, no item exceeded the limits of  $.05 \leq p \leq .95$  and thus none was eliminated. The mean frequency of the

"money" problem-solving scale off-task responses was 34.2 and on-task, 65.8. For "contact" problem-solving, the frequencies were 35.6 and 64.4 for off-task and on-task responses respectively.

The supportive communication scales with low, neutral and high responses required a modification in the frequency determination. One of the response categories (low or high) might exceed the  $p$  limits but the distribution of scores between the remaining category and the neutral category might still provide useful information. Thus the three level scale was treated as a two level scale by distributing the neutral responses equally to the high and low categories. Using this criterion, no items exceeded the limits of  $.05 \leq p \leq .95$ . The mean item frequencies for "money" supportive communication and "contact" supportive communication were low, 21.9, 17.0, neutral, 33.8, 30.1, and high 44.3, 52.9 respectively.

Since all items fell within criterion limits, none was eliminated at this stage.

The second step in item selection required calculating an initial item-total correlation and alpha for each of the four scales (Specht, 1976). In addition, the change in alpha if an item were removed from the scale was also calculated. Then, the item that, if removed, would lead to the greatest increase in alpha was temporarily dropped. A new item-total correlation and alpha was calculated. This process of dropping items to increase alpha was repeated until an alpha of at least .60 was obtained for all scales. Then, taking one problem issue at a time, for example "money", items that had been dropped and were in common for both "money" problem-solving and "money" supportive communication were completely eliminated from both scales and thus from the Shared Problem-Solving Inventory booklet. Those items that performed poorly on one scale but well on the other were retained for the booklet and were only scored

on the latter scale. Following this procedure, four items from the "money" issue and six from the "contact" issue were completely eliminated. Several items were not scored leaving the final scale lengths of "money" problem-solving - 30, "money" supportive communication - 30, "contact" problem-solving - 26, and "contact" supportive communication - 27 items.

Since items had been written according to problem-solving and supportive communication categories and also appeared in a sequence, the item selection procedure could have distorted the original design. However, a comparison of the original distribution of stimulus and response categories with those that remained after item selection showed no major changes. When the item sequence was examined, eliminated items did not disrupt the information flow and, indeed, seemed irrelevant.

Since the item pool was small, no further item elimination was considered possible and thus the remaining steps were restricted to an evaluation of the discriminant validity at the item level. Items written to exemplify one construct should correlate higher with their own construct than with other purportedly unrelated constructs (Jackson, 1970). For the Shared Problem-Solving Inventory this meant that the problem-solving items should correlate higher with their own scale than with the supportive communication scale and vice versa. For "money" problem-solving, 60% of the items met this criterion, for "money" supportive communication, 90%, "contact" problem-solving, 81%, and "contact" supportive communication, 75%. On the basis of these results, some interscale correlations were expected between problem-solving and supportive communication. (See Table 8 in the next section for these correlations.)

The remaining analyses are based on the scales as revised according to step two, i.e. with some items eliminated and some not scored.

Shared Problem-Solving Inventory Psychometric Properties  
and Interscale Relationships

Psychometric Properties. Table 7 presents the descriptive statistics for the two problem-solving and two supportive communication scales. The means were slightly skewed toward the positive end of all scales, however, the range open above the means was at least 2.5 standard deviation units in each case. Thus the scales, for this sample, avoided a ceiling limit. The mean item-total correlations ranged from .19 to .30 and although a few of the correlations were negative, none of these were significantly different from zero. Alphas ranged from the minimum set at .60 for "contact" problem-solving to .78 for "money" supportive communication.

Interscale Correlations. Since the Shared Problem-Solving Inventory scales were developed from distinctly different constructs, it was expected that the problem-solving scales would correlate higher with each other than with the supportive communication scales and vice versa. These interscale correlations are presented in Table 8.

Contrary to expectation, the "money" problem-solving and "contact" problem-solving scales did not correlate significantly ( $r = .16$ , N.S.) and, while as expected the supportive communication scales did correlate significantly ( $r = .56$ ,  $p < .001$ ), "money" supportive communication and "contact" supportive communication also correlated with "contact" problem-solving ( $r = .59$ ,  $p < .001$ ;  $r = .41$ ,  $p < .01$ , respectively). "Money" problem-solving did not correlate with "money" supportive communication as expected but did minimally with "contact" supportive communication ( $r = .29$ ,  $p < .05$ ).

Shared Problem-Solving Inventory's Relationship with Other Variables. The relationships of the Shared Problem-Solving Inventory scales with demographic variables were assessed and the results are shown in Table 9. The four scales

Table 7  
Summary of Scale and Item Statistics for Revised  
Shared Problem-Solving Inventory Scales

Scale	Mean	SD	N of Items	Mean Item Total Correlation <sup>a</sup>	Range Item Total Correlation	Alpha
"Money" Problem-Solving	50.14	3.87	30	.20	(.20)-(.44)	.64
"Money" Supportive Communication	67.04	8.29	30	.30	(-.05)-(.53)	.78
"Contact" Problem-Solving	42.74	3.50	26	.19	(-.03)-(.47)	.60
"Contact" Supportive Communication	63.70	5.94	27	.19	(-.01)-(.44)	.63

Note. See Appendix K, Table A ANOVA results for reliability.

<sup>a</sup> Correlations were converted to z scores, averaged and re-converted to average correlations (Ferguson, 1966).

Table 8  
Interscale Correlations of Shared Problem-Solving Inventory Scales

Scale	"Money" Problem-Solving	"Money" Supportive Communication	"Contact" Problem-Solving	"Contact" Supportive Communication
"Money" Problem-Solving	1.00	.26	.16	.29*
"Money" Supportive Communication		1.00	.59***	.56***
"Contact" Problem-Solving			1.00	.41**
"Contact" Supportive Communication				1.00

\*  $p < .05$

\*\*  $p < .01$

\*\*\*  $p < .001$



Table 9  
 Correlation of Shared Problem-Solving Inventory Scales  
 with Demographic and Marital Variables

Demographic and Marital Variables	Shared Problem-Solving Inventory			
	"Money" Problem-Solving	"Money" Supportive Communication	"Contact" Problem-Solving	"Contact" Supportive Communication
Age	-.11	-.11	.02	.07
Sex	.08	-.15	-.18	.14
Education	.25	.14**	-.11	.03
Years Married	-.21	-.36	-.14	-.15
Number of Children	-.11	-.25	-.03**	.00*
Marital Conventualization	.09	.24**	.40*	.32*
Marital Adjustment	.22	.41	.30	.28

\*  $p < .05$

\*\*  $p < .01$

were found to be independent of age, sex, education, income level and number of children. For the variable, years married, only "money" supportive communication showed a significant relationship.

\*Marital Conventionalization, the social desirability measure, ( $M= 34.50$ ,  $SD= 27.44$ ) was related to "contact" problem-solving, "contact" supportive communication, but was independent of the "money" issue scales. The Marital Adjustment Test ( $M= 112.16$ ,  $SD= 26.48$ ), which is the generally accepted indicator of satisfaction in a marriage, was unrelated to "money" problem-solving but correlated with "money" supportive communication and both "contact" scales.

#### Presentation Order and Sex Effects

Given the structure of the Shared Problem-Solving Inventory with its two successive issue format, subjects might have obtained a higher score on the second issue because of practice effects. To control for this possibility, the two issues were presented in counterbalanced order so that thirteen couples received the "money-contact" order and twelve the reverse order. However, it was possible to test if presentation order influenced performance. In addition, the effect of sex of respondent was also evaluated for the four scales.

Since the Shared Problem-Solving Inventory scales were correlated, a MANOVA (Cohen & Burns, 1977) was performed to test for order (two levels) and sex (two levels) main effects and sex by order interaction. For order, the Pillais value was .1654 ( $F(4,43)=2.13$ ,  $p=.09$ ), for sex, .1213 ( $F(4,43)=1.48$ ,  $p=.22$ ), and sex by order, .0651 ( $F(4,43)=.75$ ,  $p=.56$ ). Thus, the main effects and the interaction effect were not significant.

#### Simulated Discussion Rating

Subjects were asked to indicate the percentage of their responses that came somewhat close to what they might have said in a real discussion. The

mean percentages for the "money" issue was 59% ( $SD=19.08$ ) and for the "contact" issue, 61% ( $SD=21.69$ ) were very close in magnitude.

### Discussion

The Shared Problem-Solving Inventory, comprised of two issues and four scales, was developed using a modified form of Jackson's (1970) sequential strategy for test construction. The first major step for evaluating the item stimulus and response statements was to judge their conformity to categories for which they were written. Items showed sufficient fit for confidence to be placed in the inventory scoring key. The problem-solving component was consistently more difficult to judge (lower agreement), a result that is understandable given the more complex sequential design of the categories that change across stages of the discussion.

The second step involved item selection based on the inventory's empirical performance. Item frequencies fell within the pre-determined limits and no items were eliminated. Using the criterion of an item's correlation with its scale total, a small number of items were either dropped or not scored on each scale. At this stage, 86% of the "money" issue items, 77% of the "contact" problem-solving items, and 79% of the "contact" supportive communication items were retained. Deletion of items did not disrupt the flow of the discussions and thus no further content statements were required. For this final set of items, internal consistency results were moderate to high and were considered acceptable for a skill measuring test (Dick & Hagerty, 1971) of considerable structural complexity.

The interscale correlations for the Shared Problem-Solving Inventory evidenced stronger relationships between the problem-solving and supportive

communication scales than was expected. "Contact" problem-solving, "contact" supportive communication, and "money" supportive communication, which taken together represent both "contact" and supportive communication, were most strongly interrelated suggesting that the content of the issue and the skill shared common variance. "Money" problem-solving, although marginally related to "money" supportive communication and "contact" supportive communication, seemed an independent skill.

Only the "contact" issue scales were significantly correlated with Marital Conventionalization (social desirability). This finding potentially reduces the discriminant validity of those scales (Campbell & Fiske, 1967). However, they are less contaminated by social desirability than the Marital Adjustment Test which correlated .60 ( $p < .01$ ) with this factor. The range of correlations (.09 - .40) compares favourably with those found by Jackson (1970) (.10 - .40) for his Personality Research Form which was developed using more elaborate controls for social desirability. In this present research, the care taken to avoid extremes of social desirability at the item writing stage may account for these results.

The Marital Adjustment Test was related to both "contact" scales, and "money" supportive communication. "Money" problem-solving contrary to expectations, failed to correlate significantly with satisfaction. Possibly the limited number of subjects (10) scoring below 100 on the Marital Adjustment Test (distressed criterion) restricted the range of satisfaction scores and generally decreased the chance of finding large relationships between the scales and marital satisfaction.

The Shared Problem-Solving Inventory scales were evaluated for the effects of order of presentation of the issues and sex of respondent. Neither variable showed significant results. Tentatively, either order may be used. The

null sex effect is similar with that found by Gottman (1979) for both the content and affect code frequencies on the CISS and also by Vincent et al. (1975) for MICS summary codes.

The simulated discussion rating indicated that subjects perceived an average of 60% of their response choices were somewhat close to what they might have said in a real situation. Considering that the nature of real issues and real statements could vary greatly across couples, this rating suggests a moderate match to the subject's own style and thus a reasonable simulation.

The question at the conclusion of this study was the direction to take as the next step in test development. Two main alternatives were considered: to attempt a revision of the Shared Problem-Solving Inventory at the item structure level; or, to move on to a validity investigation. The decision to be made required a review of several aspects of the inventory's performance. In spite of the small sample used in this study, the scale reliabilities were of moderate and acceptable size. The supportive communication scales were moderately related to each other and to marital satisfaction as expected.

Less certain conclusions could be drawn about the problem-solving scales. First, it appeared that "contact" problem-solving might have been contaminated with supportive communication since it correlated with both of those scales. Second, "money" and "contact" problem-solving were unrelated suggesting that one or both item sets may not have represented their designated construct. The other possibility was that problem-solving interacted with the simulated issue. Some of these questions were not answerable with the present data set.

Given that it would have been difficult to revise the problem-solving component of items without a clear set of change criteria, the decision was made to move on to a validation study in an attempt to better understand the problem-solving construct. The plan included: increasing the sample size and

cross-validating the patterns of relationships found in this study; adding an external criterion to determine if either of the Shared Problem-Solving Inventory problem-solving scales would show a relationship to it; and dividing the sample into contrast groups to further understand the scales' in terms of their relationship to marital distress.

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## CHAPTER III

### VALIDATION OF THE SHARED PROBLEM-SOLVING INVENTORY

#### Introduction

The central objective of this study was to investigate several aspects of validity pertinent to the Shared Problem-Solving Inventory. The Standards for Educational and Psychological Tests (APA, 1974) recommends that instruments be examined for content validity, criterion (concurrent/predictive) validity and construct validity so that confidence can be placed in test based inferences. Although these aspects of validity will be discussed separately, they are considered "interrelated operationally and logically" (APA, 1974). Contingent upon the finding of adequate validity, inferences regarding the Shared Problem-Solving Inventory constructs and other for the marital variables were also planned.

#### Content Validity

Content validity relates primarily to the early stages of test construction in which the performance domain is defined, the method of sampling items from the domain specified and the degree to which the items represent the total domain is established (APA, 1974; Cronbach & Meehl, 1955). The content validity of the test is evaluated by the thoroughness and the care by which these operations are carried out (APA, 1974). In study one, these operations included: defining the shared problem-solving specific categories of problem-solving and supportive communication on the basis of theory and previous research; writing items to systematically sample these constructs through the three stages of problem-solving; and writing items on two severe problem issues which represented the broad domain of potential marital issues.

Of these operations, the last one was least rigorous since the two issues used, out of the domain of all possible ones, may not have represented severe problem areas. The hypothesis in this present study was that this sample of couples would report the Shared Problem-Solving Inventory issues, "money" and "contact", as among the most severe in their relationship. This assumption was tested to further substantiate the basis for the selection of these issues.

#### Criterion Validity

The type of criterion validity most relevant to the Shared Problem-Solving Inventory is concurrent validity, which indicates the "extent to which the test may be used to estimate the individual's present standing on the criterion" (APA, 1974, p. 26). Since the Shared Problem-Solving Inventory was designed in part to substitute for observations made on actual couple interactions, a concurrent evaluation of a sample interaction seemed the most logical criterion for problem-solving and supportive communication skills. However, this interaction criterion was expected to be less than fully optimal for three reasons: First, couples would not necessarily discuss the same issues used in the Shared Problem-Solving Inventory. Second, all stages of problem-solving would not necessarily be covered, especially if the selected issue had been discussed prior to the interaction sampling. Finally, whereas the Shared Problem-Solving Inventory presents the challenge of responding to off-task problem-solving and low supportive communication stimuli, some spouses, especially the nondistressed ones, might not provide each other with such stimuli.

A second criterion source, although not strictly an independent one, was the separate evaluations of problem-solving and supportive communication skills using the two issues of "money" and "contact". From the findings in chapter II, it was predicted that "money" supportive communication would correlate positively with "contact" supportive communication. Since the problem-solving



scales did not correlate significantly in the previous study, no prediction regarding them was made. In summary, the study investigated the pattern of correlations across each issue and the interaction criterion as well as across the two issues.

The two skills of problem-solving and supportive communication and the three methods ("money" issue, "contact" issue and interaction sample) by which they were assessed suggested that a convenient system to evaluate the criterion validity of the Shared Problem-Solving Inventory would be the multitrait-(in this context, multiskill) multimethod matrix procedure (Campbell & Fiske, 1959). This procedure permits an evaluation of the inventory's convergent validity, i.e. the correlation of independent measurements of the same skill, and discriminant validity, i.e. the extent a skill correlates with other skills from which they were intended to differ (high correlations means poor discriminant validity). Both forms of validity are based on concurrent measurements, but by separately examining convergent and discriminant validity, the multiskill-multimethod matrix permits a more rigorous validity evaluation for the instrument than correlation with a single criterion. The convergent and discriminant validity of a measure has implications for confidence in and distinctiveness of the constructs underlying the patterns of test scores and thus bears also on construct validity (discussed in the next section).

Along with the two revised constructs, the Shared Problem-Solving Inventory introduced a new sequential testing method which required evaluation. This step was also accomplished with the multiskill-multimethod procedure. Since different test methods were employed, the procedure can be used to determine if "the systematic variance among the test scores . . . [is] due to responses to the measurement features as well as responses to the . . . [skill] content" (Campbell & Fisk, 1959, p. 81).

### Construct Validity

The Shared Problem-Solving Inventory was developed following, in part, the construct approach to test construction (Loevinger, 1957; Jackson, 1970). The inventory's two constructs, problem-solving and supportive communication, were each treated as a "postulated attribute of people, assumed to be reflected in test performance" (Cronbach & Meehl, 1955, p. 60). As argued in the general introduction, these two skills were believed to be central to marital shared problem-solving and to be contributing factors to the level of satisfaction in a marriage. If two groups of individuals differing in marital satisfaction were also found to differ in problem-solving and supportive communication, then according to Cronbach and Meehl (1955) and the Standards (APA, 1974), the Shared Problem-Solving Inventory would have shown one link in the potential network of expected relationships and thus provided initial evidence for its construct validity. To examine this aspect of construct validity, married subjects were divided into distressed and nondistressed groups by marital satisfaction and their differential performance on the Shared Problem-Solving Inventory was examined.

Finally, the "inter-item structure" or homogeneity is an indication of the internal consistency of the scale and assures that the "scale measures 'something'" (Wiggins, 1973). However, the degree of internal consistency need not be overly high for all substantive domains especially if the construct includes a broad range of elements (Cronbach & Meehl, 1955; Loevinger, 1957; Wiggins, 1973). To determine the stability of the internal consistency results from study one, study two re-evaluated alpha for each of the scales.

## Method

### Subjects

At this stage of test development, the plan was to examine the response to the Shared Problem-Solving Inventory by a group of subjects who varied across a full range of marital satisfaction. However, since a second purpose of this validation study was to compare the responses of distressed and nondistressed subjects' individual scores on the various instruments, a two step sampling procedure was required. Two initial groups were formed from those couples responding to an advertisement requesting participants for a marital study. If both spouses scored 100 or above on the Marital Adjustment Test (Locke & Wallace, 1959) they were both temporarily classified as nondistressed couples. If one spouse scored 99 or less, that couple was temporarily classified as distressed. Sampling continued until each group contained twenty one couples each. To obtain the final comparison groups, all subjects who scored 99 or below on the Marital Adjustment Test (N= 32) formed the distressed individual group. Subjects who were in the original nondistressed couple group and who scored 120 or greater formed the equal sized nondistressed individual group (N= 32). Since the contrast groups were planned to be formed only on the basis of level of satisfaction and not clinical status (e.g. seeking marital therapy), no further screening criteria were used. The full sample of 84 subjects was used in all analyses which did not involve the contrast groups.

All subjects signed a consent form and filled out a demographic information sheet. Subjects received a five dollar subject fee at the end of the testing session.

The means of the demographic variables for the full sample were: age, 31.9 (SD= 7.46); years of education, 14.3 (SD= 2.66); years married, 7.46 (SD= 5.87);

number of children, 1.7 ( $SD = .98$ ). Husbands and wives did not differ on age,  $t(81) = .14$ , N.S., or years of education,  $t(82) = 1.96$ , N.S.

The mean Marital Adjustment Test score for the distressed group ( $M = 71.44$ ,  $SD = 20.51$ ) and the nondistressed group ( $M = 134.84$ ,  $SD = 9.44$ ) differed significantly as expected,  $t(62) = -15.89$ ,  $p < .0001$ . These contrast groups did not differ on age,  $t(61) = -.48$ , N.S., years married,  $t(62) = 1.78$ , N.S., or number of children,  $t(62) = .39$ , N.S.. The nondistressed group had a higher educational level ( $M = 14.5$  years) than the distressed group ( $M = 13.25$  years),  $t(62) = -2.00$ ,  $p = .05$ .

#### Procedure

All couples completed the following battery of test instruments and one sample interaction either in their own or the researcher's home. One session was required and testing time ranged from one and a half to two hours.

Shared Problem-Solving Inventory. This instrument was similar to that described in chapter two with the exception that four "money" issue items and six "contact" issue items were eliminated from the booklet and audio tape on the basis of the item selection strategy reported in chapter II. Even with these items removed the simulated discussions did not seem impaired. During the debriefing session, subjects indicated no more difficulty with the conversation flow than with the earlier version of the inventory.

Marital Adjustment Test. This test was identical to that used in the first study (chapter one) and is described in full there. It was included as a criterion to form the distressed and nondistressed contrast groups and as a global measure of marital satisfaction.

Areas of Change Questionnaire. The perceived level of problems in the relationship was determined by utilizing one component of the Areas of Change Questionnaire (Weiss, Hops, & Patterson, 1973). Originally designed to pinpoint conflict sources in a marriage, this test inquires about, first, the change desired

in the spouse's behavior and, second, the change in the respondent's behavior that the respondent believes the spouse wishes. Conflict was scored by tallying the agreements and disagreements for desired and perceived change. The Area of Change Questionnaire has discriminated distressed and nondistressed couples (Birchler & Webb, 1971) and has been shown to correlate strongly with the Marital Adjustment Test ( $r = .70$ ) (Weiss, Hops, & Patterson, 1973). In this present study, only the first half of the assessment, the subject's desired change in the spouse's behavior, was performed in order to reduce testing time. The interpretation was that the more change the subject desired, the more there were unresolved problems in the relationship.

The modified Areas of Change Questionnaire (Appendix H) asked each subject to indicate if he/she would want the spouse to increase or decrease specific behaviors (eg. "spend more time keeping the house clean") on a seven point Likert scales ranging from much less (-3) to no change (0) to much more (+3). Since the amount of change desired was taken to define the problem level, the absolute value of each item was summed to a total score. It was expected that the modified test would demonstrate psychometric properties similar to the original test. This assumption was tested by determining the instrument's homogeneity and its relationship to the Marital Adjustment Test.

Interaction Sample. An evaluation of one aspect of the criterion validity of the Shared Problem-Solving Inventory required a comparison of the scores on the inventory to non-test behavior (Jackson, 1970; Loevinger, 1957). One approach to this problem in marital interaction research is the use of behavioral samples of couples' problem-solving discussions (Weiss & Margolin, 1977). Generally, couples are asked to discuss a severe problem in their relationship for a brief period of time. The discussion is recorded and later rated or coded.

To control for the possible influence of the topic on the discussion and thus on the comparison of the ratings with the Shared Problem-Solving Inventory, it was planned to attempt to have equal numbers of couples discuss three areas, money, communication and other topics. Thus in preparation for testing a couple, the researcher selected one of the three topic areas to be discussed. Initially, the selection was on a random basis and then, toward the end of data collection, the topic area was chosen so as to produce equal numbers of couples in each topic area. In all cases, the topic the couple discussed met the severity criterion which is outlined in the following paragraph.

As a first step in obtaining the interaction sampling, an index of a couple's problems was obtained by having each subject complete the Couples' Problem Checklist (Gottman, 1979) (Appendix I). This test is a list of ten common potential problem topics (eg. children, money, jealousy) which are rated on a severity scale from one to ten. The checklists were examined to see if the pre-selected topic was among the severe problems in common for each spouse. If so and the couple was agreeable, the topic was discussed. If the topic was not among the most severe or if the couple was not agreeable, another severe topic was selected. The couples were asked to discuss the problem for ten minutes and attempt to resolve it. No coaching was given to narrow the topic or focus the discussion. The couple was left alone and the discussion recorded using lavolier microphones and Sony TC 67 cassette recorder. Using this procedure, seven couples discussed money, seven communication, and seven other topics in each contrast group.

#### Interaction Rating

Rating Format. The interaction rating system was developed from the same constructs that form the basis of the Shared Problem-Solving Inventory.

Problem-solving was rated using a seven point Likert scale ranging from 1 (very frequently off-task) to 4 (sometimes off-task) to 7 (very frequently on-task). As a reminder to the raters, the major categories of off-task and on-task behavior (see Table 3) were listed at the appropriate extremes of the scale. Supportive communication was rated using a seven point Likert scale ranging from 1 (very frequently low value) to 4 (sometimes low/high, sometimes neutral) to 7 (very frequently high value). The end points of the scale were illustrated with the seven low and seven high valuing categories of supportive communication. Each rating form contained both sets of scales for husband and wife. (See Appendix J for rating form.)

Rater Training. Three raters who were very familiar with the Shared Problem-Solving Inventory categories received three hours of training involving: review of the problem-solving and supportive communication categories; discussion of general guidelines for rating (eg. ignore voice tone); and rating of six ten minute couple discussions (obtained in a pilot study). Raters listened to a tape once and then rated problem-solving and supportive communication for husband and wife.

Since the supportive communication and especially problem-solving were considerably complex and difficult processes to rate, agreement between any two pair of raters was pre-defined as no more than one rating point apart. For each rating, three sets of agreements were obtained by taking the raters in pairs. The overall percentage agreement was calculated by the ratio of number of (agreements/ number of agreements + number of disagreements) x 100. The average percentage agreement over the six training tapes was 92.6%. As recommended by Hartmann (1977), the minimum level of agreement for the experimental tapes was set at 80%.

Rating Procedure. Raters were provided with a complete set of audio tapes for all 42 discussions and were blind as to couple classification as distressed or nondistressed. After they listened to each discussion they were asked to make independent ratings for husband and wife on the problem-solving and supportive communication scales. Inherent with this procedure was the potential of spuriously decreasing the independence of husband and wife ratings. However, if the discussions had been sequentially rated for each spouse, the spouse rated second would have, in effect, been heard twice since it was not possible to listen to only one spouse at a time. As a partial control for this methodological problem, raters, while listening, were encouraged to check the behavior categories illustrating the end points of the scales. This approach provided a partial tally of each spouse's separate performance as a preparation for the rating.

As a check on observer drift (Kazdin, 1977), the percentage agreement was calculated after 10 and 25 discussions. All ratings remained above 80% with exception of the problem-solving rating which dropped to 73% at the 25th discussion mark. Re-clarification of the categories was made and the rating continued. Percentage agreement for the 42 discussions for problem-solving was 80.1% and for supportive communication, 90.5%.

Final ratings were formed by averaging across raters.

#### Data Analyses

In order to provide a basis for comparison with the first study's results, identical scale and item statistics were performed on the Shared Problem-Solving Inventory scales. These analyses were extended to include the interaction ratings and the marital problem tests. The Shared Problem-Solving Inventory scales and the interaction ratings were intercorrelated and their relationships examined by multiskill-multimethod analysis. The results of this



analysis suggested that an exploration using partial correlation might clarify the interpretation. To evaluate construct validity, contrast groups (high and low on the Marital Adjustment Test) were formed and their performance on the Shared Problem-Solving Inventory and other scales compared. Finally, the effects of sex of respondent, order of presentation of the issues, and discussion topic were tested.

## Results

### Scale Properties of the Measures

For the Shared Problem-Solving Inventory, interaction ratings and marital problem questionnaires, means, standard deviations, item statistics and internal consistencies were calculated (Specht, 1976). These results are presented in Table 10. As in the first study, the Shared Problem-Solving Inventory means were skewed negatively but again allowed at least 2.6 standard deviation units of ceiling. For "money" problem-solving, the mean item-total correlations and alphas dropped from .20 and .64 (study one) to .13 and .49 (study two). This alpha level is within the range often found for achievement tests and is adequate for group decisions (Dick & Hagerty, 1971). The remaining scales showed mean item-total correlations and alphas that increased over those of study one.

The interaction rating means were formed by averaging across the three raters. Each rater could then be treated as an item and thus the coefficient of generalization (alpha) was for the facet of raters (Cronbach, Gleser, Nanda, Rajaratnam, 1972; Specht, 1976; Winer, 1967). Means for both ratings fell just below the mid-point and allowed a minimum of two standard deviations above and below the mean. Both mean item-total correlations and alphas were quite

Table 10  
Scale and Item Statistics for Shared Problem-Solving Inventory  
Interaction Scales and Marital Problem Tests

Scale	Mean	SD	N of Items	Mean Item Total Correlation <sup>a</sup>	Range Item Total Correlation	Alpha
"Money" Problem-Solving	48.93	3.39	30	.13	(-.08)-(.36)	.49
"Money" Supportive Communication	63.86	10.01	30	.37	(.11)-(.59)	.85
"Contact" Problem-Solving	41.47	4.08	26	.24	(-.10)-(.62)	.69
"Contact" Supportive Communication	60.57	7.47	27	.28	(-.09)-(.60)	.76
Interaction Problem-Solving	3.71	1.30	3	.73	(.65)-(.79)	.86
Interaction Supportive Communication	3.86	1.24	3	.80	(.78)-(.84)	.90
Areas of Change Questionnaire	18.14	13.27	30	.47	(.11)-(.66)	.91
Couples' Problem Checklist	24.55	21.09	10	.65	(.53)-(.76)	.90

Note. See Appendix L, Tables A and B ANOVA results for reliability.

<sup>a</sup> Correlations were converted to z scores, averaged and re-converted to average correlations. (Ferguson, 1966)

high with interaction problem-solving being slightly lower. Husbands' and wives' ratings were intercorrelated and showed moderate relationships for both problem-solving ( $r = .52, p < .001$ ) and supportive communication ( $r = .57, p < .001$ ).

The means for the two marital problem tests, the Areas of Change Questionnaire and Couples' Problem Checklist (see Table 10), were very positively skewed meaning that, on the average, subjects did not admit to wanting much change from the spouse or to having many severe problems. Both the mean item-total correlations and alphas were very high indicating a high internal consistency. As expected, these tests correlated quite highly with marital satisfaction (Marital Adjustment Test): Areas of Change Questionnaire,  $r = -.77 (p < .001)$ ; Couples' Problem Checklist,  $r = -.64 (p < .001)$ .

In study one, the Shared Problem-Solving Inventory item response frequencies were examined under the criterion limits of 5% and 95%. That analysis was repeated on this sample and no item exceeded the limits of  $.05 \leq p < .95$ .

#### Relationship of the Shared Problem-Solving Inventory and Interaction Scales to Demographic and Marital Variables

Correlations were calculated for the four Shared Problem-Solving Inventory and two interaction scales with selected demographic variables, the Marital Adjustment Test, Areas of Change Questionnaire and Couples' Problem Checklist. The results, presented in Table 11, show that only one scale, "contact" problem-solving, correlated significantly with one demographic variable, age ( $r = .25, p < .05$ ). Thus the scales were generally independent of the demographic variables.

Examining the scales' relationship to the marital tests, "money" problem-solving and interaction problem-solving did not show any significant

Table 11  
 Correlation of Shared Problem-Solving Inventory and Interaction Scales  
 With Demographic and Marital Variables

Demographic and Marital Variables	Shared Problem-Solving Inventory			Interaction Rating		
	"Money" Problem-Solving	"Money" Supportive Communication	"Contact" Problem-Solving	"Contact" Supportive Communication	Interaction Problem-Solving	Interaction Supportive Communication
Age	.06	.17	.25*	.12	.00	.20
Sex	-.11	-.17	-.18	-.10	.19	-.10
Education	.13	.10	-.16	.07	.14	.12
Years Married	.12	.02	.05	-.01	.11	.15
Number of Children	-.04	.04	-.02	-.08	.10	.05
Marital Adjustment	.14	.36***	.34**	.49***	.03	.31**
Areas of Change	.11	-.38**	-.31*	-.42**	-.14	-.34*
Problem Checklist	.03	-.29	-.22	-.30	-.04	-.27

\*  $p < .05$

\*\*  $p < .01$

\*\*\*  $p < .001$

correlations. "Contact" problem-solving was positively related to the Marital Adjustment Test and negatively to the Areas of Change Questionnaire and Couples' Problem Checklist. The higher the problem-solving score on the "contact" issue, the higher the satisfaction and the lower the overall problem severity in the relationship. Similarly, supportive communication as measured by the "money" and "contact" issues and interaction scales were positively related to satisfaction and negatively to the problem scales.

#### Content Validity

Based on previous research (Birchler, 1980; Gottman, 1979) the Shared Problem-Solving Inventory employed two issues reported as most severe by couples. An examination of the Couples Problem Checklist revealed that, for the total sample, the means for these problems were money, 3.68 ( $SD= 3.44$ ) and communication, 3.68 ( $SD= 3.44$ ) and were the highest among the ten areas rated. For the distressed group, the same two areas ranked highest, communication, 6.19 ( $SD= 3.10$ ), money, 5.75 ( $SD= 3.54$ ). For the nondistressed group, the means in highest order were: money, 1.97 ( $SD= 2.74$ ); inlaws, 1.72 ( $SD= 2.16$ ); sex, 1.41 ( $SD= 1.92$ ); communication, 1.22 ( $SD= 2.27$ ). (See Appendix N for complete results for all groups.) Considering the whole sample, the Shared Problem-Solving Inventory issues of "money" and "contact" (communication) represented the most severe problem areas. This result held for the distressed group but varied slightly for the nondistressed group.

#### Criterion Validity

The main independent criteria were obtained from the method of rating problem-solving and supportive communication in the ten minute interaction. In addition, since the Shared Problem-Solving Inventory employed two issues for the simulated discussions, each issue provided a criterion for the other.

The multiskill-multimethod matrix of the intercorrelations of the Shared Problem-Solving Inventory and the interaction scales is presented in Table 12. The top most diagonal of bracketed values contains the reliabilities (alphas) for each scale and are identical to those presented in the first section of the results and will not be discussed further. The remainder of the values pertain to convergent and discriminant validity and are discussed under separate headings.

Convergent Validity. Convergent validity is given by the diagonals containing the coefficients in bold print. These coefficients reflect the extent to which the same skill is predictable by different methods (Wiggins, 1973). Within the Shared Problem-Solving Inventory, the "money" and "contact" issues demonstrated moderate convergent validity for problem-solving and high for supportive communication. Between the "money" issue and the interaction scales, the convergent validity coefficients were low for problem-solving and supportive communication. Between the "contact" issue and the interaction scales the problem-solving coefficient was not significant and the supportive communication coefficient was significant at a moderate level. Generally the validity coefficients were reasonable except for "contact" problem-solving which failed to correlate with the independent criterion.

Discriminant Validity. The matrix (Table 12) permits the evaluation of two kinds of discriminant validity (a third type would be possible if more than two skills had been included). "The first kind represents a very minimal requirement although it is not always met in practice" (Wiggins, 1973, p.407). For this kind of discriminant validity, the convergent validity coefficients (monoskill, hetero method) should exceed the coefficient for different skills measured by different methods (heteroskill, heteromethod broken-line underscored entries). That is, the latter coefficient shares neither skill nor method in common and would not be expected to be as high as the validity coefficient based on the same skill

Table 12  
 Multiskill-Multimethod Analysis of Problem-Solving  
 and Supportive Communication Skills

Method	Skill	"Money"		"Contact"		Interaction	
		PS	SC	PS	SC	PS	SC
"Money"	PS	<b>(.49)</b>					
	SC	<u>.40</u>	<b>(.85)</b>				
"Contact"	PS	<u>.41</u>	<u>.74</u>	<b>(.69)</b>			
	SC	<u>.34</u>	<b>.79</b>	<u>.74</u>	<b>(.76)</b>		
Interaction	PS	<b>.32</b>	<u>.07<sup>ns</sup></u>	<u>.04<sup>ns</sup></u>	<u>.11<sup>ns</sup></u>	<b>(.86)</b>	
	SC	<u>.21<sup>ns</sup></u>	<b>.29</b>	<u>.27</u>	<b>.46</b>	<u>.45</u>	<b>(.90)</b>

Note. The reliability diagonal is in parentheses. The validity diagonals are the two sets of values printed in bold. Heteroskill-monomethod entries have solid-line underscoring. Heteroskill-heteromethod entries have broken-line underscoring. (Adapted from Campbell and Fiske, 1959)

Note. PS = problem-solving; SC = supportive communication.

<sup>ns</sup> These correlations were not significant ( $p > .05$ ). All other correlations were significant ( $p < .05$ ,  $N=84$ ).

measured by two methods. The following list extracts the relevant information from Table 12. Each discriminant validity comparison is checked against the expected outcome: (>) indicates the expected relationship; (\*) indicates the relationship is met; ( ) indicates the relationship is not met. For:

1. CPS by MPS, .41>.74 ( ); .41>.34 (\*),
2. CSC by MSC, .79>.74 (\*), .79>.34 (\*),
3. IPS by MPS, .32>.07 (\*), .32>.21 (\*),
4. ISC by MSC, .29>.07 (\*), .29>.21 (\*),
5. IPS by CPS, .04>.11 ( ), .04>.27 ( ),
6. ISC by CSC, .46>.11 (\*), .46>.11 (\*).

Although the differences in the relationships were not always large, generally they were in the predicted direction. The notable exception was "contact" problem-solving that correlated more highly with "money" supportive communication than with "money" problem-solving (line 1.) and that, because it didn't correlate with interaction problem-solving, gave a poor performance in line 5.

Wiggins (1973) views the second kind of discriminant validity as relevant to construct validity and the problem of method variance contamination. This more stringent kind of discriminant validity requires that the correlations between variables measuring the same skill (convergent coefficients) exceed correlations between different skills which are measured by the same method (heteroskill, monomethod solid-line underscored entries). To the extent this condition is met, the convergent validity coefficients may be accepted as evidence for construct validity of a skill. "As the correlations between different . . . [skills] measured by the same method approach the corresponding convergent validity coefficients, we are dealing with method variance . . . . Although method



variance is to some extent unavoidable, clearcut evidence for construct validity requires a demonstration that construct . . . variance exceeds method variance in the situation under consideration" (Wiggins, 1973, p. 408-409).

The following list extracts the relevant coefficients from Table 12. Each discriminant validity comparison is checked against the expected outcome and (>) indicates the expected relationship; (\*) indicates the relationship is met; ( ) indicates the relationship is not met. For:

1. CPS by MPS, .41>.40 (\*); .41>.74 ( ),
2. CSC by MSC, .79>.40 (\*); .79>.74 (\*),
3. IPS by MPS, .32>.40 ( ); .32>.45 ( ),
4. ISC by MSC, .29>.40 ( ); .29>.45 ( ),
5. IPS by CPS, .04>.74 ( ); .04>.45 ( ),
6. ISC by CSC, .46>.74 ( ); .46>.45 (\*).

An examination of the six sets of relationships reveals only the "contact" supportive communication by "money" supportive communication discriminant validity coefficients successfully pass this hurdle. Partial success was achieved for "contact" problem-solving by "money" problem-solving and interaction supportive communication by "contact" supportive communication. While the remainder of the results did not meet expectations, Humphreys (cited in Wiggins, 1973) notes that this kind of discriminant validity is an ideal one and it may be inappropriate to apply it too rigidly. Several speculations bearing on these results can be raised. First, larger convergent validity values would have increased the number of discriminant validity findings. However these were still within the range found in many personality tests (Wiggins, 1973). Second, the high values of the heteroskill-monomethod solid triangles reduced the discriminant validity. These high values could result from either method

variance contamination or from too strong a relationship between the problem-solving and supportive communication constructs which were originally hypothesized as independent. The relative contribution of these two explanations is hard to assess, however the latter one can be explored by means of partial correlations. The high correlation of "contact" problem-solving with "contact" and "money" supportive communication suggested that "contact" problem-solving might have been especially contaminated by supportive communication. To a lesser extent this possibility was also expected for "money" problem-solving.

In an attempt to test these explanations, supportive communication was partialled out of the problem-solving variables and problem-solving partialled out of the supportive communication variables (Mac Nemar, 1969; Nie, Hull, Jenkins, Steinbrenner, Bent, 1975). In order to determine if any changes in the shared problem-solving skills as a result of partialing procedure would be consistently reflected in the marital measures, the Marital Adjustment Test and the Areas of Change Questionnaire were included in the analyses.

Table 13 presents the results of the partial correlation analyses and gives both the zero-order and partial coefficients for each comparison. For "money" problem-solving, removal of "money" supportive communication reduced the correlation with both "contact" issue scales to nonsignificant values. "Money" problem-solving's relationship to interaction problem-solving was unaltered but its correlations with marital measures was reversed so that high "money" problem-solving was associated with low satisfaction and high desired change in spouse. For "contact" problem-solving, removal of "contact" supportive communication drastically dropped the correlations with "money" problem-solving and supportive communication and reduced the coefficient with interaction supportive communication to nonsignificance. "Contact" problem-solving's

Table 13  
Zero-Order and Partial Correlations for Shared Problem-Solving Inventory  
Interaction Scales and Marital Measures

Scale	"Money"		"Contact"		Interaction Rating			Marital Test	
	PS	SC	PS	SC	PS	SC	MAT	ACQ	
"Money"									
PS (zero)	---	.40***	.41***	.35**	.32**	.21	-.14**	.11**	
PS (SC)	---	---	.19	.04	.32	.10	-.34	.31	
"Contact"									
PS (zero)	.41***	.74***	---	.74***	.04	.27*	.34**	.31**	
PS (SC)	.26	.39	---	---	-.05	.12	-.04	.00	
"Money"									
SC (zero)	.40***	---	.74***	.79***	.07	.29*	.36***	.38***	
SC (PS)	---	---	.69	.75	-.06	.23	.46	.46	
"Contact"									
SC (zero)	.34**	.79***	.74***	---	.11	.46***	.49***	.42**	
SC (PS)	.06	.53	---	---	.11	.40	.37	.30	
Interaction									
PS (zero)	.32**	.07	.04	.11	---	.45***	.03	.02	
PS (SC)	.26	-.06	-.09	-.13	---	---	-.13	.16	
Interaction									
SC (zero)	.21*	.29**	.27**	.46***	.45***	---	.31**	.25**	
SC (PS)	.07	.28	.28	.46	---	---	.33	.29	

NOTE: PS = problem-solving; SC = supportive communication; MAT = Marital Adjustment Test; ACQ = Areas of Change Questionnaire.

Note: (Zero) indicates the row contains zero-order correlation coefficients. Brackets labelling other rows indicate that the bracketed variable has been partialled out of the zero-order coefficient.

\* p < .05;

\*\* p < .01;

\*\*\* p < .001.

significant zero-order relationships with the marital measures dropped to near zero when "contact" supportive communication was partialled out. For "money" supportive communication, removal of "money" problem-solving had little effect except to augment its correlation with the marital measures. Removal of "contact" problem-solving from "contact" supportive communication dropped its correlation with "money" problem-solving to near zero and somewhat reduced its relationship to the other variables. For interaction problem-solving, removal of interaction supportive communication slightly dropped the correlation with "money" problem-solving and had little effect on the other nonsignificant zero-order correlations. There was a trend with interaction problem-solving and the marital variables that was similar to that found for "money" problem-solving, that is, higher problem-solving associated with poorer marital scores. For interaction supportive communication, removal of interaction problem-solving had little effect. This result was similar to the supportive communication scales of the Shared Problem-Solving Inventory. The findings of the partial correlation analysis suggest that supportive communication is the skill most stably and directly related to the marital measures.

In summary, the results of this criterion validity analysis suggest that "money" problem-solving, "money" supportive communication, and "contact" supportive communication have reasonable criterion validity and that the supportive communication measures are most strongly related to the marital measures. "Contact" problem-solving seems heavily saturated with supportive communication variance which explains its relationship with "money" supportive communication and "contact" supportive communication and the marital measures. The supportive communication contamination appears to have reduced the the discriminant validity of the problem-solving scales.

### Construct Validity

The construct validity of the Shared Problem Solving Inventory was evaluated by examining its scale homogeneity and performance with contrast groups. Since the inventory scales and interaction scales were correlated, a preliminary step in the analysis was to perform a MANOVA (Cohen & Burns, 1977) to test for main effects and interactions using the independent variables, contrast group, sex, discussion topic and order of presentation of the inventory. This computer analysis did not function since the sample size limited some cell frequencies to unity. As an alternative, separate ANOVAs were performed for each of the six scales. None of the two-way or three-way interactions were significant at the .05 level and because of the low cell frequencies, no four-way test was generated. Given that significant interactions were not found in the data, a MANOVA was performed for each independent variable. Subsequently, when appropriate, separate univariate tests were performed.

Scale Homogeneity. Adequate inter-item structure adds some confidence to the original intention that the items form a scale measuring some variable consistently. As reported in the first section of the results, the Shared Problem-Solving Inventory scales demonstrated adequate internal consistency as given by their alpha levels. (See Table 10.)

Contrast Groups. Subjects assigned to the two contrast groups, that is, distressed and nondistressed in their marital relationship, were expected to differ in their problem-solving and supportive communication skills with nondistressed subjects showing greater skill levels. Since these skills were found to be intercorrelated, a MANOVA (Cohen & Burns, 1977) was performed for the two contrast groups on the four Shared Problem-Solving Inventory scales and the two interaction scales. A significant Pillais value of .3776 ( $F(6,57) = 5.76$ ,

$p < .0001$ ) indicated that univariate ANOVAs were permissible and the results are presented in Table 14.

Contrary to expectation, "money" and interaction problem-solving did not discriminate the contrast groups. Given that the groups were formed on the basis of Marital Adjustment Test and neither of these problem-solving variables correlated with it, these results are understandable. All other variables successfully differentiated the groups with "contact" and "money" supportive communication showing the most powerful effects. Again, supportive communication skill emerged as the construct most related to marital satisfaction, this time used as a contrast group criterion.

In the previous section it was reported that partialing supportive communication out of problem-solving led to marked changes in its relationship to other variables including marital satisfaction. As an extension of those findings, the contrast groups' scores on the three problem-solving scales were re-analyzed with an analysis of covariance (Nie et al., 1975) using the appropriate supportive communication covariate for each scale. Table 15 presents these results and compares them with those of the univariate ANOVA from Table 14. With "money" supportive communication covaried out of "money" problem-solving, distressed scored significantly higher than nondistressed subjects whereas with it included, no difference had been found. A similar trend was found for interaction problem-solving. "Contact" problem-solving originally discriminated the groups (ND>D) but with "contact" supportive communication covaried out, this effect disappeared. Thus with supportive communication covaried out of problem-solving, either the nondistressed group scored lower on problem-solving or no differently than the distressed group.

The analysis to this point has only focused on the response portion of the Shared Problem-Solving Inventory. The construct of shared problem-solving

Table 14  
 ANOVA Results for Shared Problem-Solving Inventory  
 and Interaction Ratings by Distress

Scale	Distress Mean	Nondistress Mean	Main Effect SS	Error SS	Error MS	F (1,62)	p
"Money" Problem-Solving	49.56	48.38	22.56	719.38	11.60	1.95	.178
"Contact" Problem-Solving	40.13	42.78	112.89	934.97	15.08	7.49	.018
"Money" Supportive Communication	60.31	68.28	1016.02	5047.34	81.41	12.48	.001
"Contact" Supportive Communication	57.00	64.30	937.89	2725.22	46.96	21.34	.001
Interaction Problem-Solving	3.72	3.64	.11	113.44	1.83	.06	.816
Interaction Supportive Communication	3.44	4.24	10.29	89.26	1.44	7.15	.019

Table 15

Summary of ANOVAs and ANCOVAs for Problem-Solving Scales

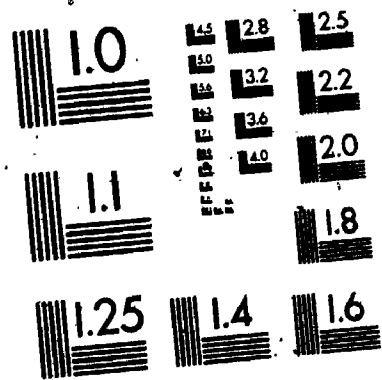
Scale	ANOVA			ANCOVA			
	Distress Mean	Nondistress Mean	F (1,62) p	Covariate	Distress Mean	Nondistress Mean	F (1,61) p
"Money" Problem-Solving	49.56	48.38	1.95 .178	SC	50.27	47.67	9.84 .003
"Contact" Problem-Solving	40.13	42.78	7.49 .018	SC	41.70	41.20	6.39 .037
Interaction Problem-solving	3.72	3.64	.06 .816	SC	3.94	3.42	2.84 .097

Note: SC = supportive communication.



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included the concept of a pattern of responses that might follow from different stimulus statements. To examine the differential effects of the stimulus statements, separate "money" problem-solving, "money" supportive communication, "contact" problem-solving, and "contact" supportive communication sub-scale scores were formed for each of the four stimulus categories on-task, off-task, neutral and low. The eight sub-scales by two levels of group were entered into a MANOVA (Cohen & Burns, 1977) which indicated a significant Pillais value of .4126 ( $F(8,55) = 4.83, p < .0002$ ). Eight univariate ANOVAs were performed for each relevant combination of stimulus and response type and the results appear in Table 16.

The on-task, off-task distinction resulted in little differentiation of the groups on problem-solving except for "money" problem-solving where the mean for the distressed group exceeded that of the nondistressed group when the stimulus was off-task. The nondistressed individuals tended to follow the "spouse" off-task. The supportive communication component of the stimulus produced much stronger results. When presented with a neutral stimulus, distressed individuals were less supportive in "money" supportive communication but not "contact" supportive communication. When the "spouse" gave a low stimulus statement, the distressed subjects often gave (reciprocated) a lower response than nondistressed subjects on both the "money" and "contact" issues. Thus the contrast groups were most powerfully discriminated when the stimulus "spouse" used off-task problem-solving or low supportive communication.

Finally, the power of the four inventory scales to differentiate the contrast groups was evaluated using step-wise discriminant function analysis with Wilks criterion (Nie et al., 1975). "Contact" supportive communication ( $\lambda = .744, p < .001$ ) and "money" problem-solving ( $\lambda = .647, p < .001$ ) enter the equation which correctly classified 79.9% of the cases.

Table 16

ANOVA Results for Shared Problem-Solving Inventory Sub-Scales

Grouped by Stimulus Type

Stimulus Type	Sub-Scale <sup>a</sup>	Distress Mean	Nondistress Mean	Main Effect SS	Error SS	Error MS	F (1,62)	P
On-Task	"Money" Problem-Solving(16)	23.56	23.47	.14	265.84	4.29	.03	.857
	"Contact" Problem-Solving(10)	16.75	16.38	2.25	309.50	4.99	.45	.504
Off-Task	"Money" Problem-Solving(13)	26.21	24.90	27.56	324.19	5.23	5.27	.025
	"Contact" Problem-Solving(16)	24.84	25.56	8.27	1276.09	20.58	.40	.529
Neutral	"Money" Supportive Communication(15)	34.13	36.97	129.39	1638.47	26.43	4.90	.031
	"Contact" Supportive Communication(13)	28.84	30.94	70.14	1166.09	18.81	3.73	.058
Low	"Money" Supportive Communication(14)	26.41	31.31	385.14	1624.59	26.20	14.70	.001
	"Contact" Supportive Communication(14)	29.50	33.72	284.77	1162.47	18.75	15.19	.001

<sup>a</sup> Number of items in brackets.

### Sex Effects

The four Shared Problem-Solving Inventory and the two interaction scales were analysed by a MANOVA (Cohen & Burns, 1977) with sex as the independent variable. A Pillais value of .1317 was not significant ( $F(6,77)=1.95$ ,  $p=.08$ ).

### Topic Effects

The effect of the discussion topics on the inventory and interaction scales was evaluated by first forming three groups of topics, money, communication and other with equal numbers of subjects in each. A MANOVA (Cohen & Burns, 1977) with topic (three levels) was performed on the six scales. A Pillais value of .1533 was not significant ( $F(12,124)=1.07$ ,  $p=.39$ ).

### Order of Presentation Effects

Possible effects of order of issue presentation were tested using a MANOVA (Cohen & Burns, 1977) on the Shared Problem-Solving Inventory and interaction scales with order (two levels: "money - contact"; "contact - money") as the independent variable. A Pillais value of .1797 was significant ( $F(6,77)=2.81$ ,  $p=.02$ ). Subsequently, six univariate ANOVAs were performed on the scales and the results are presented in Table 17. Consistent significant results were found for three scales, "money" problem-solving, "money" supportive communication, and "contact" problem-solving with a similar trend for "contact" supportive communication. The order "contact - money" always produced higher scores on all scales, or conversely, the "money - contact" order produced lower scores. Order had no effect on the interaction scales.

Table 17

ANOVA Results for Effect of Order of Presentation on  
The Shared Problem-Solving Inventory

Scale	M → C <sup>a</sup> Mean	C → M <sup>b</sup> Mean	Main Effect SS	Error SS	Error MS	F (1,82)	p
"Money" Problem-Solving	47.86	50.10	105.04	840.77	10.25	10.24	.002
"Money" Supportive Communication	60.89	66.86	91.89	1292.52	15.76	8.18	.005
"Contact" Problem-Solving	40.40	42.49	748.02	7495.54	91.41	5.83	.018
"Contact" Supportive Communication	58.95	61.93	176.95	4503.76	54.92	2.22	.076
Interaction Problem-Solving	3.67	3.76	.17	140.23	1.71	.10	.755
Interaction Supportive Communication	3.64	4.08	4.02	122.93	1.50	2.69	.105

a "Money" issue followed by "Contact" issue order.

b "Contact" issue followed by "Money" issue order.

## Discussion

This study was, in part, an attempt to cross-validate the Shared Problem-Solving Inventory with the first study reported in chapter two. The means of the scales were slightly lower in this study, an expected finding since a higher proportion of distressed subjects were involved. The four Shared Problem-Solving Inventory scales, again were almost totally unrelated to demographic variables. These results were paralleled by the interaction scales. Neither "money" nor interaction problem-solving were related to the marital satisfaction or problem measures whereas the supportive communication scales and "contact" problem-solving showed low to moderate relationships. Thus the Shared Problem-Solving Inventory scales performed in a similar fashion across the two samples of subjects indicating stability in the underlying constructs.

Husbands' and wives' interaction ratings were moderately correlated. This finding was likely a product of the concurrent rating procedure and the tendency for spouses to reciprocate verbal behaviors (Gottman, 1979).

The major purpose of the study was to evaluate the Shared Problem-Solving Inventory's content, criterion and construct validity. One assumption used to select the content of the issues for the Shared Problem-Solving Inventory was that "money" and "contact" were among those issues that subjects would report as the most severe problem areas. The results support this assumption and taken together with the item category judgements reported in chapter two, increase the confidence in the content validity of the instrument.

Criterion validity was critically examined by the multiskill - multimethod matrix's convergent and discriminant validity estimates. "Money" problem-solving showed moderate convergent validity with both "contact" problem-solving and the interaction criterion. "Contact" problem-solving was not related to

interaction problem-solving. "Money" and "contact" supportive communication were highly correlated to each other and each related to interaction supportive communication.

The first type of discriminant validity, in which convergent validity coefficients are expected to exceed the coefficients for different skills measured by different methods, was generally satisfactory except for "contact" problem-solving. The failure of this scale to meet the standard can be attributed to its high correlation with "money" supportive communication (different skill and method), its low relationship with "money" problem-solving and its nil relationship with interaction problem-solving (low convergent validity). The results for the second type of discriminant validity, (convergent validity coefficients should exceed correlations between different skills measured by the same method) were less satisfactory except for "money" and "contact" supportive communication. This outcome was perhaps due in part to method variance contamination within the Shared Problem-Solving Inventory or because problem-solving and supportive communication scales are more related than originally anticipated in the postulated constructs.

A series of partial correlation analyses suggested some answers to these questions. First, supportive communication seemed a contaminant in the problem-solving scales but not visa-versa. Second, the relationship of the problem-solving scales to the marital tests depended on the presence of supportive communication in those scales with a surprising difference in performance for each issue. Thus, an interaction between problem-solving and the issue was revealed when supportive communication was partialled out.

The pattern which emerged from the criterion validity analysis was paralleled in the results of the construct validity evaluation. When the distressed and nondistressed subjects were compared on the Shared

Problem-Solving Inventory and interaction scales, only the supportive communication scales and "contact" problem-solving discriminated the groups. However, with supportive communication covaried out of the problem-solving scales, distressed subjects scored higher on "money" problem-solving, tended to score higher on interaction problem-solving and were no longer differentiated by "contact" problem-solving. Thus, depending on which issue was simulated, problem-solving without supportive communication resulted in either no relationship to marital distress or increased distress. Supportive communication was crucial to marital satisfaction as predicted, but the role of problem-solving was somewhat obscure.

The performance of the contact groups under the different kinds of stimulus statements is also pertinent to construct validity. Generally it was found that distressed more than nondistressed subjects reciprocate negative interaction. It was expected that distressed subjects would likely score lower on supportive communication if the stimulus was low rather than neutral, lower on problem-solving when the stimulus was off-task rather than on-task. Although the "money" supportive communication difference for neutral stimuli was significant, the strongest findings were for "money" supportive communication and "contact" supportive communication under the low stimulus condition, that is, subjects tended to reciprocate lower supportive communication when the "spouse" was low. "Contact" problem-solving showed nonsignificant results for both on-task and off-task stimuli and "money" problem-solving discriminated the groups, as expected, only for off-task stimuli. The "money" problem-solving results were puzzling since it appeared that the nondistressed subjects, when presented with a "spouse" off-task statement, followed that "spouse" off-task in their response.



A tentative answer to this unexpected performance of "money" problem-solving came from a post hoc examination of the "money" problem-solving and "contact" problem-solving items that discriminated the contrast groups. (Groups were compared across all items by two-tailed t-tests. The response patterns of the groups on significant items were compared.) For the "money" issue, off-task stimuli often were a change of topic away from the money to some issue of concern to the "spouse". If a subject stayed on-task, he/she would try to bring the discussion back on topic to money and thus ignore the off-task stimulus concern. This behavior was more characteristic of distressed subjects. Nondistressed subjects tended to go off-task and stay with the "spouse's" concern thereby appearing more supportive than if they had stayed on-task. Recalling that "money" problem-solving was contaminated by supportive communication ( $r_{MPS, MSC} = .40$ ;  $r_{MPS, CSC} = .35$ ), it appears that the contamination counterbalanced and neutralized the low supportive variance of staying on-task.

The pattern for the "contact" issue was quite different. When the "spouse's" stimulus statement was on-task, the on-task response for those items that discriminated the contrast groups tended to support increased contact with the "spouse". When the stimulus was off-task, the on-task response brought the "spouse" back on-task by affirming the value of the relationship. In contrast, off-task responses seemed more distancing, avoiding, and occasionally blaming.

Thus the problem-solving construct, as it was defined in this project, may have interacted with the issue being simulated and the degree to which the content of the problem-solving responses are construed as supportive or distancing in the marital relationship.

The order of presentation of the Shared Problem-Solving Inventory issues, in contrast to the first study, had the effect of elevating three of the four

scores when the "contact" issue was presented first. A practice effect is ruled out since "contact" problem-solving was higher when the "contact" issue was presented first. A facilitation effect of experiencing the "contact" issue first (both of its scales contained high supportive communication) could explain the higher "money" supportive communication but not the higher "money" problem-solving score (since high "money" problem-solving was associated with lower supportive communication). No clear interpretation can be offered. The order effects suggest that future research employing the Shared Problem-Solving Inventory should continue to counter-balance the two issues or use them independently.

CHAPTER IV  
GENERAL DISCUSSION

The research project investigated marital shared problem-solving from the joint perspectives of the conceptualization and subsequent assessment of the component skills, problem-solving and supportive communication. The assessment instrument developed for the project, the Shared Problem-Solving Inventory, was evaluated for reliability and three types of validity. The analysis was extended to the exploration of inferences concerning the relationship between the component skills as well as their relationship to the issues in the simulated discussions.

The discussion considers: the characteristics of Shared Problem-Solving Inventory development, format, reliability, and validity; the implications for interaction theory; the Shared Problem-Solving Inventory's utility; the limitations of the project; and the implications for future research.

Test Development and Format

Development of the Shared Problem-Solving Inventory involved both applying a sequential test construction system, usually used for personality tests, to a skills measure and choosing a novel test format which simulated an interaction. Shared Problem-Solving Inventory constructs were clearly defined on the basis of marital interaction research and theory and items were generated from the definitions. Even though the test format limited the size of the original item pool, the characteristics of those items surviving empirical selection procedures were quite adequate. The four final scales showed reasonable cross-validation across two samples, suggesting some stability in the hypothesized constructs.

The performance of the Shared Problem-Solving Inventory offers some promise for the sequential conversational style as an alternative to the traditional structured test format using non-sequential items composed of descriptive content. The simulated interaction more closely parallels the non-test behavior of couple discussions and potentially increases external validity (Loevinger, 1957). By employing a sequential format, the Shared Problem-Solving Inventory accommodated problem-solving as a variable, the definition of which depended on the discussion stages and thus permitted it to have positive and negative valences. In addition, a full range of responses to a set of pre-defined stimuli could also be sampled. One concern was that this format, in which responses were economically doubled scored (problem-solving and supportive communication) could have led to method variance overlap in the scales. This problem may have been extant to some degree, but the scales did perform differentially, both in relationship to each other and the other measures.

In summary, a construct approach to test development and a novel test format was utilized to develop a measure of a process skill, shared problem-solving, the definition of which in fact required the adoption of a new sequential approach. Investigators of other process constructs may find this format worthy of further exploration in their own areas.

The validity results are briefly overviewed in the next section and the inferences concerning the theoretical implications are presented in the following section.

#### Shared Problem-Solving Inventory Validity

Adequate content validity for the Shared Problem-Solving Inventory was ensured by three procedures: First, the relevant shared problem-solving literature was searched and the categories of behaviors most consistently

related to the process were included in the construct definitions. Second, item content was accepted if it was reliably judged as representative of the category for which it was written. Third, the issues for the simulated discussions were selected to be representative of the most severe problem areas for couples in general. This basis for the choice of "money" and "contact" issues was confirmed by the second study.

The criterion validity evaluation produced different results for problem-solving and supportive communication. The supportive communication scales consistently showed more convergent and discriminant validity than the problem-solving scales. Both "money" and "contact" supportive communication, as expected, were strongly interrelated and moderately related to interaction, supportive communication and the marital measures. Although correlated with problem-solving, supportive communication was demonstrated to maintain these other relationships even with problem-solving partialled out.

On the other hand, the criterion validity of the problem-solving scales presented a more complex problem of interpretation. "Contact" problem-solving was not related to the interaction criterion but was related to the supportive communication scales and marital measures. "Money" problem-solving, while marginally correlated with the criterion, failed to show a relationship with the marital tests. These relationship patterns became unstable when supportive communication was partialled out of the problem-solving scales. Three possible reasons for the performance of the problem-solving scales are suggested. Scores on the interaction problem-solving scale depended on both spouses providing behavior appropriate to the three problem-solving stages. This performance measure was vulnerable to the difficulty of spouses accomplishing this task in a short ten minute interaction sample. The Shared Problem-Solving Inventory, which fully samples the three stages, and is more of a skill than a performance

measure, was thus less likely to show strong convergent validity with interaction problem-solving. Furthermore, the inventory presents off-task stimulus statements that may not have occurred in the discussion thus potentially reducing its relationship with the criterion. Second, contamination of "money" and "contact" problem-solving with supportive communication reduced their discriminant validity. Third, for "money" and "contact" problem-solving, the interpretation of on-task and off-task responses varied across the issue content, that is, there appeared to be an interaction between the problem-solving process and issue content.

The construct validity findings were similar to those in the criterion validity investigation. Both supportive communication scales were shown to markedly discriminate the contrast groups, especially when the stimulus was low in supportive communication. Distressed compared to nondistressed subjects responded with lower supportive communication when presented with a low valuing stimulus. This reciprocation of negatives by distressed subjects has also been found in sequential analyses of couples' interactions. Billings (1979) reported that distressed couples reciprocated more negative acts and escalated hostile communication as the conflict continued. Gottman (1979) found that reciprocation of non-verbal affect was more characteristic of distressed couples. The strong parallels between the structured Shared Problem-Solving Inventory and the interaction research supports the construct validity of the supportive communication scales. Clearly supportive communication has been demonstrated first, to have a consistently successful performance across the three types of validity, and second, to be a predictor of marital satisfaction, and finally, to show a pattern of discriminating distress levels in couples similar to previous interaction research.

For problem-solving, the construct validity evaluation produced mixed results. "Money" problem-solving did not discriminate the contrast groups until supportive communication was covaried out and "contact" problem-solving's discrimination of the groups disappeared with it removed. For the different stimulus statement levels (on-task, off-task), nondistressed as compared to distressed subjects tended to follow the stimulus "spouse" off-task on the "money" issue and demonstrated no difference on the "contact" issue. These results for problem-solving were contrary to the expected discrimination.

The less consistent performance of problem-solving weakens its validity as a separate construct especially when this performance depends on the presence of supportive communication or interaction with the content of the issue. However, these difficulties with problem-solving have heuristic value for marital interaction theory which is explored in the next section.

#### Theoretical Implications

The impetus for this project was derived from the problem of confounding in both the shared problem-solving theoretical constructs and the existing measurement devices. The challenge in developing the Shared Problem-Solving Inventory was to clearly define the basic constructs with positive and negative valences and to demonstrate the validity of the measure. Supportive communication was defined as a continuum of high to low valuing actions that could either facilitate or inhibit constructive exchange of information between spouses and could occur independently of any stage of a discussion. The supportive communication scales demonstrated high internal consistency and moderate to strong content, criterion and construct validity. The supportive communication construct as a facilitator in marital shared problem-solving can be "adopted" with some confidence (Cronbach & Meehl, 1955).

Additional support for this conclusion also comes from several sources. The interaction coding work of Koren et al. (1980) showed that responsiveness (high valuing) and criticism (low valuing) statements were predictors of both couples' satisfaction with the outcome of discussions and the attainment of resolutions to conflict. From another perspective, to the extent that supportive communication may be related to accompanying non-verbal behavior, Share's Problem-Solving Inventory results are similar to those provided by Gottman's (1979) distressed and nondistressed couples who could be most readily discriminated by their frequencies of neutral and negative affect. Furthermore, it can be speculated that the success of the Marital Interaction Coding System for evaluating response to marital therapy (cf. Jacobson, 1977; Patterson et al., 1975) or for discriminating distress contrast groups (cf. Margolin & Weiss, 1978; Vincent et al., 1975) can be explained by a high content of supportive communication codes in the summary codes.

The relatively strong association of the supportive communication and marital satisfaction can be explained by reference to Morton, Alexander, and Altmann's (1976) theorizing on the function of communication. They proposed that communication is a vehicle through which individuals define their relationship. While communications contain content messages (issues or topics) that may be manipulated by procedures such as problem-solving, they also contain relationship messages which pertain to the balance of influence between the individuals. The degree of consensus on the content messages is considered important for maintaining the relationship, but the consensus about the "definition of the relationship" is even more critical" (Morton et al., 1976, p. 107). The degree of consensus about the relationship is believed directly proportional to the degree of bonding between the individuals.



Building on the propositions of Morton and his colleagues, it may be argued that the major skill facilitating the process leading to consensus is supportive communication. Spousal conflict can be considered as a period of non-mutuality in which there is a lack of agreement in the balance of influence in the relationship (be it over the garbage or the expression of affection). Under this condition, spouses who use higher levels of supportive communication both display an offer of agreement (valuing, understanding) and, by reducing the level of threat to the spouse, invite a reciprocal offer of agreement that could lead to consensus and re-balance the influence in the relationship. To the extent that bonding in a marital relationship can be indexed by marital satisfaction, then the strong association of supportive communication and marital satisfaction can be viewed in the following sequence: supportive communication promotes consensus, which augments bonding and the accompanying satisfaction in the relationship. When distressed couples discuss content issues, they reciprocate low supportive communication, thus, splitting their attention between the content issue and the imbedded relationship issue. The degree of low valuing behavior may directly signal the level of bonding and satisfaction in the relationship and may be the real issue at the source of the conflict. In contrast, nondistressed couples gave Koren et al. (1980) the impression that in spite of holding opposing points of view, their main concern was their relationship. "They frequently disagreed with each other in conveying these viewpoints; nevertheless, they were careful to communicate explicitly or implicitly that the marital bond itself was not jeopardized by this disagreement. That such couples were more likely than distressed couples to resolve conflict and feel satisfied with whatever outcome was achieved suggests that attention to relationship issues is an important facet of conflict management" (p. 467).

In summary, interspersing a supportive communication message, that values the spouse and opens possibilities for agreement, into the content discussion enhances the satisfaction with the relationship, possibly increases the bonding, and facilitates the process for resolving the content issue.

Finally, the question may be raised, does every statement need high supportive communication? Stuart (1980) presents evidence suggesting that positive statements may reduce the level of social interaction and that a challenge to another's point of view may sustain interest in the conversation. It may be impossible, as he states, to determine the correct frequency of positives. For higher conflict situations, however, it is likely that the use of a broad range of positives, especially those showing support and understanding, may provide important assurance when the issue is very threatening.

While some confidence in the theoretical implications of supportive communication is possible, less certainty can be placed in conclusions for the second Shared Problem-Solving Inventory construct, problem-solving. It was defined as a set of actions that depended on three sequential stages of a discussion. By being on-task or off-task, these actions would either accomplish the stages or delay them. While the problem-solving scales demonstrated moderate to high internal consistency, the validity results differed markedly across the two issues. In the "contact" issue discussion, regardless of whether the "spouse" was on-task or off-task, the on-task responses that differentiated the contrast groups tended to affirm the desire for contact, whereas the off-task response suggested avoidance or increased distance. The on-task pattern was positively related to marital satisfaction and was more characteristic of nondistressed subjects. These results for the "contact" issue formed a congruent pattern such that: on-task responses affirmed a desire for contact with the spouse; "contact" problem-solving behavior was related directly

to supportive communication, i.e. valuing of the spouse; and both "contact" problem-solving and the supportive communication scales were related directly to marital satisfaction. In summary, contact, valuing and satisfaction formed a common theme.

When "money" was the simulated issue, the pattern was quite different. On-task responding tended to force the discussion back on to the impersonal money topic especially when the "spouse" was off-task. The "spouse's" off-topic concerns were, in effect, ignored. This pattern, when any residual supportive communication was statistically removed, was negatively related to marital satisfaction and was more characteristic of distressed subjects.

Given the disparate findings for "money" problem-solving and "contact" problem-solving, it is concluded that problem-solving, as defined for the Shared Problem-Solving Inventory, interacts with the content of the issue and remains confounded with supportive communication. Since no other investigations have used this same definition of problem-solving, linkage of these conclusions to other research is not possible. However, this initial conclusion recalls the confounding in the coding research and marital therapy studies as outlined in the general introduction.

When predictions about a construct, such as problem-solving, encounter negative evidence, Cronbach and Meehl (1955) offer three interpretations:

- 1) The test does not measure the construct variable.
- 2) The theoretical network which generated the hypothesis is incorrect.
- 3) The experimental design failed to test the hypothesis correctly. (p. 70).

The first interpretation may have some validity, yet the Shared Problem-Solving Inventory was carefully developed from clear definitions of the problem-solving construct. The third interpretation can be eliminated since the research used typical standard contrast groups to test the hypotheses. By

default, the second interpretation may offer the best explanation of the present findings.

The concept "theoretical network" as applied to problem-solving relates to the choice of categories of action in its definition and also to its expected relationship to supportive communication and the marital variables. Possibly other problem-solving categories such as implementation or evaluation or brainstorming may be more crucial than those selected. While this question may have some heuristic value for future instruments, the skills chosen were among those most often reported central to shared problem-solving in the theoretical, research, and marital therapy literature.

Another and more likely possibility is that problem-solving, as defined in this project, is not related to marital satisfaction independently of the issue content. Indications for this conclusion were found in the second study.

Assuming this possibility could be substantiated, future variations of the Shared Problem-Solving Inventory or new coding systems using this definition of problem-solving would be advised to modify the skill categories or codes to account for the meaning of the simulated or real statements in the issue context rather than just slotting them into process categories. To carry this concern further, it was argued in the previous section, on the theoretical implications for supportive communication, that surface issues will have varying degrees of imbedded relationship issues which directly (as in the "contact" issue) or indirectly (in the "money" issue) have special meaning to the spouses. Problem-solving statements that ignore or avoid the imbedded relationship issue may be perceived as low valuing, that is, as Stuart (1980) understands it, such statements are taken to mean rejection or disqualification "implying that the other does not exist or at least does not matter" (p. 216). Given this line of reasoning, the disparate results for "money" problem-solving and "contact"

problem-solving begin to make some sense. Perhaps the lack of attention by interaction researchers to a statement's relationship meaning in the context of an issue may be a problem of even greater magnitude than the confounding of the problem-solving and supportive communication constructs.

The importance of statement meaning can be taken several steps further when both problem-solving and supportive communication are considered together. The relationship of these two skills may not be as independent as originally hypothesized and, indeed, may be related in a complex manner that can only be accommodated in a revised model of shared problem-solving. In considering a revised model, two sets of conclusions bear directly on the content versus relationship issue distinction made earlier. The results with "money" problem-solving suggest that pushing ahead with problem-solving and ignoring the "spouse" side issue concerns was related to marital dissatisfaction. "Contact" problem-solving results suggest that, in a relationship issue, problem-solving which supports the contact in the relationship is related to satisfaction.

With these conclusions in mind, the rules for a new model of shared problem-solving in marriage are tentatively proposed. First, when the messages in the discussion have primarily non-relationship content, then, if one spouse goes off-task (off-topic or jumps stages), the other spouse should verbally note the change and follow off-task until the side issue is explored satisfactorily or there is agreement to postpone it. Such behavior would be congruent with recognizing the spousal concern and indirectly affirm the bond by staying together in the discussion. Second, when the messages in the discussion either directly or indirectly indicate the real issue is a relationship one with considerable emotional value, then the nature of the issue should be labelled as such and set as a first priority. Then, if the issue is overtly a relationship one,

the discussion should focus on it. If the issue is on another content area, then the discussion should branch away from that area until the relationship issue can be resolved or there is agreement to postpone it. By following these rules, spouses could affirm the first priority importance of maintaining contact with each other. To further accomplish this goal, high supportive communication should be used as a facilitator especially for high threat issues. A third problem-solving rule would apply to the spouse who branches off-task. This spouse should take the responsibility at some point for re-focussing the discussion back on-task rather than waiting for the other spouse to take this step. This action would move the shared problem-solving process along toward a solution and would save the other spouse the risk of being perceived as forcing the discussion back on task.

This model of shared problem-solving implies that a branching procedure would be necessary at times, that is, a spouse would branch off-task in order to fully stay with the other spouse rather than single-mindedly forging ahead on-task. Such a procedure entails a new variable that has been ignored or at least distorted in interaction research - time. The duration of real discussions on an issue can span the range of occurring once for less than a minute to occurring intermitantly over several years. Interaction samples of ten minutes or 30 Shared Problem-Solving Inventory items do not have much structural validity to this time dimension. A revised model of problem-solving that would encompass the possibility of a respondent branching off-task to follow the spouse would have to utilize a real or simulated discussion length greater than presently used. Conditions to initiate branching to stay with the spouse and to return on-task would have to be specified. Two of those conditions (rules) have been tentatively suggested in the revised model, however; the current level of

knowledge of marital shared problem-solving may be insufficient to confidently specify these conditions for use in a structured measurement instrument.

Although the purpose of the preceding discussion was to address the negative findings for problem-solving by providing a revised model, some explanation of how the original theoretical model may have been incorrect can also be suggested. A consideration of the origin of this construct can be used to explain how this circumstance may have resulted. The definition of problem-solving for this project was based on those categories of actions that were reported as pertinent to marital conflict resolution (refer to Table 2 for the taxonomy of actions). Marital researchers and therapists have mainly depended on the model of problem-solving employed by Goldfried and D'Zurilla (Goldfried & D'Zurilla, 1969; D'Zurilla & Goldfried, 1971). However, their model was developed to understand, assess, and treat individual problem-solving behavior which can proceed at the individual's own rate with prompts for moving through stages originating only from self-instruction. This model was not designed for shared problem-solving behavior in an intimate relationship context. It can be speculated that, in order to fit the multistage, individually based model of problem-solving into a marital context, marital researchers have had to incorporate the supportive communication elements, essential to an intimate relationship, into the problem-solving construct. Thus, the confounding of the problem-solving and supportive communication components may have been a byproduct of what may prove a model mis-fit. This present research project also was based on the same problem-solving construct but attempted to define it separately from supportive communication. The discrepancies in the results of the project have led to proposed revisions in the model which could provide the starting point for a reformulation of shared problem-solving in a marital context. However, as Cronbach and Meehl (1955) point out, a decision to accept

the alternative that the theory is incorrect entails the necessity of a full experimental re-evaluation of the revised theory.

#### Shared Problem-Solving Inventory Utility

The scale psychometrics and the theoretical implications are important to consider in the judgement of the Shared Problem-Solving Inventory utility. As a measure of supportive communication, the two issues have been demonstrated to show adequate reliability and validity. Theoretically, supportive communication as a communication of valuing can be understood as a method to reduce threat in a conflict situation and to reinforce spouse participation. To the extent supportive communication skill is employed, the relationship bond and accompanying satisfaction should be strengthened or at least maintained. Either of the Shared Problem-Solving Inventory issues could serve as good estimates of this skill and could be useful in diagnosing skill deficits. Since the two issues correlated highly on this skill (.79), they can be considered as near parallel tests and could be employed in pre-post test designs for evaluating marital skill related interventions. Given the effects of the order of presentation of the issues, it would be advisable to counterbalance the order.

A decision to measure problem-solving with the Shared Problem Solving Inventory must be for exploratory purposes only. Although the reliability of both issues is adequate, the convergent, discriminant, and construct validity are less certain. The "contact" issue's estimate of problem-solving to a great extent duplicates the results found for supportive communication but at least the latter measure follows the expected pattern of relationship with the marital variables. "Money" problem-solving is less useful since its scoring requires a removal of the supportive communication variance and, even then, its interpretation is a reversal of the original definition of on-task behavior. These mixed results have had considerable heuristic value for speculation on a revised theoretical model,



but for practical purposes, a confident assessment of problem-solving will have to await future developments.

In summary, the "contact" issue may be the most useful part of the Shared Problem-Solving Inventory which, in approximately 30 minutes of testing and two minutes of scoring time, will provide an estimate of supportive communication skill which is central to successful marital interaction. The "money" issue could be used as a supplemental measure of supportive communication.

#### Implications for Marital Therapy

The Shared Problem-Solving Inventory constructs were defined in terms of concrete verbal behaviors and thus the inventory results from this project can be used in support of existing strategies for shared problem-solving training in behavioral marital therapy programs. The "money" and "contact" supportive communication scales were strong discriminators of distressed and nondistressed subjects and, unlike Gottman's (1979) affect codes which also can provide this discrimination, are composed of more readily teachable verbal skills. Spouses with behavioral deficits in areas such as validate, acceptance of modification, reflection of feeling or reinforcement, or with behavioral excesses in areas such as insult, blame, mindread, or threaten will be experiencing low marital satisfaction. Clearly as a first step, therapist interventions that aim to reduce low valuing supportive communication between spouses and to replace it with at least neutral messages should, as Jacobson and Margolin (1979) suggest, provide some immediate relief. Subsequent training in some high valuing skills should augment satisfaction and, as Jacobson and Margolin (1979) emphasize, increase spousal collaboration in the therapeutic process. Most behavioral marital therapy programs follow this strategy to varying degrees (Birchler, 1979). With

threat reduced and support increased, some of the embedded, crucial relationship issues may surface and can become targets for negotiation.

Given that a therapist can bring about an improvement in supportive communication, couples may evidence adequate problem-solving skills without much further coaching. If not, deficits in specific problem-solving categories can be the target for improvement as long as actions such as returning on-topic do not reduce the level of contact for the couple. However, in permitting a spouse to continue off-topic, there remains the danger of side-tracking as a ploy to snare the other spouse in a one down position (Stuart, 1980). By keeping in mind the crucial question "does this move enhance or defeat contact?", the therapist can discriminate defensive moves from those that signal the crux of the relationship problems and decide to let the couple continue or to redirect them.

If couples are able to proceed in a supportive, on-task manner, the question becomes, do they need a contingency contract to supplement the shared problem-solving process. It has been proposed that the solutions to problems negotiated in this positive manner will be less likely to require formal behavioral contracts to ensure that the solutions are implemented. In making this proposal, Jacobson (1978) argues that:

If couples negotiate a solution to one of their problems efficiently, and with a high proportion of compromising, reinforcing interactional responses, the agreement is relatively likely to prove viable. On the other hand, an agreement which is reached subsequent to a good deal of acrimonious debate, threats, criticisms, and other aversive exchanges, is relatively unlikely to endure. (p. 30)

This proposal, in conjunction with the present findings suggests that if therapists emphasize problem-solving and especially supportive communication

skill training, couples may find that the relationship satisfaction will accrue and will suffice as a reinforcer of an agreement, obviating the need for a formal contract.

#### Limitations of the Project

The limitations of this project are considered under the three general areas: of test construction; reliability; and validation.

Advocates of the construct approach (Jackson, 1970; Loevinger, 1957), employed as the model in the construction of the Shared Problem-Solving Inventory, recommend that a large initial pool of items be generated so as to adequately represent the domain of interest. The sequential format of the Shared Problem-Solving Inventory imposed two restrictions on the possibility of following this recommendation. First, it was difficult to generate a large number of items without the problem of including trivial steps in the discussion. In fact, it was the confusing and irrelevant items that were eventually eliminated in the item analysis. Second, the small number of items meant that only a few of Jackson's (1970) empirical item selection steps could be used and consequently, the quality of some of the items remains a question. Thus the constructs measured by the instrument may evidence limited generalizability since the range of the items was restricted:

Similarly, there was a restriction in the number of simulated issues. Only two were used in order to meet a reasonable test time criterion. Although care was taken to ensure that the issues selected were commonly considered as severe, the generalization of the results to other issues remains undetermined. Given the difference in the problem-solving results on the "money" and "contact" issues, care would be required in extrapolating the present findings to issues such as "sex" and "in-laws" which might be expected to differ in the degree to which the couple's relationship is implicated.

Internal consistency of the Shared Problem-Solving Inventory scales as an estimate of reliability proved sufficient to warrant investigation of the instrument's validity. Test-retest reliability was not evaluated since the utility of the inventory was limited to one component of shared problem-solving, the supportive communication scales. If either of these scales were to be used in a pre-posttest design, a test-retest reliability estimate would be advisable especially since significant order of presentation effects were found for the two issues.

The main criterion validity variable, the interaction ratings, were adequate for supportive communication but not for problem-solving. As defined, the problem-solving interaction rating showed a positive relationship to "money" problem-solving and a nil one with "contact" problem-solving. Judgement of this skill resulted in lower agreement among the raters, a problem which likely reflects the complexity of sorting out the central issue of the interaction, demarcating the three problem-solving stages, and then judging the subject's performance fit with the model. Furthermore, the concurrent rating procedure may have spuriously augmented the correlation of the spouse ratings. Future rating procedures might control for this problem by requiring raters to listen to discussions twice, once for each spouse, but alternate which spouse is rated first. As a consequence of the project's rating procedure, inferences about the subject's problem-solving behavior in interactions, based on the Shared Problem-Solving Inventory had to remain only speculative.

Construct validity for the Shared Problem-Solving Inventory was evaluated for three of Cronbach and Meehl's (1955) recommended procedures. The fourth and important procedure, retest after an experimental intervention, was not carried out for this project, in part, because the magnitude such a step would

be beyond the limits of the project. However, it remains an essential future consideration.

#### Directions for Future Research

The construct approach to test development, which requires clear, unambiguous definitions of constructs, in part made possible the discovery of the interaction of problem-solving and the issue content. Previous measurement models of shared problem-solving (Couples' Interaction Scoring System, Marital Interaction Coding System) have tended to blur the distinctions between the components of problem-solving and supportive communication and have not specifically delineated the qualitative behavioral components of problem-solving. Thus, the opportunity to detect an interaction of issue content and problem-solving was limited. Using the results of the Shared Problem-Solving Inventory, it was possible to suggest a revised model of shared problem-solving, especially problem-solving, in which the distinction between on-task and off-task behavior would be determined as much by the requirement of maintaining contact and support between the spouses as by the need to resolve the content issue. This model underlines the goal of meeting the relationship needs and may be particularly pertinent to intimate as opposed to non-intimate shared problem-solving situations.

The proposal of a revised model reveals the need for more extensive research on the nature of marital problem-solving before further attempts at structured assessment can be made. Such research would again have to resort to the study of the interaction process in detail, particularly emphasizing as Gottman (1979) and Billings (1979) have, the sequential patterns. Entailed by this suggestion is the requirement of the development of a new coding system, possibly approached from a construct point of view, using a revised shared problem-solving model. Problem-solving and supportive communication

components would be independently defined with a qualitative range of values for each. The Shared Problem-Solving Inventory model could provide a good base for the supportive communication component and could suggest starting points for the problem-solving component.

Several studies based on a new coding system are immediately suggested beyond the preliminary studies of reliability and validity. One initial hypothesis to be tested would be the potential interaction of problem-solving and the issue content for the issues used in this present project as well as across other issues. For example it would be expected that high relationship sensitive issues such as "sex" would result in a problem-solving pattern similar to the "contact" issue in the Shared Problem-Solving Inventory. In a more experimental mode, spouses could be asked to take pre-defined positions similar to a procedure used by Rausch et al.(1974) in which spouses were to act either distant or close. By requiring a spouse to adopt various off-task behaviors, the pattern of other spouse's response could be studied. Such a study would be applying the pre-defined stimulus model of the Shared Problem-Solving Inventory to a couple interaction.

Finally, the Shared Problem-Solving Inventory supportive communication scale should be tested for its sensitivity to change as a result of intervention. Inclusion of the scale in either a behavioral marital therapy or enrichment program which attempts to increase the level of this skill would permit the evaluation of the scale as a change detection instrument. A positive finding would add confidence to both the Shared Problem-Solving Inventory's construct validity (Cronbach & Meehl, 1955) and utility.

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• APPENDIX A

Subject Consent Form

I, \_\_\_\_\_, agree to participate in this study of marital patterns. I understand that participation involves completing a brief information questionnaire, several marital questionnaires and a brief recorded interview.

I also understand that the information I provide is solely for research purposes and that confidentiality of that information will be carefully maintained.

Information supplied will be identified by a code number and no records bearing my name will be kept. All information will be destroyed once it is no longer needed for research purposes.

Finally, I understand that I am free to withdraw from this project at any time.

\_\_\_\_\_  
signature

\_\_\_\_\_  
date

APPENDIX B

General Information.

INSTRUCTIONS: In all the questionnaires, try to answer as honestly as you can. All responses are totally confidential.

Code \_\_\_\_\_ Date \_\_\_\_\_

- 1. Age \_\_\_\_\_
- 2. Occupation \_\_\_\_\_
- 3. Number of years married (present marriage) \_\_\_\_\_
- 4. Number of marriages \_\_\_\_\_
- 5. Number of children \_\_\_\_\_

- 6. Circle highest level of education obtained:
 

below high school	high school	university or college	university graduate study
1 2 3 4 5 6 7 8	9 10 11 12 13	1 2 3 4	1 2 3 4

- 7. Your annual income (do not include spouse's) --- check one:
 

Under \$ 4,999	.....	( )
\$ 5,000 - \$ 9,999	.....	( )
\$ 10,000 - 14,999	.....	( )
\$ 15,000 - 19,999	.....	( )
\$ 20,000 - 24,999	.....	( )
\$ 25,000 - 29,999	.....	( )
\$ 30,000 - 34,999	.....	( )
\$ 34,000 - 39,999	.....	( )
above \$ 40,000	.....	( )

- 8. Number of years living together before marriage \_\_\_\_\_



APPENDIX C

Shared Problem-Solving Inventory  
Instructions and Sample Items for Two Issues

You are about to be involved in two discussions about concerns that are common to many marriages at one time or another. You will likely find that some of the discussions are similar to what happens in your relationship. Even when you find parts that are different, you are asked to pretend that this discussion could happen, and to respond as naturally as possible.

The discussions work like this. You will hear a woman on the tape recorder who will take the role of your wife and she will make statements to you.<sup>1</sup> Her voice sounds like this, "hi, I will play the part of your wife". Her voice will differ from your wife's; but try to pretend that your wife is speaking to you. You will then hear my voice give six possible responses to your wife's statement. Pick out the one that comes closest to what you might naturally say to her.

Please turn the page now.<sup>2</sup>

---

Thus the sequence of events will be, first I will read some background information you will need for the first discussion. Read along with me. Try to imagine that the details apply to your relationship. It is important to remember this information for the rest of the discussion. Then, listen carefully for your "wife" to make her first statement. Her statement will be printed on the page. then, I will say "turn" and you will turn the page. You will read and also hear me say six possible responses you could make to your wife. Listen carefully to all six and then, STOP THE TAPE. Quickly choose the one response closest to what feels most natural for you to say. Circle the appropriate letter on your ANSWER SHEET. Make sure you answer every time. Choose only one response. After you circle your choice, turn the page and re-start the tape and await your wife's next statement. A series of these statements and responses will form each discussion.

PLEASE DO NOT LOOK BACK OR AHEAD IN THE BOOKLET.

Please turn the page.

1. These instructions are for the husband's booklet. In the wife's booklet, references are made to "husband".
2. The dashed line indicates that the text continues on the next page.

One of the six response choices may be close to what you might say, however, another choice may appear to be a "better" one. Please choose the one closest to what your natural response would be if your wife were to say these statements to you.

In order to give you some practice, you will hear one sample part of a discussion. In a moment you will listen to and read your wife's statement. Then, When I say "turn", turn the page and read the six possible responses as I read them. After the last response, f, has been read, STOP THE TAPE. Quickly choose one response and circle your choice on the answer sheet where it is labelled SAMPLE. After you make your choice, turn the page and re-start the tape.

Please turn the page.

---

What are you doing tonight?

---

SAMPLE

- a. You know I'm going out tonight.
  - b. Tonight I'm watching TV.
  - c. Just going out.
  - d. I've already told you I'm watching TV.
  - f. Watching TV.
- 

If you understand the instructions, then let the tape continue. If you have any questions, stop the tape and ask the assistant for help.

We will now begin with the background information for the first discussion. Ready, "TURN".

### BACKGROUND INFORMATION

You and your wife have been without a holiday for a long time and you've been hoping to go on one in several months. After unsuccessfully trying to talk it over with your wife, you suddenly went ahead on your own initiative and made reservations for a holiday. But then, as you check out the family finances, to which you both have access, you become very alarmed at finding less savings than expected. This problem is not new. As a result, the holiday may have to be changed or cancelled. To complicate things, you are worried about another couple that you already have talked into going on this holiday with you.

It's late afternoon and your wife has just returned from looking at more furniture and it amazes you that she's put a deposit on it. The two of you are in the kitchen and you confront your wife and ask her to discuss the savings with you. Turn the page please.

---

1.

Oh no. We've wanted this holiday and Jill and Barry were expecting to go with us.

---

1.

- a. This has happened before. We think we have money for something and then we don't.(19)<sup>3</sup>
- b. I've been waiting for this vacation too. I appreciate your disappointment.(14)
- c. I know that feeling of disappointment. There have been other times we've planned for things and then, no money.(8)
- d. At this rate, we're never going to get any vacation.(20)
- e. This is always happening. There's never enough money when it's need for something important.(19)
- f. I've been looking forward to this vacation too.(20)

(ON=46, OFF=54; LOW=38, NEUTRAL=39, HIGH= 23)<sup>4</sup>

---

<sup>3</sup> Statement response frequencies.

<sup>4</sup> Scoring key response frequencies for scales.

2.

I'm angry. You didn't keep track of your part of the money.

---

2.

- a. I can understand how you might feel that way, but it's not only me.(17)  
Does either of us really take charge of the money?(14)
- b. That's not true.(22)
- c. It's not just me. After all, how good are you at looking after the money?(22)
- d. That's ridiculous.(2)
- e. I can appreciate how you're feeling, however, that's not true.(14)
- f. I don't think it's just me. Do you know who's looking after the money?(31)

(ON=70, OFF=30; LOW=25, NEUTRAL= 45, HIGH=30)

---

3.

I expected that you had made all the arrangements for the trip.  
You never know what's going on.

---

3.

- a. I'm confused about what's been done with the savings.(14)
- b. If you had helped to plan a holiday, we wouldn't be stuck now.(26)
- c. Sounds like you think you can't depend on me. Well, I'm at a loss over where the savings have gone.(13)
- d. Perhaps you're saying you can't depend on me even though we both knew a trip was planned.(3)
- e. You don't keep track of the savings either.(14)
- f. We both knew a trip was planned.(30)

(ON= 41, OFF=59; LOW=40, NEUTRAL= 44, HIGH= 16)

---

BACKGROUND INFORMATION

(Please note: even if you are not employed at present, imagine you are very busy and loaded down with lots of other activities.)

You have recently been busier than ever before. The extra work means that you enjoy spending your free time quietly. Your evenings are spent doing some work or escaping from the pressure by watching television. Tonight, you and your wife went to Sarah and Joe's party and you had no trouble forgetting your worries among old friends. You thought it was a great party.

Your wife didn't mix much at the gathering and seemed to drink more than you thought wise, something that has been happening more often. At one point, you noticed her looking angrily at you as you talked to a group of women. Usually fun to be with, your wife has lately been quieter, moody even. She has been hinting that the two of you haven't made much contact lately.

You are on your way home now and it's a silent drive. You brace yourself for your wife's first comment:

Please turn the page now.

1.

Well, you certainly had a good time tonight.

1.

- a. We didn't see much of each other, but I hope you enjoyed the evening.(5)
- b. Sarah and Joe really know how to throw a party.(8)
- c. Although we didn't talk much, you must have enjoyed seeing so many old friends.(6)
- d. I know you find Sarah and Joe's parties a lot of fun, too.(0)
- e. Yes, I had a great time. Sarah and Joe's parties are a lot of fun.(48)
- f. Yes, I did. I didn't see much of you, but I hope you enjoyed yourself too.(33)

(ON= 44, OFF= 56; LOW= 6, NEUTRAL= 13, HIGH= 81)

2.

It's pretty obvious that being around me isn't fun enough for you anymore.

---

2.

- a. Don't be silly. Why would you say that?(31)
  - b. People are often telling you what a great sense of humour you have, aren't they?(2)
  - c. Not enough fun? Don't our friends say you have a great sense of humour?(0)
  - d. That's nonsense. Everyone says you have a great sense of humour, don't they?(5)
  - e. What do you mean?(40)
  - f. Not fun enough. Why do you say that?(22)  
(ON= 93, OFF= 8; LOW= 36, NEUTRAL= 42, HIGH=22)
- 

3.

Well I felt ignored all night. You had something to say to everyone else, and never even looked at me.

---

3.

- a. Well, I'm concerned about the drinking you did tonight. It seemed to be more than usual.(10)
  - b. I can see how it could have looked that way, but I wasn't ignoring you. We can talk other times, but there were people there tonight I haven't seen for a while.(29)
  - c. There's no reason for you to feel that way, when we can talk other times. Tonight I wanted to talk to some old friends.(10)
  - d. We have other chances to talk. Tonight was an opportunity to talk to people I haven't seen for ages.(25)
  - e. I understand how it could have looked that way, but I did notice that you had more to drink tonight than usual.(17)
  - f. Come on, you don't really feel that way. I wonder if perhaps the wine just made the evening less enjoyable for you.(11)  
(ON= 62, OFF= 38; LOW= 21, NEUTRAL= 33, HIGH= 46)
-



APPENDIX E  
DISCUSSION RATING SHEET

You have just had two imaginary discussions with your "spouse" by choosing answers from a set of prepared responses.

Using the rating scales below, circle the percentage of those responses you chose that came somewhat close to what you might have naturally said if that situation had happened with your spouse.




Please answer for both discussions.

Discussion: decisions on money

0%    10%    20%    30%    40%    50%    60%    70%    80%    90%    100%

Discussion: time together

0%    10%    20%    30%    40%    50%    60%    70%    80%    90%    100%



## APPENDIX F

Marital Adjustment

1. Check the dot on the scale line below which best describes the degree of happiness, everything considered, of your present marriage. The middle point "happy" represents the degree of happiness which most people get from marriage, and the scale gradually ranges on one side to those who are very unhappy in marriage, and on the other, to those few who experience extreme joy or felicity in marriage.

Very  
Unhappy

Happy

Perfectly  
Happy

State the approximate extent of agreement or disagreement between you and your mate on the following items. Please check each column.

	Always Agree	Almost Always Agree	Occasionally Disagree	Frequently Disagree	Almost Always Disagree	Always Disagree
2. Handling family finances						
3. Matters of recreation						
4. Demonstrations of affection						
5. Friends						
6. Sex relations						
7. Conventionality (right, good, or proper conduct)						
8. Philosophy of life						
9. Ways of dealing with in-laws						

## Check one:

10. When disagreements arise, they usually result in: (a) husband giving in \_\_\_\_\_ (b) wife giving in \_\_\_\_\_ (c) agreement by mutual give and take \_\_\_\_\_.
11. Do you and your mate engage in outside interests together?  
All of them \_\_\_\_\_ (b) some of them \_\_\_\_\_ (c) very few of them \_\_\_\_\_ (d) none of them \_\_\_\_\_.
12. In leisure time do you prefer: (a) to be "on the go" \_\_\_\_\_ (b) to stay at home \_\_\_\_\_  
Does your mate generally prefer: (a) to be "on the go" \_\_\_\_\_ (b) to stay at home \_\_\_\_\_.
13. Do you ever wish you had not married? (a) Frequently \_\_\_\_\_ (b) occasionally \_\_\_\_\_ (c) rarely \_\_\_\_\_ (d) never \_\_\_\_\_.
14. If you had your life to live over, do you think you would: (a) marry the same person \_\_\_\_\_ (b) marry a different person \_\_\_\_\_ (c) not marry at all \_\_\_\_\_.
15. Do you confide in your mate: (a) almost never \_\_\_\_\_ (b) rarely \_\_\_\_\_ (c) in most things \_\_\_\_\_ in everything \_\_\_\_\_?

APPENDIX GMarriage Attitude Inventory

Read each statement and decide whether it is true as applied to you, your mate or your marriage. If it is true, circle the letter T. If it is false, circle the letter F.

- T F 1. There are times when my mate does things that make me unhappy.
- T F 2. My marriage is not a perfect success.
- T F 3. My mate has all the qualities I've ever wanted in a mate.
- T F 4. If my mate has any faults, I am not aware of them.
- T F 5. My mate and I understand each other completely.
- T F 6. We are as adjusted as any two people in this world can be.
- T F 7. I have needs that are not being met by my marriage.
- T F 8. Every new thing I have learned about my mate has pleased me.
- T F 9. There are times when I do not feel a great deal of love and  
and affection for my mate.
- T F 10. I don't think anyone could possibly be happier than my mate and I.
- T F 11. My marriage could be happier than it is.
- T F 12. I don't think any couple could live together with greater  
harmony than my mate and I.
- T F 13. My mate completely understands and sympathizes with my every  
mood.
- T F 14. I never regretted my marriage, not even for a moment.
- T F 15. If every person in the world of the opposite sex had been  
available and willing to marry me I could not have made a  
better choice.

APPENDIX H

Areas of Change Questionnaire

The following pages list typical behaviors which can cause relationship dissatisfaction. A rating scale accompanies each item. If you are satisfied with your partner's behavior or if an item is not relevant to you, circle the zero point on the scale, meaning "NO CHANGE DESIRED".

If you are not satisfied with your partner's behavior for a particular item, indicate the direction of change you would like to see in your partner's behavior. If you would prefer to see a particular behavior occur less often, circle a number on the "minus" half of the rating scale to indicate how often you would like this behavior to occur. If you would prefer to see a particular behavior occur more often, circle a number on the "plus" half of the rating scale. (Please note that the scales change direction, so that much less is sometimes on the far left, and sometimes on the far right.)

I WANT MY PARTNER TO:

1. participate in decisions about spending money.	<u>-3</u> much less	<u>-2</u> less	<u>-1</u> some what less	<u>0</u>	<u>+1</u> some what more	<u>+2</u> more	<u>+3</u> much more
2. spend time keeping the house clean.	<u>+3</u> much more	<u>+2</u> more	<u>+1</u> some what more	<u>0</u>	<u>-1</u> some what less	<u>-2</u> less	<u>-3</u> much less
3. pay attention to his/her appearance.	<u>-3</u> less less	<u>-2</u> some	<u>-1</u> some what less	<u>0</u>	<u>+1</u> more what more	<u>+2</u> much	<u>+3</u> more
4. hit me.	<u>+3</u> much more	<u>+2</u> more	<u>+1</u> some what more	<u>0</u>	<u>-1</u> some what less	<u>-2</u> less	<u>-3</u> much less
5. get together with my friends.	<u>+3</u> much more	<u>+2</u> more	<u>+1</u> some what more	<u>0</u>	<u>-1</u> some what less	<u>-2</u> less	<u>-3</u> much less
6. prepare interesting meals.	<u>-3</u> much less	<u>-2</u> less	<u>-1</u> some what less	<u>0</u>	<u>+1</u> some what more	<u>+2</u> more	<u>+3</u> much more
7. start interesting conversations with me.	<u>+3</u> much more	<u>+2</u> more	<u>+1</u> some what more	<u>0</u>	<u>-1</u> some what less	<u>-2</u> less	<u>-3</u> much less

8. go out with me.	<u>-3</u> much less	<u>-2</u> less	<u>-1</u> some what less	<u>0</u>	<u>+1</u> some what more	<u>+2</u> more	<u>+3</u> much more
9. show appreciation for things I do well.	<u>+3</u> much more	<u>+2</u> more	<u>+1</u> some what more	<u>0</u>	<u>-1</u> some what less	<u>-2</u> less	<u>-3</u> much less
10. get together with my relatives.	<u>-3</u> much less	<u>-2</u> less	<u>-1</u> some what less	<u>0</u>	<u>+1</u> some what more	<u>+2</u> more	<u>+3</u> much more
11. have sexual relations with me.	<u>+3</u> much more	<u>+2</u> more	<u>+1</u> some what more	<u>0</u>	<u>-1</u> some what less	<u>-2</u> less	<u>-3</u> much less
12. drink alcohol.	<u>+3</u> much more	<u>+2</u> more	<u>+1</u> some what more	<u>0</u>	<u>-1</u> some what less	<u>-2</u> less	<u>-3</u> much less
13. work late.	<u>-3</u> much less	<u>-2</u> less	<u>-1</u> some what less	<u>0</u>	<u>+1</u> some what more	<u>+2</u> more	<u>+3</u> much more
14. get together with our friends.	<u>-3</u> much less	<u>-2</u> less	<u>-1</u> some what less	<u>0</u>	<u>+1</u> some what more	<u>+2</u> more	<u>+3</u> much more
15. do some housework when asked.	<u>-3</u> much less	<u>-2</u> less	<u>-1</u> some what less	<u>0</u>	<u>+1</u> some what more	<u>+2</u> more	<u>+3</u> much more
16. argue with me.	<u>+3</u> much more	<u>+2</u> more	<u>+1</u> some what more	<u>0</u>	<u>-1</u> some what less	<u>-2</u> less	<u>-3</u> much less
17. discipline the children	<u>-3</u> much less	<u>-2</u> less	<u>-1</u> some what less	<u>0</u>	<u>+1</u> some what more	<u>+2</u> more	<u>+3</u> much more
18. spend time alone in outside activities.	<u>+3</u> much more	<u>+2</u> more	<u>+1</u> some what more	<u>0</u>	<u>-1</u> some what less	<u>-2</u> less	<u>-3</u> much less
20. spend time with the children	<u>-3</u> much less	<u>-2</u> less	<u>-1</u> some what less	<u>0</u>	<u>+1</u> some what more	<u>+2</u> more	<u>+3</u> much more
21. to give me attention when I need it.	<u>+3</u> much more	<u>+2</u> more	<u>+1</u> some what more	<u>0</u>	<u>-1</u> some what less	<u>-2</u> less	<u>-3</u> much less

22. assume responsibility for finances.	<u>-3</u> much less	<u>-2</u> less	<u>-1</u> some what less	<u>0</u>	<u>+1</u> some what more	<u>+2</u> more	<u>+3</u> much more
23. leave me time to myself.	<u>+3</u> much more	<u>+2</u> more	<u>+1</u> some what more	<u>0</u>	<u>-1</u> some what less	<u>-2</u> less	<u>-3</u> much less
24. agree to do things I like when we go out together.	<u>-3</u> much less	<u>-2</u> less	<u>-1</u> some what less	<u>0</u>	<u>+1</u> some what more	<u>+2</u> more	<u>+3</u> much more
25. accept praise.	<u>+3</u> much more	<u>+2</u> more	<u>+1</u> some what more	<u>0</u>	<u>-1</u> some what less	<u>-2</u> less	<u>-3</u> much less
26. accomplish his/her responsibilities promptly.	<u>+3</u> much more	<u>+2</u> more	<u>+1</u> some what more	<u>0</u>	<u>-1</u> some what less	<u>-2</u> less	<u>-3</u> much less
27. help in planning our free time.	<u>-3</u> much less	<u>-2</u> less	<u>-1</u> some what less	<u>0</u>	<u>+1</u> some what more	<u>+2</u> more	<u>+3</u> much more
28. express his/her emotions.	<u>-3</u> much less	<u>-2</u> less	<u>-1</u> some what less	<u>0</u>	<u>+1</u> some what more	<u>+2</u> more	<u>+3</u> much more
29. spend time with me.	<u>-3</u> much less	<u>-2</u> less	<u>-1</u> some what less	<u>0</u>	<u>+1</u> some what more	<u>+2</u> more	<u>+3</u> much more
30. show affection.	<u>+3</u> much more	<u>+2</u> more	<u>+1</u> some what more	<u>0</u>	<u>-1</u> some what less	<u>-2</u> less	<u>-3</u> much less

APPENDIX ICouples' Problem Inventory

INSTRUCTIONS: Below is a list of areas of disagreement experienced by many couples. We would like to get some idea of how important each area is to you. In the column beside each area, please indicate how severe the problem is by placing a number from 0 to 10. A zero indicates that the problem is not severe and a 10 indicates that it is a very severe problem area.

	How Severe
1. Friends	
2. Children	
3. In-laws	
4. Sex	
5. Religion	
6. Recreation	
7. Money	
8. Alcohol and drugs	
9. Communication	
10. Jealousy	
Please write in any other relevant problem area.	
11.	

## APPENDIX J

Interaction Rating FormProblem-Solving

-off topic  
 -jumps stages  
 -no formulation  
 -no goal priorities  
 -beh. decrease sol'ns  
 -disagrees only

-on topic  
 -appropriate PS stage  
 -formulation  
 -goal priorities  
 -beh. increase sol'ns  
 -disagrees + info.

very  
 frequently  
 off task

sometimes  
 off/on

very  
 frequently  
 on-task

Supportive Communication

-insult  
 -exaggerate  
 -blame  
 -prescribe  
 -threaten  
 -mindread  
 -denial of feeling

-agree  
 -accept modif.  
 -repeat  
 -summarize  
 -reflect feeling  
 -validate  
 -reinforce

very  
 frequently  
 low value

sometimes  
 low/high  
 or neutral

very  
 frequently  
 high value

APPENDIX K

ANOVA Results for Chapter Two



APPENDIX K

Table A

ANOVA Reliability Results for

• Shared Problem-Solving Inventory

Source of Variation	<u>SS</u>	<u>MS</u>	<u>df</u>	<u>F</u>	<u>p</u>
<u>"Money" Problem-Solving</u>					
Between People	24.74	.50	49		
Within People	306.50	.21	1450		
Between Measures	51.15	1.76	29	9.81	.0001
Residual	255.35	.18	1421		
Total	330.97	.22	1499		
<u>"Money" Supportive Communication</u>					
Between People	112.13	2.29	49		
Within People	813.27	.56	1450		
Between Measures	92.92	3.20	29	6.32	.0001
Residual	720.35	.51	1421		
Total	925.40	.62	1499		
<u>"Contact" Problem-Solving</u>					
Between People	23.14	.47	49		
Within People	274.96	.22	1450		
Between Measures	45.64	1.83	25	9.75	.0001
Residual	229.32	.19	1225		
Total	298.10	.23	1299		
<u>"Contact" Supportive Communication</u>					
Between People	64.09	1.31	49		
Within People	706.67	.54	1300		
Between Measures	89.70	3.45	26	7.12	.0001
Residual	616.97	.48	1247		
Total	770.76	.57	1349		

APPENDIX L

ANOVA Results for Chapter Three

## APPENDIX L

Table A

ANOVA Reliability Results for  
Shared Problem-Solving Inventory

Source of Variation	<u>SS</u>	<u>MS</u>	<u>df</u>	<u>F</u>	<u>p</u>
"Money" Problem-Solving					
Between People	31.39	.38	82		
Within People	548.43	.23	2407		
Between Measures	83.43	2.88	29	14.71	.0001
Residual	465.00	.20	2378		
Total	579.82	.23	2489		
"Money" Supportive Communication					
Between People	.274.01	3.34	82		
Within People	1302.87	.54	2407		
Between Measures	119.26	4.11	29	8.26	.0001
Residual	1183.61	.50	2378		
Total	1576.88	.63	2489		
"Contact" Problem-Solving					
Between People	52.49	.64	82		
Within People	467.54	.23	2075		
Between Measures	66.10	2.64	25	13.50	.0001
Residual	401.44	.20	2050		
Total	520.03	.24	2157		
"Contact" Supportive Communication					
Between People	169.27	2.06	82		
Within People	1193.19	.55	2158		
Between Measures	133.78	5.15	26	10.36	.0001
Residual	1059.40	.50	2132		
Total	1362.46	.61	2240		

## APPENDIX L

Table B

ANOVA Reliability Results for

Interaction Ratings, Areas of

Change Questionnaire and Couples' Problem Checklist

Source of Variation	<u>SS</u>	<u>MS</u>	<u>df</u>	<u>F</u>	<u>p</u>
Interaction Problem-Solving					
Between People	412.31	5.03	82		
Within People	126.67	.76	166		
Between Measures	10.63	5.32	2	7.52	.0008
Residual	116.03	.71	164		
Total	538.97	2.17	248		
Interaction Supportive Communication					
Between People	361.52	4.41	82		
Within People	73.33	.44	166		
Between Measures	.88	.44	2	.99	.37
Residual	72.46	.44	164		
Total	434.85	1.75	248		
Areas of Change Questionnaire					
Between People	480.94	5.87	82		
Within People	1384.20	.58	2407		
Between Measures	126.66	4.37	29	8.76	.0001
Residual	1257.54	.53	2378		
Total	1865.14	.75	2489		
Couples' Problem Checklist					
Between People	3649.05	44.50	82		
Within People	3944.80	5.28	747		
Between Measures	554.62	61.62	9	3.42	.0001
Residual	3390.18	4.59	738		
Total	7593.85	9.16	829		

## APPENDIX L

Table C

ANCOVA Results for Shared Problem-Solving Inventory  
and Interaction Problem-Solving Rating  
with Supportive Communication as Covariate

Source of Variation	<u>SS</u>	<u>MS</u>	<u>df</u>	<u>F</u>	<u>p</u>
"Money Problem-Solving					
Covariate "Money" Supportive Communication	91.68	91.68	1	9.99	.002
Main Effect Distress	90.29	90.29	1	9.84	.003
Residual	559.56	9.18	61		
Total	741.94	11.78	63		
"Contact Problem-Solving					
Covariate "Contact" Supportive Communication	573.16	573.16	1	74.12	.001
Main Effect Distress	2.98	2.98	1	.39	.54
Residual	471.72	7.73	61		
Total	1047.86	16.63	63		
Interaction Problem-Solving					
Covariate Interaction Supportive Communication	23.57	23.57	1	16.72	.001
Main Effect Distress	4.00	4.00	1	2.84	.10
Residual	85.98	1.40	61		
Total	113.55	1.80	63		

APPENDIX MCouples' Interaction Coding System:  
Behavioral Examples of Summary Codes

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Summary Code	Behavioral Example
Problem Feeling	I'm nervous right now.
Mindreading	You hate to go to my mother's.
Problem-Solving and Information Exchange	You had your way before, so now it's my turn.
Communication Talk Agreement	We have to reach a decision. Yea, your right.
Disagreement	No, it's never been twice a month.
Summarize Other	It seems what your're saying is....
Summarize Self	So all I'm saying is ....

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APPENDIX N

## Means For Couples' Problem Checklist

Problem Area	Total Sample	Distress Group	Nondistress Group
Communication	3.68 (3.44)	6.19 (3.10)	1.22 (2.27)
Money	3.68 (3.44)	5.75 (3.54)	1.97 (2.74)
Sex	3.10 (3.07)	5.06 (3.14)	1.41 (1.92)
Inlaws	2.61 (2.90)	3.81 (3.60)	1.72 (2.16)
Children	2.44 (2.93)	4.41 (3.34)	1.13 (1.10)
Recreation	2.23 (2.51)	3.38 (2.55)	1.03 (2.40)
Religion	2.06 (2.93)	3.59 (3.52)	1.00 (2.23)
Jealousy	1.68 (2.89)	3.47 (3.60)	.66 (1.91)
Friends	1.67 (2.33)	2.94 (2.51)	.78 (2.01)
Alcohol/Drugs	1.19 (2.62)	2.06 (3.37)	.69 (2.13)

Note. Standard deviations are in parentheses.

**END**

2 1 1 0 9 1 8 3

**FIN**