
DissertationsGraduate College

8-2004

Examining the Behavioral and Physiological Components of Communication Skills Training with Married Couples: Are Differential Effects Mediated by the Topic Discussed and Initial Level of Marital Distress?

Tara L. Cornelius
Western Michigan University

Follow this and additional works at: <https://scholarworks.wmich.edu/dissertations>



Part of the Clinical Psychology Commons, Counseling Psychology Commons, and the Social Psychology Commons

Recommended Citation

Cornelius, Tara L., "Examining the Behavioral and Physiological Components of Communication Skills Training with Married Couples: Are Differential Effects Mediated by the Topic Discussed and Initial Level of Marital Distress?" (2004). *Dissertations*. 1218.

<https://scholarworks.wmich.edu/dissertations/1218>

This Dissertation-Open Access is brought to you for free and open access by the Graduate College at ScholarWorks at WMU. It has been accepted for inclusion in Dissertations by an authorized administrator of ScholarWorks at WMU. For more information, please contact wmu-scholarworks@wmich.edu.

EXAMINING THE BEHAVIORAL AND PHYSIOLOGICAL COMPONENTS OF
COMMUNICATION SKILLS TRAINING WITH MARRIED COUPLES: ARE
DIFFERENTIAL EFFECTS MEDIATED BY THE TOPIC DISCUSSED
AND INITIAL LEVEL OF MARITAL DISTRESS?

by

Tara L. Cornelius

A Dissertation
Submitted to the
Faculty of The Graduate College
in partial fulfillment of the
requirements for the
Degree of Doctor of Philosophy
Department of Psychology

Western Michigan University
Kalamazoo, Michigan
August 2004

EXAMINING THE BEHAVIORAL AND PHYSIOLOGICAL COMPONENTS OF
COMMUNICATION SKILLS TRAINING WITH MARRIED COUPLES: ARE
DIFFERENTIAL EFFECTS MEDIATED BY THE TOPIC DISCUSSED
AND INITIAL LEVEL OF MARITAL DISTRESS?

Tara L. Cornelius, Ph.D.

Western Michigan University

The purpose of the present study was to experimentally examine the effects of the Speaker-Listener technique when the couple was instructed to either (a) discuss an issue within, or (b) outside the marriage, on couples' initial and long-term levels of marital distress and satisfaction. This study was designed to examine Gottman, et al. (1998) hypothesis that the Speaker-Listener skills training technique may be effective and lead to improved levels of marital satisfaction when the couple is complaining about a *third party*, but complaining about *each other* may become divisive and weaken the marital relationship, and that such an effect would be amplified for couples who were maritally distressed prior to the training. Behavioral and physiological data of marital interactions were coded, and, while definitive conclusions cannot be made due to low frequency behaviors and sequential patterns, exploratory lag sequential analyses and frequency analyses suggested that the Speaker-Listener technique reduces negativity but does not increase positivity in marital interactions. There were significant differences in positive reciprocity across the two experimental groups, but no differences in negativity. Additionally, discrepancies existed between couples' self-report of behaviors and the

behaviors emitted in session, which has implications for clinical practice. Possible interpretations of these data and areas for further investigation are suggested.

UMI Number: 3135096

INFORMATION TO USERS

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleed-through, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

UMI[®]

UMI Microform 3135096

Copyright 2004 by ProQuest Information and Learning Company.

All rights reserved. This microform edition is protected against unauthorized copying under Title 17, United States Code.

ProQuest Information and Learning Company
300 North Zeeb Road
P.O. Box 1346
Ann Arbor, MI 48106-1346

Copyright by
Tara L. Cornelius
2004

ACKNOWLEDGMENTS

I would like to acknowledge those who contributed to the course of this study. This study was partially funded by a Western Michigan University Student Research Grant. I would like to thank my mentors, notably Galen Alessi, Ph.D., Amy Naugle, Ph.D., Scott Gaynor, Ph.D., Karen Blaisure, Ph.D., and those others that guided my development as a researcher and scholar. I would also like to acknowledge research assistants, friends, and family who supported this project. Phil Reece, who provided endless support and love; this work is as much his as it is mine. Most importantly, I thank the One who provides my every thought, articulates my every word, and guides my every action.

Correspondence concerning this project should be addressed to Tara Cornelius, Department of Psychology, Grand Valley State University, Allendale, MI. E-mail: corneliust@gvsu.edu.

Tara L. Cornelius

TABLE OF CONTENTS

ACKNOWLEDGMENTS	ii
LIST OF TABLES	vi
INTRODUCTION	1
The Speaker-Listener Protocol	7
Behavioral Assessment Development	19
Physiological Assessment	25
Coding in the Present Study	29
METHOD	33
Participants	33
Setting	34
Materials	34
Independent Variables	35
Dependent Variable Measures	35
Communication Skills Questionnaires	36
Marital Satisfaction Questionnaire	37
Physiological and Behavioral Assessment of Dependent Variables	39
Behavioral Coding, Input, and Analysis	40
PROCEDURE	45
Initial Session	45

Table of Contents—Continued

Second Session	47
Experimental Manipulation	51
Third Session	54
EXPERIMENTAL DESIGN	56
RESULTS	57
Self-Report Data	57
Observational Data	62
Sequential Analyses	68
Exploratory Analyses	75
Data Analyses for Couples at the MAT Satisfaction Extremes	77
Analyses of Overall Rates of Behaviors Between Groups	79
DISCUSSION	82
LIMITATIONS AND FUTURE DIRECTIONS	103
APPENDICES	
A. Self-Report Measures, Observational Code Categories, and Definitions	110
B. Scoring Instructions for the Marital Adjustment Test	122
C. Communication Skills Ground Rules, Scripts, and Current Issue Lists	124
D. Miscellaneous Forms and Advertisement	139

Table of Contents—Continued

APPENDICES

E. HSIRB Approval and Participant Consent Forms	144
-------------------------------------------------------	-----

BIBLIOGRAPHY	151
--------------------	-----

LIST OF TABLES

1.	Test-Retest Reliability Coefficients and Correlations of Each Self-Report Measure across Two Sessions	59
2.	Intercorrelations of Each Self-Report Measure at Session One	59
3.	Durability of Intercorrelations of Each Self-Report Measure Across Session One and Session Two	60
4.	Demographic Variables, Marital Satisfaction, and Communication Skills Scores for the Two Groups at Session 1	61
5.	Point-by-Point Agreement Coefficients for Each Original Code Category During Coding	63
6.	Point-by-Point Agreement Coefficients for Each Collapsed Code Category During Coding	64
7.	Correlations Between Self-Reported Frequency and Observed Frequency at Session One	67
8.	Correlations Between Self-Reported Frequency and Observed Frequency at Session Two	67
9.	Percentage of Significant Lag Sequential Analyses Given a Selected Target Behavior Across Groups	70
10.	Percentage of Couples Evidencing Significant Lag Sequential Analyses Across Groups for Each Sequence Analyzed	71

INTRODUCTION

Divorce and marital distress have become increasingly problematic in the last several decades, particularly in the United States, but also in several other industrialized countries. Epidemiological research suggests that nearly 50% of all first marriages and 60% of second marriages in the United States will eventually end in divorce (Martin & Bumpass, 1989; Carter & McGoldrich, 1988; Cherlin, 1992; Koerner & Fitzpatrick, 2002). Although some evidence suggests that the crude divorce rate has been declining in recent years (Heaton, 2002; Chandra, et al., 1997), the rates are still high enough to cause concern for both the partners involved and other significant family members. Additionally, there is evidence to suggest that up to 25% of intact marriages are distressing to one or both of the partners (Gottman, et al., 1998), suggesting that an even larger proportion of individuals are experiencing relationship distress than even suggested by the crude divorce rate.

Marital dissolution is often associated with several serious physical and psychological consequences for both partners, including increased risk of psychopathology, increased incidence of physical illness, decreased longevity, and increased likelihood of suicidal ideation (Bloom, et al., 1978; Burman & Margolin, 1992; Schmoldt, Pope, & Hibbard, 1989). Furthermore, marital distress is associated with suppressed immune functioning, cardiovascular arousal, and increases in stress-related

hormones (Gottman & Notarius, 2000). There is convincing evidence that marital distress and conflict are associated with a host of deleterious effects on children, including poorer social competence and academic achievement, behavior problems, depression, increased medical illnesses, and increased risk of divorce in their later marital relationship (Buchanan, Maccoby, & Dornbusch, 1991; Amato & Keith, 1991). Given these potentially serious correlates, preventing or minimizing marital distress and divorce is an important and worthwhile endeavor for practitioners in the field of psychology.

Marital therapy essentially can be separated into two general theoretical and practical approaches: those that focus on prevention of marital distress before it occurs (i.e., primary prevention), and those that focus on repairing marital relationships after problems have begun (i.e., secondary prevention). Marital satisfaction is globally defined through a couple's combined or individual score on the Marital Adjustment Test (MAT), and is characterized by a number of discrete behaviors, including knowing about and expressing an interest in the other partner's life, engaging in expressions of fondness, such as hugging, touching and kissing, and openly communicating conflicts and difficulties in the relationship. The MAT and the discrete behaviors that characterize the construct of marital satisfaction will be described in more depth in later sections.

A number of treatments are aimed at increasing marital satisfaction. Primary prevention, typically referred to as Enhancement/Preventative approaches, focuses on preventing problems that typically lead to marital dissolution. The underlying assumption of these approaches is that if you teach happily married couples skills and problem-solving techniques that are presumed to resolve issues, not only would their immediate

marital satisfaction increase, but they would also be able to confront future marital crises appropriately, without resorting to divorce (Powell & Wampler, 1982; Guerney, 1977). Thus, the Enhancement approach seeks to enhance the marital relationship *prior* to the development of significant marital distress, in an effort to prevent future dissolution of the marital relationship.

Secondary prevention, the approach that most practitioners and couples envision when they conceptualize “marital therapy,” seeks to repair damaged marital relationships (i.e., when the couple is already experiencing marital distress). This usually comes to the attention of the mental health practitioner when one or both partners seek treatment for their marital difficulties. The task of the therapist in this situation is to help the couple resolve current marital difficulties, as well as to teach them more appropriate means by which they can deal with future conflicts. The primary and secondary branches of marital interventions, although seemingly distinct, employ several of the same techniques and teach couples similar skills in their respective pursuits, a point that will be explored in greater depth momentarily.

Several treatment protocols have been developed and implemented for use in both primary and secondary prevention of marital distress and dissolution. Although a comprehensive review is beyond the scope of this paper, selected treatment protocols will be reviewed below. The Prevention and Relationship Enhancement (PREP) program, developed and conducted by the Center for Marital and Family Studies at the University of Denver, focuses on teaching couples various skills in communication and problem-solving. This program, because of its primary preventative nature, seeks to help the

couple develop, refine, and integrate appropriate speaker and listener skills into their marital relationship in order to enhance and improve relationship satisfaction, both in the present and the future (Markman, Stanley, & Blumberg, 1994; Jacobson & Gurman, 1995).

Another marital therapy program, which grew out of the work of Guerney (1977), called Relationship Enhancement (RE), is designed to enhance the relationship between couples and family members by increasing the psychological and emotional satisfaction that can be derived from intimate relationships. The RE program involves teaching the couple both expressive and empathic listening skills, in order to foster an empathetic and supportive forum for their partner's communication efforts, to recognize the subjectivity of their interpretations of interpersonal issues in the relationship, and to express themselves in highly behavioral terms. The couple is then taught to use these skills to resolve relationship problems and to enhance the marital relationship (Guerney, 1977).

Miller et al. (1972, 1991) also developed a marital intervention, called Couple Communication, which has been frequently employed in marital therapy contexts. This program involves teaching specific communication concepts and skills designed to improve the couples' abilities to discuss day-to-day concerns in a more productive manner. Specifically, the program teaches listening and speaking skills designed to enhance the clarity and accuracy of the messages conveyed and received, as well as how interpretation of messages may be distorted representations of reality. These skills then form the basis for teaching problem-solving skills. The underlying premise of this program is that relationships are maintained, strengthened and destroyed through

communication, and that teaching couples better ways to relate to their partner is a crucial component of improving marital satisfaction.

In addition to these three marital therapy protocols, there are several others, including Training in Marital Enrichment (TIME), which emphasizes developing skills in encouragement, communication, and conflict resolution (Dinkmeyer & Carlson, 1984), Learning to Live Together (LLT), which focuses on helping the couple to transition to marriage (Bader & Remmel, 1987), and Growing Together (GT), which approaches the intervention with an emphasis on growth in the marital relationship (Dyer & Dyer, 1990). The interested reader is referred to Hawley and Olson (1995) for a comprehensive review and comparison of these approaches.

Although these treatment protocols approach marital therapy from slightly different angles, a common feature of each is a focus on skill-building, particularly with regard to communication skills. In fact, research has shown that most current marital intervention techniques, whether they are of the primary or secondary prevention nature, focus somewhat intensively on helping the couple to develop and use more effective communication techniques. Furthermore, couples presenting for marital therapies will often identify communication skills training as an important objective, that they want assistance in negotiating conflicts, and that they believe they will benefit from more effective communication skills (Beckerman & Shepard, 2002; Heyman, 2001).

Additionally, couple therapists report that communication problems were among the most frequently encountered issues in clinical settings (Miller, Yorgason, Sandberg, & White, 2003; Heyman, 2001).

Several leading researchers in the field of marital therapy contend that it is not *what* the couple argues about, but rather the *way* in which they argue that distinguishes distressed from non-distressed couples (Notarius & Markman, 1993). Marital therapists recognize that conflict is inevitable in marital relationships and, as such, the goal should not be to eliminate conflict between the partners. This may be impractical and, possibly, detrimental to the couple's well-being. Rather, marital interventions should focus on teaching the couple more appropriate ways to communicate in these conflict situations, and this would, presumably, minimize the relationship distress associated with such conflict discussions.

Communication variables have, across a variety of observational studies, discriminated distressed from non-distressed couples in several countries, including Australia (Halford, Hahlweg, & Dunne, 1990), the Netherlands (Schaap, 1982), Germany (Hahlweg, et al., 1979, in Halford & Markman, 1997), and the United States (Margolin & Wampold, 1981). Distressed couples more frequently display negative, inappropriate, or destructive communication behaviors, as compared to maritally satisfied couples. Additionally, Lindahl, Malik and Bradbury's research (as cited in Halford & Markman, 1997) found that effective communication skills are associated with marital stability and satisfaction. Given this fairly clear link between communication behaviors and marital distress, it seems obvious that these skills should form a core component of marital intervention programs designed to reduce or circumvent marital distress and divorce.

The Speaker-Listener Protocol

Communication skills training focuses on teaching the client better means to “...initiate conversations, maintain social interactions, express one’s thoughts and feelings to others, and accurately comprehend the expression of others” (Bedell & Lennox, 1997). The most influential and widely used specific communication training technique in marital therapy is called the Speaker-Listener technique, although it is often referred to as the Validation or Active Listening model. This model forms the basis of most marital intervention protocols (Jacobson & Gurman, 1995). The primary goal of this technique is to help the couples “...understand and to be understood” (Markman, Stanley, & Blumberg, 1994) in their marital interactions. The Speaker-Listener Technique, which grew out of the work of several leading researchers in the field, including Guerney (1977), Gottman, et al. (1976), Miller, Nunnally and Wackman (1972), and Markman, Stanley, and Blumberg (1994), involves teaching the couple a set of procedures and skills with which to approach conflict discussions. The Speaker-Listener technique emphasizes active listening before problem-solving; the goal is to facilitate mutual understanding of the issue, prior to making efforts to solve the point of disagreement, so that each partner feels heard and respected in the discussion.

The Speaker-Listener technique includes several discrete and well-defined steps. The first step is to define one partner’s role as the Speaker and the other’s role as the Listener. The Speaker is instructed to talk about his/her feelings, thoughts, or perceptions regarding the stated issue, taking care to speak for her/himself without making inferences

about what the other partner is thinking. During this period, a fundamental rule is that the Speaker has the floor and the Listener is not permitted to interrupt under any circumstances. After the Speaker has finished his/her statement, the Listener is instructed to paraphrase what he/she has just heard, paying particular attention to the emotions and feelings that may or may not have been explicitly expressed by the Speaker. It is important to note that the Listener does not have to agree with the statement; he/she is simply to paraphrase the statements of the partner. After the Listener has paraphrased the comments, the Speaker is given the opportunity to clarify any points that the Listener may not have articulated accurately. After this interaction, the partners switch roles and repeat the same procedure. In this way, both partners are assured of an opportunity to express thoughts, opinions, and emotions, while knowing that their partner is actively listening to and understanding their concerns (Markman, Stanley, & Blumberg, 1994).

Several researchers have examined the efficacy of the Speaker-Listener technique in preventing marital distress and divorce in couples. In the classic study on this topic, Markman, et al. (1993) examined the longitudinal effectiveness of the Prevention and Relationship Enhancement Program (PREP), mentioned earlier, in preventing marital dissatisfaction and divorce. A key component of this treatment package is the use of the Speaker-Listener technique. Although this study does not directly isolate the effects of the Speaker-Listener technique separate from the PREP marital program, it is often cited as supportive of this communication skills technique, and, as such, will be discussed in some detail. Four- and five-year follow-up data evaluating the long-term effects of PREP on marital distress were gathered for 25 couples who completed the PREP intervention

five years previously and continued for the yearly follow-up sessions. These 25 couples completed the treatment package prior to their marriage, and then participated in five additional sessions to assess their level of marital distress. The follow-up sessions were conducted immediately following the intervention, and then at 1.5, 3, 4, and 5 years after the beginning of the study. These data were compared to 42 couples who declined participation in the PREP intervention and 47 control couples.

A central focus of the PREP treatment package is the use of the Speaker-Listener technique. Couples in the PREP condition were taught active listening and expressive speaking skills, under the Speaker-Listener model described above. All couples in the Markman, et al. (1993) study were assessed using the Marital Adjustment Test, the Relationship Problem Inventory, and the Conflict Tactics Scales. Additionally, a behavioral observation component was included, in which coders assessed positive and negative communicative behaviors for the couples, using the Interaction Dimensions Coding System. Results of this study revealed that at four years follow-up, intervention couples showed greater use of communication skills, greater positive affect, more problem-solving techniques, and more support and validation than did control group couples. Additionally, the intervention couples were less likely to dissolve their relationships than the control or the “decline” couples. Only 4% of the intervention couples’ marriages had dissolved at the 4-year follow-up, compared to approximately 25% of the control couples and 26% of the decline couples. Thus, these data suggest that participation in the PREP intervention may be significantly associated with lower risk for marital dissolution as well as increased marital satisfaction. However, it is important to

note that couples volunteered, and were *not* randomly assigned to the intervention treatment condition, and possibly were systematically different from the other two groups. Additionally, although this study suggests that the Speaker-Listener technique may have contributed to the positive outcomes, it is important to note that this study demonstrates the efficacy of the PREP program as a whole, which encompasses a variety of different techniques. The efficacy of the Speaker-Listener technique cannot be unequivocally demonstrated by examining the effectiveness of the entire PREP treatment package.

Another study, conducted by Cole and Rice (1996) examined the retention and efficacy of communication skills training for couples immediately following the intervention and at one-year follow-up. This study involved teaching newlywed couples skills using an adaptation of the Speaker-Listener model. The communication skills training took place in the context of a preventative treatment package, called the ACME Growth for Newlyweds program, which is similar to the treatment protocols described previously in terms of focus on skills training, and particularly as they relate to communication. All couples were assessed for marital satisfaction using the Dyadic Assessment Scale and the Marriage Potential Inventory. These assessments took place immediately prior to, immediately following, and one year after the communication skills training. The results revealed that couples continued to employ the communication skills for up to one year following the treatment intervention. Additionally, they found that the use of communication skills was positively correlated with marital quality, as measured by the above self-report assessment devices. Thus, there seems to be evidence that the Speaker-Listener technique is associated with positive outcomes when it is implemented

in the context of a treatment package. However, it is important to note that although the entire treatment protocol was associated with positive marital outcomes, this does not unequivocally demonstrate the efficacy of the Speaker-Listener technique in isolation.

Guerney's (1977) Relationship Enhancement (RE) program has also been examined, and, from these studies, appears to be effective in improving both relationship quality and communication behaviors. One such study examined the effectiveness of RE with distressed married couples as compared to other, nonspecific therapies (Ross, Baker, & Guerney, 1985). Couples were randomly assigned to either RE or the therapist's own idiosyncratic techniques, which were distinct from the methods used in RE. Following treatment, couples assigned to the RE group showed more relative gains in the quality of their communication, general relationship, and marital adjustment. Another study, conducted with mother-daughter dyads, demonstrated that RE techniques were superior over traditional communication treatments in improving specific and general communication skills and relationship satisfaction (Guerney, Vogelsong, & Coufal, 1983). This program, as a comprehensive treatment package that incorporates communication skills training as one component of the methodology, has been demonstrated to be helpful in improving communication and relationship satisfaction. However, like the other studies noted above, it does not examine the effectiveness of the Speaker-Listener technique in isolation, but rather in the context of a treatment package as a whole.

Butler and Wampler (1999) conducted a comprehensive meta-analysis of published and unpublished studies examining the efficacy of the Couples Communication

program (Miller, Nunnally, & Wackman, 1972), which was described briefly above. Although meaningful effect sizes were demonstrated for both observational and attitudinal measures in the short term, these changes did not endure at follow-up. Additionally, discrepancies between the observational and attitudinal measures existed, suggesting that symptom (i.e., verbal report) and sign (i.e., observed interaction) data may not be parallel or concordant forms of measuring changes in communication behavior. Thus, this study further suggests the need for multi-modal measurement of couples' outcomes, because self-report data may under- or overestimate the degree of change as compared with sign data. This meta-analysis suggests that even if changes are noted in the short term on communication behaviors, these results may deteriorate significantly at follow-up, calling into question the longer term clinical importance of these tools in the context of marital interventions.

Finally, a study conducted by Hahlweg, Revenstorf, and Schindler (1984) directly compared the efficacy of Active Listening skills training with a behavioral treatment protocol to examine the effectiveness of these interventions with distressed individuals. Eighty-five couples were randomly assigned to one of four conditions: Active Listening group therapy, Active Listening conjoint treatment, Behavioral group therapy, or Behavioral conjoint treatment. The Active Listening groups were trained in the communication skills discussed above, while the behavioral treatment group received a combination of positive behavior exchange and problem-solving skills training. Marital distress and both positive and negative communicative behaviors were assessed using several questionnaires and laboratory observational methods. The assessments were

conducted immediately following the intervention and at six months and one-year follow-up. Results indicated that, in the short-term, couples in the Active Listening group showed decreases in negative interaction but no increases in positive interaction. In contrast, couples in the behavioral intervention group showed both decreases in negativity and increases in positive interactions. Additionally, in the long-term, couples in the Active Listening condition returned to pre-treatment levels of quarreling behavior, and their communication skills were not maintained, as compared to improved levels in both of these areas for the individuals in the behavioral intervention. Finally, the results revealed that, one year after the intervention, several couples in the Active Listening group scored within the “unhappy” range for marital quality, whereas the typical couple in the behavioral intervention groups scored within the “happy” range on the same measure (Hahlweg, Revenstorf, & Schindler, 1984). Thus, this study suggests that Active Listening skills training, when examined in isolation, may not be effective in helping the couple communicate better and minimize marital distress, at least in the long term.

In examining the above research regarding the efficacy of marital therapy, and specifically, the Speaker-Listener technique that is foundational for most of these interventions, the evidence is only partially convincing. The efficacy of the Speaker-Listener component of most treatment packages does not appear to be unequivocally demonstrated. Marital therapy in general, and specifically the use of the Speaker-Listener technique in these interventions, may not be as effective as initially believed. Although there is some evidence that marital therapy is more effective than no therapy, a substantial

number of couples treated with various models of marital therapy do not attain the levels of satisfaction reported by nondistressed couples (Hahlweg & Markman, 1988).

A comprehensive meta-analysis of published and unpublished couples therapy outcome studies was recently conducted by Shadish, et al. (1993). This analysis indicated that approximately 65% of the treatment couples showed some improvement in marital satisfaction, compared to 35% of the control group couples. However, it is important to note that approximately one-third of the treatment couples showed *no improvement*, and even among those couples who did improve, many still remained within the distressed range on marital satisfaction scales. Pinsof & Wynne (1995) noted that up to 50% of couples who participate in marital therapies remain in the distressed range. Although results revealed statistically significant changes among couples in the treatment groups, clinical significance is questionable in many of the cases. That is, a difference may have been detected, but that difference may not have made a difference in the lives of the couples.

Additionally, the relapse rate of couples participating in marital therapy is very high. Jacobson and Addis (1993) found that of the couples who made some initial gains during marital therapy, a sizable percentage of these couples, approximately 30–50%, relapsed within two years. In fact, some evidence suggests that individuals who participate in marital therapy are *more likely* to divorce than those who do not (Gottman, 1999). However, it is important to note that these data are correlational, and should not be taken to imply that marital therapy caused the divorces. Couples electing marital therapy have typically been distressed for several years, and likely are much closer to filing for

divorce than non-therapy couples, even before beginning therapy. However, if a goal of marital therapy is to prevent divorce and improve marital satisfaction, then clearly the techniques we are currently employing are not strikingly effective. Given these data, a closer focus might be placed on examining a key underlying component of marital therapy, namely, the Speaker-Listener technique.

A leading researcher in the field of marital therapy, John Gottman, has begun to examine the Speaker-Listener component of marital therapy, and contends that this core component of many marital interventions actually may be *contributing* to the deleterious outcomes of those who participate in marital therapy interventions. The problem arises, he contends, because the field of marital therapy has extended methods of general psychotherapy, like the Speaker-Listener technique, to marital therapy. The Speaker-Listener model grew out of Rogerian individual psychotherapy in which the therapist is instructed to provide unconditional positive regard and empathy. This was then extended to the arena of marital therapy by Guerney (1977), Gottman, et al. (1976), and Miller, Nunnally and Wackman (1972).

In the Rogerian tradition of client-centered therapy, the client is usually complaining about a third person, and the therapist is empathizing as the client complains about the third party. "The therapist in Rogerian therapy does indeed empathize with the client, but the client is usually complaining about *someone else*, a third person. Once the client starts complaining about the *therapist*, it is called *resistance*, and the usual recommended intervention is no longer one of empathizing with the client" (Gottman, 1999, p. 9). However, in the field of marital therapy, the spouse, even though the target of

these complaints, is expected to empathize while the partner complains about him or her (Gottman, 1999). Gottman suggests that instead of building marital therapy techniques based on data about how happily married couples naturally behave, we instead are applying techniques in marital therapy based on what appears to be effective in individual psychotherapy.

As Gottman, et al. (1998) points out, the Speaker-Listener model may be expecting a form of “emotional gymnastics” for people who are listening to their partner complain about themselves. Research has supported findings that suggest that incongruence between one’s emotional response and the expression of that affective response is related to marital dissatisfaction (Emmons & Colby, 1995; Mongrain & Vetteese, 2003). Thus, clear and direct expression of one’s emotions may be important in marital functioning, but the Speaker-Listener technique may result in immediate suppression of emotional responses. The Speaker-Listener technique may be somewhat confrontational, in the sense that it expects people to be empathetic in the face of critical verbal statements directed at them from their partner. As Wile (1995) pointed out, it is very difficult to be empathetic and supportive when you are “...in the hating-my-partner, wanting-revenge, feeling-stung-and-need-to-sting-back state of mind. At such a moment you cannot remember what an ‘I-statement’ (a component of the Speaker-Listener technique) is, and frankly, you do not care” (p. 2). Particularly with distressed couples, the Speaker-Listener model, although it may be effective in individual psychotherapy, may not be an appropriate tool to be teaching couples, and may even be contributing to the limited efficacy of some marital therapy intervention programs.

Gottman, et al. (1998) examined 130 newlywed couples to determine what was predictive of divorce and how maritally satisfied and unsatisfied couples differed along various dimensions. With regard to the Speaker-Listener technique, he found that even couples in stable, happy marriages usually do not naturally use such empathic communication tactics. This lends further support for his contention that we are teaching couples strategies that supposedly lead to increased marital satisfaction, but which are not used even by happily married individuals. Although there is little doubt that teaching couples “how to communicate better” is probably important in terms of improving or maintaining marital satisfaction, especially in light of the data reviewed earlier, the Speaker-Listener model may not be the best approach. The use of the Speaker-Listener technique in marital therapy, although it may make intuitive sense, may be misguided because partners are often complaining about each other.

Gottman, et al. (1998), however, hypothesized that the Speaker-Listener skills training technique may be effective and lead to improved levels of marital satisfaction when the couple is complaining about a *third party*, but complaining about *each other* may become divisive and weaken the marital relationship. Additionally, he posits that the Speaker-Listener technique may be differentially effective under the above two conditions, depending on the couple’s initial level of distress. That is, for couples who are particularly distressed, this technique may be more divisive, leading to further marital distress.

Cornelius and Alessi (2002, unpublished), conducted on the same data set as the present study, experimentally examined these hypotheses to determine if structured

communication skills training differentially impacted the level of marital satisfaction and acquisition of communication behaviors. Couples in this study were randomly assigned to either discuss a current problem within or outside of their marriage, in order to determine the degree to which the topic differentially impacted marital satisfaction and improved communication behaviors. The dependent measures of this study included the MAT and a series of self-report communication questionnaires. Analyses of Covariance (ANCOVA), with initial marital satisfaction as the covariate, revealed no significant differences on MAT scores or on the communication measures following the communication training between the two groups. Thus, Gottman's hypotheses were not supported in this study.

However, an important limitation of the Cornelius and Alessi (2002, unpublished) study is the exclusive use of verbal self-report measures. Several researchers in the field of marital interaction point out that self-report data may not be the most sensitive means by which to detect subtle changes in communication behaviors and indices of marital satisfaction (Butler & Wampler, 1999; Levenson & Gottman, 1985; Thomsen & Gilbert, 1998). It is possible that Cornelius and Alessi (2002, unpublished) failed to detect subtle changes in communication and marital satisfaction not because none existed, but rather because the measures were insensitive.

Several researchers have noted that global verbal measures of behavior often fail to detect subtle changes in behavior, while direct observational methods are more sensitive to small, but clinically significant, changes (Patterson, 1982; Schnelle, 1974; Spence, 1982). Self-report and observational data may often be quite discrepant in their results, as Butler and Wampler (1999) found in their comprehensive meta-analysis of

communication skills training. These authors suggest that attitudinal change, as measured by self-report data, may lag behind behavior change, in that even with behavior change, partners may be unwilling to change their underlying interpretations of their partner's behavior. This is consistent with Gottman's (1999) conceptualizations of negative and positive sentiment override, in that distressed couples may be more likely to attribute negative behaviors to their partner's personality, while positive gestures are attributed situationally. Thus, self-report measures may reflect more on the recent relationship history rather than on the current behaviors in session.

Behavioral Assessment Development

Coding systems can be generally defined as a means to punctuate communication sequences into discrete units, each classified as representing one specific category of behavior from a list of possible categories that coders are trained to identify. Several coding and rating systems have been widely used in marital behavioral observation research. For example, the Marital Interaction Coding System (MICS) (Weiss, Hops & Patterson, 1973), and the updated version, MICS-III (Weiss & Summers, 1983) are widely used as a means to code both verbal and nonverbal behaviors that have been shown to differentiate distressed from nondistressed couples. The Specific Affect Coding System (SPAFF), by Gottman and Krokoff (1989), was developed to code affect and verbal content during laboratory interactions, and incorporates a computer-assisted video coding station to collect data. This coding methodology has been used by other researchers as well (Jacobson, et al., 1994; Gottman, et al., 1995). Other coding systems

commonly employed include the Verbal Tactics Coding Scheme (Sillars, 1986), the Couples Interaction Scoring System (Gottman, 1979), the Interactional Dimensions Coding System (Julien, Markman, & Lindahl, 1989), and the Rapid Couples Interaction Scoring System (Krokoff, Gottman, & Hass, 1989). However, researchers in this field often create their own data coding systems, using the existing coding systems as guides, to serve the idiographic needs and hypotheses of the research study (e.g., Klinetob & Smith, 1996; Gottman & Levenson, 1992; Thomsen & Gilbert, 1998; Gottman & Krokoff, 1989).

Observational methodologies are widely used in the field of marital research, and reveal a relatively consistent pattern of results. Direct observation may be particularly adept at investigating the processes by which self-reported marital distress translates into behavioral interactions, and in detecting the importance of social interaction as a determinant of physical and psychological functioning (Gottman & Notarius, 2000). As these leading researchers stated, "Observational measures will always be the most informative data source we will ever get about process, which will be the richest source we will ever have for describing and building theory" (Gottman & Notarius, 2000, p. 941).

There is much discussion about evaluating the quality of observational data in terms of determining the most appropriate means to assess the consistency of data across different observers. This is commonly referred to as interobserver agreement, and is often considered a measure of the objectivity of the data. Historically, exact event recording in laboratory settings was deemed appropriate and feasible in controlled environments.

However, as researchers moved into applied settings, interval recording devices for measuring agreement were employed, such that if two coders noted a behavior within a set period of time, called an interval, agreement would be considered to have occurred. That is, interval agreement does not require *precise* agreement, but rather that two observers note the occurrence of a behavior within the same interval. Interval agreement is most commonly employed and seen in the literature in part because obtaining agreement is much easier with interval recorded, compared to event records. With recent computer methodologies that allow more exact forms of agreement, some researchers are advocating for a return to event recording, which involves a much more stringent criteria for agreement. While an interobserver agreement of 80% for interval recording is generally considered acceptable, with exact event recording, agreement is significantly lower. With more exact forms of event recording, criteria for agreement are much more rigorous, which subsequently lowers the percent agreement obtained. Thus, when evaluating interobserver agreement, the researcher should recognize that the methodology used to obtain the agreement can dramatically alter the interobserver coefficient that is obtained.

Observational methods have consistently been found to be useful in providing clinically and empirically useful data about marital functioning. Despite significant variation in samples, methods, and coding systems, observational coding of marital interactions reveal communication and marital satisfaction behaviors that distinguish distressed from non-distressed couples (Smith, Vivian, & O'Leary, 1990; Gottman, 1979; Hahlweg, et al., 1984; Schaap, 1984). Specifically, dissatisfied couples exhibit fewer

positive behaviors, more negative behaviors, and reciprocate negative behaviors more readily than non-distressed couples (Gottman, 1979; Jacobson, et al., 1980; Markman, 1979, 1981). For example, Roberts & Krokoff (1990) found that unhappy marriages are characterized by higher rates of withdrawal, hostility, and displeasure than more happy marriages. Gill, Christensen, and Fincham (1999) demonstrated that aversive communication generally predicted declines in satisfaction, whereas positive communication tended to predict improvements in satisfaction. Additionally, husband and wife's expressions of anger, contempt, fear, blaming, and pessimism are consistently negatively correlated with concurrent marital satisfaction (Gottman & Krokoff, 1989; Sillars, et al., 2000), and negative affective expressions have been shown to distinguish between happy and unhappy couples (Pasupathi, et al., 1999). Some researchers have demonstrated that specific types of negativity, including belligerence, criticism, stonewalling, and contempt, may be even more detrimental to marital satisfaction than other negative behaviors (Gottman, 1999; Gottman, et al., 1998; Gottman, Markman, & Notarius, 1977). These behaviors may be subtle and not readily detectable using self-report methodology, and may be overlooked or masked by other scale items (Roberts & Krokoff, 1990). In contrast, observational measurement may provide a more sensitive tool for detecting smaller, yet clinically significant, differences across different groups and differing levels of marital distress.

Perhaps more importantly, behavioral observations can allow for the analysis of sequential patterns of responding within a couple, which may be even more informative than the raw frequency of a given behavior. That is, self-report data may yield

information about the overall frequencies of certain communicative behaviors, but is unlikely to show how these behaviors are linked in functional sequences. Systems theory suggests the importance of examining cross-spousal interdependencies among behaviors within a marital interaction, and advocate dyadic analyses, rather than examining each of the partner's behaviors in isolation. Negative interactions between spouses have consistently been associated with relationship dissatisfaction and positively correlated with divorce potential (Stanley, Markman, & Whitton, 2002). Using a sequential analysis, Roberts and Krokoff (1990) found that in dissatisfied marriages, the husband's withdrawal behavior predicted the wife's hostility, while with satisfied couples such a pattern did not emerge. However, there is some debate in the literature regarding the homogeneity of withdrawing as a communicative behavior, since some studies have found a consistent association between withdrawal and dissatisfaction (Stanley, Markman, & Whitton, 2002; Christensen & Heavey, 1990; Gottman & Krokoff, 1989), while other studies have failed to find such a relationship (Heavey, Layne, & Christensen, 1993; Roberts & Krokoff, 1990; Caughlin, 2002). Researchers have called for sequential analyses of withdrawal behavior, as these behaviors may be serving different functions, depending on the partner's antecedent behavior and larger context (Roberts, 2000).

The literature on sequential patterns of couples' behaviors suggest that not only can unhappy married couples be distinguished from happily married couples by the amount of negative behaviors, but also in the temporal patterns of negativity (Gottman, Markman, & Notarius, 1977; Roberts & Krokoff, 1990; Margolin & Wampold, 1981; Schaap, 1982). Gottman (1979, 1994, 1999) asserts that negative affect reciprocity, the

degree to which when one partner responds negatively, the other responds in kind, is particularly indicative of marital dissatisfaction and dissolution. While distressed couples often engage in seemingly endless cycles of negative escalation and reciprocity, satisfied couples generally succeed in exiting this pattern (Gottman, 1994). Several other researchers have replicated these findings, and negative affect reciprocity appears to be a well-validated indicator of marital dissatisfaction (Roberts & Greenberg, 2003; O'Leary & Smith, 1991; Levenson & Gottman, 1985; Klein & Johnson, 1997; Ting-Toomey, 1983; Julien, et al., 2000). However, the data on positive communication behaviors have not been as well established, and it is still unclear whether satisfied spouses display higher rates of positive communication behaviors. Researchers have fallen short of identifying processes of positive communication analogous to negative reciprocity (Julien, et al., 2000).

However, while interactional variables have been particularly useful in predicting changes in women's satisfaction, they have been less useful in predicting changes in men's satisfaction (Heavey, Layne, & Christensen, 1993; Heavey, Christensen, & Malamuth, 1995). Thus, it is clear that more research is necessary to elucidate the predictive utility of sequential analyses with men as well as the nature of the relationship of positive communication behaviors and marital satisfaction. However, it is clear that these sequential patterns would be virtually impossible to detect using only verbal self-report methodology. These interactional patterns are certainly important indices of marital satisfaction and communication behaviors, and warrant further investigation to determine

whether differences are evident across different topics using behavioral measures rather than self-report.

Physiological Assessment

In addition to analysis of behavioral and sequential patterns in marital interactions, physiological measurement may be predictive of impact of communicative skills and marital satisfaction. Several researchers have recommended that self-report, observational and physiological methods should be jointly employed when assessing marital interactions (Thomsen & Gilbert, 1998). Excessive levels of negative communication behavior are theoretically expected to impair the couples' ability to cope with stressful events, and, as a result, lead to declines in marital satisfaction and produce physiological signs of arousal (Sanford, 2003).

Gottman, et al. (1998) contends that diffuse physiological arousal (DPA), which is the body's general alarm system activated in situations in which danger is perceived, becomes activated during marital conflicts. When danger is perceived, a host of bodily reactions begin, including increases in heart rate. When the heart speeds up beyond 100 beats per minute, a series of physiological changes occur which leads to several negative psychological consequences. Specifically, couples experience a reduced ability to process information because it is more difficult to attend to what their partner is saying. Research has supported the finding that arousal suppression is associated with decreased memory for the conversation utterances as compared to not suppressing affective responses (Richards, Butler, & Gross, 2003). Affective suppression decreases the extent to which

individuals pay attention to conversations about relationship conflict, thereby degrading memory for what is said. Additionally, there is less access to new information and greater access to habitual behaviors, which results in an inability to actively problem-solve.

When one or both partners are physiologically aroused to this point, "...Their hearing becomes highly filtered. They tune into only those messages that are related to clarifying their current state of distress. Rational problem-solving becomes impossible..." (Berg-Cross, 2001, p. 315).

There is some evidence that gender differences may exist with regard to physiological reactivity and marital interactions. Specifically, men appear to be more physiologically reactive to negative affect during marital interactions than women (Gottman & Levenson, 1988; Polefrone & Manuck, 1987). Thus, men may experience a more physiologically aversive state during marital interactions, which may be one explanation of men's greater tendency to withdraw during marital conversations, since withdrawal would be negatively reinforced by reduced aversive physiological arousal. Additionally, wives' positivity in marital interactions may serve a similar function as withdrawal, insofar as such behavior may physiologically soothe the husband. Once physiologically soothed, husbands may be less likely to withdraw from the conversation and more able to actively participate in the conversation (Johnson & Jacob, 2000), thereby negatively reinforcing the wife's attempts at soothing. Increases in heart-rate may be an important physiological indicator of inhibited communication ability during the couples' interactions, particularly with men, and withdrawal by husbands and positivity by the wife may serve to reduce such arousal.

Denton et al. (2001), examining the role of physiology and the demand-withdraw pattern of marital communication, contended that gender differences in withdrawing and demand behaviors in marital relationships were actually due to differences in physiological arousal. These researchers speculated that the demand-withdraw pattern of marital interactions was related to differing levels of physiological reactivity, and that gender merely covaries with both reactivity and the demand-withdraw pattern. They hypothesized that individuals who withdrew from marital interactions, regardless of their gender, would have greater levels of cardiovascular reactivity compared to individuals who do not withdraw from such conversations. Sixty married couples, classified as either avoiders or initiators of marital interactions based on a marital discussion, engaged in a series of tests to determine heart rate and blood pressure reactivity. The results suggested mixed support for Gottman's physiological model. As predicted, when interacting with their spouses, avoiders exhibited significantly greater systolic blood pressure reactivity than did initiators of marital interactions. It was presumed that avoiders experience the physiological arousal associated with confrontational interactions as aversive, and that this evoked avoidance and other escape behaviors. However, with regard to gender and reactivity, the results were inconsistent with the initial hypothesis. While men were more likely to be classified as avoiders than initiators of marital conversations, men exhibited significantly lower levels of systolic and diastolic reactivity than women. However, this result is complicated by the fact that men had significantly higher baseline readings than women, such that the higher reactivity of women may stem from the fact that they were less aroused than men at baseline. This suggests that physiological reactivity is not simply

a function of one's gender or initiator patterns, but rather is a complex interaction of gender and the initiator status of each spouse individually and as a system. It is clear that further research involving physiological measurement during communicative interactions in marital couples is warranted to further elucidate the relationship between withdrawal, gender, and physiological reactivity.

Other researchers have examined the role of physiological reactivity in marital interactions, and have noted similar patterns. There is evidence that non-defensive listening between partners is associated with decreased heart rate and other cardiovascular activity (Bittker, et al., 1975). Levenson and Gottman (1983, 1985) examined physiological interrelatedness, or linkage, and found that physiological linkage accounted for over 60% of the variance in marital satisfaction measured concurrently on the MAT. Additionally, mean levels of physiological arousal as measured through heart rate, accounted for up to 80% of the variance in satisfaction change over a 3-year period. Specifically, the more physiologically aroused the subjects were during the laboratory marital interaction, the more their marital satisfaction declined in the ensuing three years. Furthermore, Gottman and Levenson (1984, 1986) found that physiological variables, including heart rate measures, correlated inversely with marital satisfaction, and accounted for a significant proportion of variation in the marital adjustment outcome measures. These researchers posit that a high level of autonomic nervous system arousal during conflict is aversive, and behaviors that result in an immediate drop in such arousal are negatively reinforced. This is consistent with Gottman et al.'s (1998) later hypotheses, that when arousal exceeds a given level, the individual becomes physiologically

uncomfortable. At this point, processing further information is impossible, and the person will engage in behaviors designed to self-soothe (or escape) such arousal, including physical withdrawal, if needed.

Interestingly, Thomsen and Gilbert (1998) demonstrated that husbands' marital satisfaction was predicted by their wives' physiological arousal, while the wives' satisfaction was a complex function of the interaction of increases in the husbands' skin conductance and heart rate. Specifically, they found that either extremely low or high levels of physiological arousal (as measured by heart rate and skin conductance) in men were predictive of their wives greater marital satisfaction, although husbands' discrepant scores in these two physiological modalities (i.e., high heart rate and low skin conductance) predicted lower satisfaction in wives. Although it is plausible that high levels of physiological arousal in men suggest actively working toward conflict resolution, these results contradict other data that suggest that high levels of arousal are detrimental to conflict discussions. Additionally, the discrepancy in the two measurement modalities and its relation to wives' satisfaction is puzzling. Thus, there is still some ambiguity regarding the relationship between physiological arousal and marital satisfaction, necessitating further research.

Coding in the Present Study

Because the purpose of the present study was to examine physiological and behavioral data to determine if these methodologies yield similar results as did self-report measures, as well as possibly detect clinically relevant behavioral and physiological

indices of marital satisfaction and communication skills undetected by the self-report data, the coding system was deliberately designed to correspond to behaviors assessed with the self-report methodology. We anticipated that behavioral modalities of data collection would be more illuminative regarding communicative and marital differences between groups and over time within each group. In order to code the data in terms of the specific self-report dependent measures used in this study and to specifically evaluate Gottman's (1999) behavioral indices of marital satisfaction and communication behaviors, this study developed a unique coding system for the purposes of this research, although it was based on the behavioral observation methods mentioned previously.

It is notable that because a specified purpose of this study was to detect those behaviors most detrimental to marital relationships, the coding system reflects a greater emphasis on negative, rather than positive, marital behaviors, since those have been found to be most predictive of marital distress and divorce. As discussed above, these behaviors have been found to differentiate distressed from nondistressed couples (Holman & Jarvis, 2003). Efforts were made to minimize subjectivity as much as possible in coding the tapes by operationally defining the coding categories, although this is a difficult endeavor in human behavioral research (King, 2001). Several researchers in the field of marital therapy observation call for a "cultural informant" approach to coding (Gottman, 1996; Roberts & Greenberg, 2003), in which coders are trained to integrate all available information and assign a code that captures the interpersonal meaning of the target behavior. Socially based coding systems are those that "classify behaviors and events by the perceptions of the researcher who is collecting the information over some

form of social process. This type of category includes an inference on the part of the researcher” (Sharpe & Koperwas, 2003, p. 133). Because this type of coding approach encourages subjectivity and inference and holds potential risk for variability across coders, rather than focusing on the variability inherent in the coded tapes, efforts were made in this study to minimize inference in the coding process, and remain consistent to the established coding definitions, although this would be difficult to do with interactional data.

The purpose of the present study was to experimentally examine the effects on the Speaker-Listener technique when the couple is instructed to either (a) complain about the partner, or (b) complain about a third party, on couples’ communication behavior emitted in session. Additionally, this study examined how these effects related to the couples’ initial level of marital distress. One previous study (Cornelius & Alessi, unpublished), using the same data set as the current project, experimentally examined these two conditions using the Speaker-Listener technique, and this study failed to find significant differences between the conditions. This null result could have been due to the exclusive reliance on self-report dependent outcomes, rather than behavioral observations and physiological measures. To address this limitation of previous research, this study examined these two conditions and using behavioral observation, physiological measures, and self-report data to detect any differences between the two groups. Although Cornelius and Alessi (unpublished) failed to find an effect, it was anticipated that observational and physiological measurement might be a more sensitive means through which to detect subtle changes in marital satisfaction and communication behaviors. It was hypothesized

that complaining about a marital issue would result in increased levels of marital distress immediately following the intervention, as compared to complaining about a third party issue. Additionally, it was hypothesized that this effect would be augmented for couples who initially presented with higher levels of marital distress, as compared to those couples who were less distressed prior to the intervention.

METHOD

Participants

Thirty married couples were recruited from a large, public Midwestern university and the surrounding communities. Couples were recruited through flyers posted on campus, newspaper advertisements in local papers and through signs posted at local establishments and churches that were likely to encounter couples who might be interested in participating in the study. This strategy was specifically designed to recruit couples with varying initial levels of marital distress. Recruitment brochures advertised a skills training workshop designed to teach married couples communication skills that could enhance their marital relationship. Couples responding to the advertisements were instructed to call the Behavioral Pediatrics Laboratory to schedule an initial appointment. All potential participants were contacted by the principal student investigator to conduct a phone screening to ensure that the couple met the inclusionary criteria. If the couple met criteria for inclusion in the study, an initial session was scheduled. At that time, the experimenter randomly assigned the couple to either experimental Group A or Group B.

Participants qualified for the study if: (a) they were currently married and living with their spouse and (b) both partners were willing to engage in the intervention and follow-up sessions. Participants were excluded from participation in the study if one or both of the partners were currently receiving therapy for any form of psychopathology or psychosocial adjustment difficulties, or had participated in a formal premarital or marital intervention program that included communication skills training within the last two

years. The first thirty couples who completed the initial three sessions were included in the sample.

Setting

This study was conducted on the campus of a large, public, Midwestern university. All assessment and intervention sessions were conducted in an individual therapy room approximately 10' x 11' in size. This room contained three chairs and a small round table. A video camera was mounted in the upper corner facing the table, such that both partners were within view of the camera.

Materials

Materials used during the course of this study included the communication training manual for the PREP intervention described above (Markman, Stanley, & Blumberg, 1994), and a script developed from this manual for the purpose of this study, which the therapists used to implement the communication skills training. The Marital Adjustment Test (Locke & Wallace, 1959) was used to assess the couples' level of marital satisfaction, and a packet of questionnaires (See Appendix A) was used to assess the couples' pattern of communication tactics (Gottman, 1999). Both of these are described in the following section.

To collect the behavioral data, a mounted video camera was situated in the room such that only the two partners were in view of the camera during session. To gather physiological data, wrist heart rate monitors were used that were programmed to activate

an audio alarm if either partner's heart rate exceeded 100 beats per minute, consistent with Gottman's (1999) hypotheses regarding excessive physiological arousal. The heart rate monitor took the individual's pulse every two seconds, and if it exceeded 100 beats on a given reading, an alarm would sound. Because the alarm was audible, all instances in which one of the partner's heart rate exceeded 100 beats was recorded on the videotape and coded with the behavioral data.

Independent Variables

There were two primary independent variables in this study, one within subjects and one between subjects factor. The between subjects variable was group assignment, either Group A or Group B, which was randomly assigned by the experimenter. Couples assigned to Group A were trained and instructed to utilize the technique discussing a topic within their marriage, while couples in Group B were asked to use the technique to discuss a topic outside their marriage. The within subjects factor was time (i.e., changes within each couple and individual), assessed with self-report, behavioral, and physiological measures, over the course of the experiment. Compliance for the independent variables was assessed and will be reported in later sections.

Dependent Variable Measures

The three primary dependent variable constructs for this study were dyadic Communication Skills, Marital Satisfaction, and physiological arousal. These were assessed using a combination of self-report measures, heart rate measures, and behavioral

observation techniques. The two self-report measures consisted of a packet of communication questionnaires developed by Gottman (1999) and the Marital Adjustment Test (MAT, Locke & Wallace, 1959). Additionally, behavioral and physiological data were collected.

Communication Skills Questionnaires

Five short self-report measures (Gottman, 1999) were used to assess several component communication skills. Specifically, the questionnaires assessed Compromise, Repair Attempts, Flooding, Gridlock, and the Four Horsemen. Each inventory used a true-false format in which the partners indicated whether or not various behaviors are characteristic of their marital interactions. Although the format for each questionnaire was identical, they ranged in length from 15 items to 33 items (see Appendix A). All of these questionnaires, although relatively newly developed, have been used in recent research on communication patterns of couples, and have been reported as useful in differentiating couples' communication skills (Gottman, et al., 1998). Gottman reports that these scales have been found to be reliable measures in his lab, and current research is being conducted to establish their validity by Gottman and his associates at the University of Washington (Gottman, personal communication, 1999). These questionnaires were administered to each partner in this study immediately prior to and immediately following the intervention, and again at 3-months and 6-month follow-up sessions.

Each of the five self-report measures for the construct of Communication Skills used a simple and standardized scoring procedure. For each measure, items were coded according to whether or not they represented maladaptive or positive communication behaviors. Each item yielded a score of 0 or 1. The individual items on each scale were summed to generate a total score for each of the five components of the broader construct of Communication Skills. High scores on each measure indicated higher degrees of that particular tactic, while low scores characterized lesser degrees of that communication tactic.

Marital Satisfaction Questionnaire

Although Marital Satisfaction is a complex and multidimensional construct, a relatively straightforward and simple global assessment device has proven useful in measuring this construct. This questionnaire, the Marital Adjustment Test (MAT), developed by Locke and Wallace (1959), is a brief, self-report, global measure that has been validated to differentiate between maritally satisfied and maritally dissatisfied couples. This 16-item self-report measure assesses the degree to which the couple is satisfied with several aspects of the marital relationship. The MAT is the most frequently used measure of marital satisfaction. Although several other measures assess Marital Satisfaction, all are highly correlated with this measure, and, generally, do not yield new information or increase the validity of the MAT. As Gottman articulates, "...periodically, someone develops another scale to tap some other dimension of marriage, but it is hard to

find a scale that is not correlated with marital satisfaction...” as it is measured by the MAT (Gottman, 1999, p. 120).

The reliability and validity of the MAT has been well-documented (Locke & Wallace, 1959), and it is generally considered within the field of marital therapy to be the best and most efficient measure of marital satisfaction. Split-half reliability analyses of this measure generally yield 0.90 or better coefficients (Locke & Wallace, 1959; Gottman, 1999). Additionally, scores on this instrument correlate with clinical judgments of marital discord and dissatisfaction (Crowther, 1985; Gottman et al., 1977). For the purposes of this study, the construct of Marital Satisfaction was assessed using this self-report measure. Each partner completed the MAT immediately prior to and following the intervention sessions, as well as at 3-months and 6-month follow-up sessions.

The MAT has a standardized scoring procedure in which individual items are summed to generate an overall score of marital satisfaction. However, individual items on the inventory are differentially weighed according to their expected importance in determining Marital Satisfaction. A copy of the scoring procedures can be found in Appendix B. The MAT has been standardized with a mean of 100 and a standard deviation of 15 points. Marital distress in a couple is usually defined when at least one spouse obtains a score of less than 85. However, Marital Satisfaction is better conceptualized dimensionally along a continuum, rather than categorically as a dichotomous classification variable.

Physiological and Behavioral Assessment of Dependent Variables

Each of the dependent variables was assessed separately with self-report measures. In order better to assess these constructs and to detect differences in findings across different data collection methods, both physiological and behavioral data were also collected. These two modalities were used to detect both changes in communication and marital satisfaction over time and between groups.

Physiological data were collected using a wrist heart-rate monitor to detect instances in which one or both partners exceeded 100 heartbeats per minute, and, thus, would be presumably less able to process information, according Gottman, et al. (1998) and Gottman (1999). Because physiological arousal may be related to the demand-withdrawal communication pattern commonly seen in distressed couples (Denton, et al., 2001), heart rate was used to detect a possible physiological relationship to this communication pattern. Heart rate physiological data also was used to determine its potential validity in discriminating between couples with differing levels of communication skills and marital distress.

Communication skills behavior and marital satisfaction was also assessed using behavioral observation methodology. All of the couple's communication discussions were videotaped and were analyzed to determine whether behavioral observation data were more sensitive in detecting subtle but clinically important changes in communication patterns. Additionally, these data were used to detect behavioral indices of marital satisfaction and discord, such as repair attempts, harsh start-up, and contempt.

This type of data collection was specifically implemented to address limitations in the self-report methods that could have been insensitive in detecting changes in behavior between the two groups over time. Both the physiological data and the behavioral observations were coded by trained observers and entered into a computer program to determine serial and sequential dependencies between spousal behaviors and physiological reactions. The development of the coding system and these analyses will be discussed in greater detail in later sections of this paper.

Behavioral Coding, Input and Analysis

This study developed a unique coding system for the purposes of this research, although it was based on the behavioral observation methods mentioned previously. Twelve specific categories of behaviors were initially coded for each spouse, as well as one measure of physiological arousal. Although this is a relatively high number of behavioral codes for most coding systems of this sophistication (Bakeman & Gottman, 1997; Sharpe & Koperwas, 2003), they were deemed the most useful in terms of gathering information, and were created with the assumption that they might be combined at some point in data analysis. One of the twelve categories of behavior was a measure of the degree to which the couple complied with the communication skills module, and thus was used as an indicator of treatment integrity. Thus, if, during the interaction, a couple deviated from the Speaker-Listener technique or their experimental assignment, this was coded to determine if there were systematic differences between those couples who are able to apply the technique to an emotionally charged topic, and those who are not.

Twelve behavioral categories were chosen in order to compare the self-report data gathered, as well as to examine those behaviors deemed to be most toxic in marital relationships, as discussed by Gottman (1999). The tapes were coded for behavior categories such as contempt, defensiveness, stonewalling, repair attempts, and compromise. Coding categories included a descriptive name, a general definition, a discussion of critical components, and various exemplars. These components of the behavioral codes are generally considered to be necessary components of adequate coding categories (Sharpe & Koperwas, 2003). Examples of codes include criticism, which was defined as “attacking someone’s personality or character rather than a specific behavior.” Examples of criticisms were provided in the definitional categories as well. Additionally, stonewalling was defined as “involving removing oneself from the interaction in a manner that conveys disapproval, icy distance, and smugness.” A complete list of codes is included in Appendix A, along with examples and operational definitions of such behaviors.

Four advanced undergraduate students and one graduate student served as the coders for this study. All were familiar with the research line since they had assisted in various capacities during study 1. All coders were blind to the research questions and hypotheses, although they were aware that there were two different groups. Training sessions took place twice weekly in two hour blocks for a period of seven months, for a total of approximately 100 hours. Coders were required to memorize the codes and definitions, and during coding sessions probed through oral quizzes. During coder training, a realistic training tape of real couples engaging in verbal arguments was used.

During these 2-hour training sessions, the coders coded 5-minute sections. Initially, and prior to conducting interobserver agreement checks, discussions took place regarding differentiation of various code categories, and further refinement of the categories was conducted. In order to alleviate the burden on the coders and hopefully increase agreement, the coders coded male and female data separately, such that they did not need to attend to both partners in the same coding session. During training, once coders appeared to be learning the system and appeared close to competency, agreement coefficients were obtained. After acceptable agreement was obtained during training, which averaged 83% in training, the coders conducted the coding of the study data, during which time weekly recalibration sessions for continued training.

Coders recorded observation data at two times, at the first and the third sessions. This was conducted in order to allow for analyses of patterns of behavior over time for each couple and while the couple was utilizing the Speaker-Listener technique. Coding of the data for the thirty couples in this study took about six months, during which weekly recalibration sessions took place. Recalibration checks were conducted at greater frequency than is generally recommended by the literature (Sharpe & Koperwas, 2003), since the coding categories were relatively complex. During recalibration sessions, difficult codes and problem situations were discussed and clarified as necessary.

In order to assess interobserver reliability of the coding tapes, one-third of the tapes were randomly assigned to be coded twice, in order to assess agreement of two independent coders. During coding, the initial coder did not necessarily know if a particular session would be part of the interobserver agreement checks. If a session was

included in the reliability sample, the second coder had awareness that the session would be included in the reliability sample, but did not have access to the previously coded session done by the other coder. In this sense, interobserver agreement during coding was truly independent and partially blind to the coders.

After completing training, recalibration, and initial coding of the data, coding categories were evaluated based on the interobserver reliability coefficients discussed in later sections. Due to low frequency codes and use of exact agreement for occurrences of behavior only, which generally leads to an overly stringent criterion for agreement, codes were collapsed using a random sample of the reliability data. Based on these data and the theoretical understanding of marital interactions, codes were collapsed into eight behavioral categories and one physiological category. In order to preserve the connection with the theoretical understanding of marital distress, some coding categories, namely those deemed most toxic in marital relationships, remained independent. Thus, although these coding categories revealed low frequency of behavior, and thus, were likely to be less reliable, they remained intact in order to make at least exploratory statements about the function of these behaviors when they occurred. A complete list of the new codes can be found in Appendix A.

Recent technological advances have provided a variety of computer based observational software programs that vary in complexity, capabilities, and expense. The Behavioral Evaluation Strategy and Taxonomy (BEST) program was deemed useful and practical for the design and purposes of this study (Kahng & Iwata, 2000; Richards & Bobicz, 2003). All behavioral and physiological data were coded and entered into the

Behavioral Evaluation Strategy and Taxonomy (BEST). This program allows the user to record up to 36 different responses and has the capability to record response frequency, duration, intervals, time samples, latency and interresponse time.

PROCEDURE

Initial Session

Upon arriving for the initial session, all participants were escorted to the therapy rooms within the Research Commons. Each room was equipped with a small round table and a video recorder mounted to the wall. Once both partners had been seated at the table, the investigator briefly explained the purpose of this study. The couple was informed that during the course of the study, they would be asked to complete questionnaires regarding their level of marital satisfaction and current communication tactics. Also, they would be participating in two communication training sessions, and asked to employ these new techniques while discussing either a current problem within their marriage or an outside problem, depending on their experimental assignment. The participants were informed that following the training sessions, they would be asked to return for two, brief follow-up sessions, in which they would complete the same questionnaires.

In order to ensure that participants were fully informed regarding potential risks and benefits of the study, the experimenter informed them that they might be discussing personal and potentially anxiety-provoking topics that could cause some discomfort within the treatment session. They were informed that should they become distressed, they could withdraw from participation at any time during the course of the study without penalty or prejudice. Participants were also told that all intervention sessions would be videotaped, but that these would be observed only by trained research assistants, and would be destroyed following data analysis and dissertation defense. Additionally,

participants were informed that all information collected throughout the study would be labeled with a code number and kept confidential in a locked cabinet with no identifying information listed. A master list of the participants' names and corresponding code numbers was kept in a separate locked cabinet until data collection had been completed. The participants were also informed that the project had been approved by the Human Subjects Institutional Review Board, and were given the telephone numbers of the HSIRB and principal investigator in case they needed to contact them.

After explaining the general nature of the study and answering questions, participants were asked to read carefully and sign the consent document. After signing the consent document, each partner was asked to complete a packet of questionnaires, including a demographic questionnaire, the Marital Adjustment Test, and the communication tactics measures. Couples were instructed to complete the measures based on their own feelings and perceptions, and not to discuss their answers with their partner. Additionally, each partner was asked to generate a list of current conflicts that related to issues within the marriage or issues outside the marriage, depending on their experimental assignment. That is, couples in Group A were asked to generate a list of current difficulties within the marriage, and couples in Group B were asked to generate a list of current conflicts outside the marriage. Partners were also asked to rate the severity or emotional tension surrounding that issue from 1 to 10 (See Appendix C). Finally, the couple was asked to choose one of the issues identified on the questionnaire that was rated as a 6 or higher in terms of emotional tension, and engage in one 10-minute conversation about that current conflict or difficulty.

These interactions were videotaped and all partners wore the wrist heart-rate monitors during this interaction in order to monitor their physiological arousal during the conversation. Following the baseline conversation, they were told that in the next session, they would learn the communication skills. Ideally, the appointment was scheduled for the following week, but due to scheduling conflicts, some couples scheduled the next session either slightly earlier or later than one week following the initial session. The average delay between session one and session two was 11 days. The duration of this initial session varied depending on the number of questions that the couple asked, but lasted between 45 and 75 minutes. After the appointment for the next session was made and the couple left, all testing materials were collected from the therapy room, marked with the couple's unique coding number, and stored in the locked cabinet in the principal investigator's laboratory.

Second Session

During the second session, and prior to implementing the Speaker-Listener training, both partners were asked to again complete the Marital Adjustment Test and the communication questionnaires. The investigator then informed the couple that the skills training would last approximately 1-1/2 hours. The researcher reminded the couple that they would be taught the Speaker-Listener skill tactics, have an opportunity to practice the skill, and then be asked to apply the skill while discussing either a problem within the marriage, or a problem outside of the marriage (depending on their experimental assignment). The couple was also reminded that the session would be videotaped. After

answering any preliminary questions that the couple asked, the skills training began. The training script was based on the treatment protocol utilized in the PREP intervention, as outlined by Stanley, Markman, and Blumberg (1996). Prior to the study, all study therapists were trained in the technique using the PREP training manual and videotape until mastery had been achieved. Throughout the training, the script was tailored to reflect the couples' experimental assignment, in that couples assigned to Group A were told that this technique is useful in discussing current problems within the marriage, while couples in Group B were informed that this technique is useful only for discussing current problems outside the marriage.

The experimenter explained to the couple the basic rationale for the communication skills training. Specifically, he or she explained that the Speaker-Listener technique offers couples an alternative mode of communication when issues are hot or sensitive, or when they are likely to get that way, and that this communication technique offers the couple a structured format in order to facilitate communication. The therapist explained that while using this technique, each person would have an opportunity to talk and also to listen to the input of their partner. The couple was informed that this technique is not designed to *solve* problems, but rather as a means to facilitate *listening* and speaking for better understanding of each partner's concerns. The couple was informed that this technique might feel awkward or forced at times, but that the structure was vital to helping the couple better understand the issue at hand (See Appendix C for exact script of rationale).

After the researcher explained the rationale and answered questions, the basic “ground rules” of the procedure were explained. First, during each conversation each partner would be designated as either the Speaker or the Listener at different points in the interaction. The couple was told that the Speaker would have the “floor,” which was represented by a 2 x 3 notecard which outlined the fundamental tenets of the communication skills training (See Appendix C). The investigator explained that if one partner did not have the floor, that partner was designated as the Listener. Second, the couple was told that it was important that they share the floor over the course of the conversation. That is, one person might start and say a number of things, but following that statement, it would be important that the floor be offered to the other person. Third, the couple was told that no problem solving should take place during the discussion. Rather, the focus of the conversation should be on listening and trying to understand each other’s positions.

The investigator also informed the couple that there are specific rules for the Speaker and Listener to follow individually, and that these were very important to the communication skills training. First, with regard to the Speaker, whoever was designated as the Speaker should speak for him or herself. The Speaker was instructed to talk about his/her own feelings, thoughts, and concerns, not his/her perceptions of the Listener’s point of view or motives. The Speaker was to avoid statements beginning with “you,” and instead should use “I statements.” Also, the couple was told that the statements made by the Speaker should be short enough such that the Listener could effectively paraphrase

their statements, and that the Speaker should pause to let the Listener paraphrase the previous statements.

Rules for the Listener were also explained to the couple. Specifically, the Listener was instructed that after the Speaker had finished a statement, he/she should paraphrase what the Speaker said. The Listener should focus on understanding the comments of the Speaker, and try to restate these comments in his/her own words. If the paraphrase was not quite right, the Speaker could gently clarify the point, and the Listener should make another attempt at paraphrasing the statements. Second, the Listener should focus on the Speaker's message, without attempting to rebut their statement. Specifically, the Listener should not offer his/her opinions or thoughts, but rather should simply paraphrase the partner's statement. After explaining these basic procedures, both partners were given a handout that delineated the basic tenets of the communication skills training. (See Appendix C for the script of these rules, as well as the handout that each partner was given.)

After procedures were explained and questions answered, couples selected a neutral topic and practiced the Speaker-Listener technique. The couple was asked to discuss a topic that was not a current conflict or problem in their marriage or in their lives, and that did not evoke any strong emotions or thoughts. Examples of possible topics were provided to the couple, including colors of cars, breakfast cereals, or the weather. It was further emphasized that it was critical that the topic be emotionally neutral. The couple was asked to decide on a topic, and then tell the investigator what it was. The couple then began discussing the topic using the Speaker-Listener technique,

and the investigator gave them specific positive and constructive feedback regarding whether or not they were following the appropriate ground rules. For example, if the Listener began to rebut the statement of the Speaker instead of simply paraphrasing, the investigator reminded the Listener that his or her job was simply to restate their partner's comments, and not to address their statements. The couple continued to discuss this issue until they stated that they had nothing further to say on the topic. The couple was then asked to repeat the procedure with a second neutral topic in the identical fashion as described above.

Following this training and practice, the couple was told that they could take a 10-minute break if desired, and that when they returned, they would be asked to engage in a conversation using the skills they had just learned. When the couple returned, the investigator informed them that they would now be instructed to discuss another issue using the communication technique they had just learned. At this time, each partner was asked to put the wrist heart rate monitor on their nondominant hand, and the therapist checked to make sure that it was reading pulse properly. Different instructions were read to the couples, depending on their experimental assignment to either Group A or Group B.

Experimental Manipulation

Couples in experimental Group A were read the following instructions:

“Now that you have learned this communication technique, I would like you to use this method to discuss a current problem *within your marriage*. This could

include financial problems, distribution of household chores, sex, or annoyances of your partner. It is important that the discussion focus upon a conflict *within the marriage*, rather than an outside person or problem. You should look at the list you generated of current issues within the marriage that you generated last time, and choose one that is rated as a 6 or higher. When you feel that you are done discussing the issue, tell me that you are done. I will give you a few moments to think and talk about the issue you both would like to discuss. When you decide on a topic you both agreed to discuss, let me know, and I'll write it on this white board. During this discussion, I will not be able to offer you feedback on your technique, but the video camera is on and will be recording the interaction. It is very important that you continue to use the Speaker-Listener technique during this conversation, even though the conversation may get heated."

Couples in experimental Group B were read the following instructions:

"Now that you have learned this communication technique, I would like you to use this method to discuss a current problem *outside of your marriage*. This could include difficulties with a mutual friend, your work, or family members. It is important that the discussion focus upon a conflict *outside of the marriage*, rather than on a current marital problem. You should look at the list you generated of current issues outside your marriage that you generated last time, and choose one that is rated as a 6 or higher. When you feel that you are done discussing the issue, tell me that you are done. I will give you a few moments to think and talk about the issue you both would like to discuss. When you decide on a topic you both

agreed to discuss, let me know, and I'll write it on this white board. During this discussion, I will not be able to offer you feedback on your technique, but the video camera is on and will be recording the interaction. It is very important that you continue to use the Speaker-Listener technique during this conversation, even though the conversation may get heated."

After reading these instructions, the investigator waited for the couple to inform him or her of the topic, and then the investigator sat in the corner, outside of the view of the camera. The couple began discussing the chosen issue, and the investigator did not offer any feedback regarding technique during this interaction. However, the therapists were instructed to verbally redirect the couple if they switched to a different topic that was inconsistent with their experimental assignment. Informal reports from the therapists indicate that in less than 10% of the sessions, couples were redirected during the conversation. The interaction continued until both of the partners verbally signaled to the investigator that they were done discussing the issue or wished to stop the interaction. Although the therapists were instructed to stop the interaction if the couple became verbally or physically abusive, there were no instances when this was necessary.

When the couple signaled that they were finished discussing the issue, they were instructed to complete the same questionnaires that had been administered at the beginning of the session. They were prompted to answer each of the questionnaires completely and honestly. After questionnaires were completed and checked by the investigator for completeness, the couple was asked to schedule another appointment for the following week. The average length of time between session two and session three

was 10 days. Couples were informed that during the next session, they would be practicing these communication skills further. They were instructed that if they decided to use this technique at home during the upcoming week, they should only discuss issues that are consistent with their experimental assignment. Couples in Group A were told that they may use this technique at home to discuss issues within the marriage, while those in Group B were told that they may use the technique to discuss conflicts outside of the marital relationship. After the appointment for the next session had been made and the couple left, all testing materials and videotapes were collected from the therapy room, marked with the couple's unique coding number, and stored in the locked cabinet in the principal investigator's laboratory.

Third Session

The procedure for the third session was identical to that of the second session, with a few notable exceptions. First, prior to beginning the communication skills training, the researcher asked the couple if they had used the skills during the previous week, and, if so, the estimated number of hours in which the couple engaged in the procedure, and the issue(s) discussed (see Appendix C). The couple then completed the set of questionnaires as in the previous session, and the communication skills training and practice opportunities were conducted as outlined above. Following this practice, the investigator informed couples that they would now be instructed to discuss another issue using the communication technique, in a manner identical to that described during session two. That is, couples remained in their assigned experimental group and discussed an

issue that was either related to a conflict within the marriage or outside of the marriage, depending on their group assignment. All experimental interactions were videotaped, and each partner wore the wrist heart rate monitors during the conversation. The same instruction set and criteria for stopping the interaction as in the second session was in place for this discussion. As in the previous session, when the couple signaled that they were finished discussing the issue, they were instructed to complete the same questionnaires that were administered at the beginning of the session. When both partners had completed the questionnaires, checked by the investigator for completeness, they were told that the communication skills training was complete, and that follow-up sessions needed to be scheduled.

Follow-up data were collected at three and six months after the last session, for use in a separate project. The couple was instructed that if they decided to use this technique at home, they should only discuss issue themes consistent with their experimental assignment. The couple was also given a list of community resources for marital counseling, in the event that they might wish to consider this option (Appendix C). After the couple left, all testing materials and videotapes collected from the therapy room were marked with the couple's unique coding number and stored in the locked cabinet in the principal investigator's laboratory.

EXPERIMENTAL DESIGN

This study used a 2-Factor Split-Plot design, with one between and one repeated measures factor. A between groups design was selected in order to evaluate the differential effects of the topic discussed on marital satisfaction and changes in communication tactics both immediately, and over time. There were two levels of the between group factor: discussing a topic about a conflict within the marriage (Group A), and discussing a topic outside of the marriage (Group B). Participants were randomly assigned to one of the two levels of the between groups factor. Random assignment to the experimental groups was used to maximize the likelihood that marital distress and any other extraneous variables were randomly distributed across the two groups. This study used a repeated measures design in that the effects of the communication training were assessed within each group over successive assessment periods. Changes in both marital satisfaction and communication tactics were thus examined over time for each of the two groups.

RESULTS

A total of 75 individuals contacted the researcher for information about the study (83.12% women, 18.18% men), and of those, the first 30 who completed the three initial sessions were included in the sample (N=30 couples, 60 participants). Of those who contacted the researcher but did not participate, 66.67% (N=30) either did not return the researcher's calls or did not show up for the first scheduled session, 24.44% (N=11) did not meet the inclusionary criteria, and less than 9% (N=4) either would not sign the consent document or dropped out after attending the first session.

The average length of marriage for the 30 participant couples was 18.25 years (SD=14.08). The 60 participants ranged in age from 23 to 71, with a mean of 44.88 (SD=13.36). The average annual family income level for participants was between \$60,000–70,000, and the majority of participants were Caucasian (N=58, 97%). Most of the participants in the study reported that this was their first marriage (N=50, 83.3%), although the range was from first to more than four marital relationships. The modal number of children reported by this sample was 2, with a range of 0–4. The majority of participants reported some religious affiliation, with the most common self-reported affiliation being Catholic (N=18, 30%).

Self-Report Data

The analyses conducted on the self-report measures with this data set were described in a previous paper, and will be summarized only briefly here. Reliability and

intercorrelation coefficients were calculated to determine the degree of linear relationship among and between the various communication measures and the MAT (see Tables 1–3). For this sample, all test-retest reliability coefficients were statistically significant at the $\alpha=0.05$ Bonferroni corrected level. Because multiple correlation coefficients were calculated on the same sample, the probability of a Type 1 error is amplified above the stated alpha level, and thus a more conservative Bonferroni critical value was used for each individual correlation coefficient. The MAT reliability coefficient for this sample ($r=0.93$) is comparable to that found in previous literature (i.e., Gottman, 1999).

Intercorrelations were calculated among the measures administered at the first session, and between the questionnaires at the first session and the second session. Both sessions occurred before interventions began. The intercorrelations were statistically significant at the 0.05 corrected level, and were relatively consistent over this short period of time.

In order to confirm that the two experimental groups were equivalent prior to the study, a series of *t-tests* were conducted on the self-report measures and other variables that might have been related to the outcome measures. No statistically significant differences were found between the two groups on initial MAT scores, on any of the communication measures, length of marriage, family income, or age. Table 4 presents means and standard deviations on demographic and self-report scores for the two groups. Because there were no statistically significant differences between the two groups prior to the intervention on the outcome measures or relevant demographic variables (as would be expected given random assignment) comparisons between the conditions were conducted without concern for these threats to the internal validity of the study.

Table 1

Test-Retest Reliability Coefficients and Correlations of Each
Self-Report Measure across Two Sessions

1 st Pre	MAT	Rep Att	Compro	2 nd Pre		
				Grid	Flood	4 Horse
MAT	0.933*	0.736*	0.529*	-0.693*	-0.667*	-0.707*
Rep Att	0.717*	0.904*	0.653*	-0.705*	-0.675*	-0.729*
Compro	0.530*	0.645*	0.705*	-0.546*	-0.471*	-0.598*
Grid	-0.728*	-0.821*	-0.570*	0.878*	0.808*	0.873*
Flood	-0.691*	-0.764*	-0.567*	0.757*	0.813*	0.807*
4 Horse	-0.748*	-0.756*	-0.503*	0.792*	0.798*	0.873*

* Correlations significant at the 0.01 level.

Table 2

Intercorrelations of Each Self-Report Measure at Session One

1 st Pre	MAT	Rep Att	Compro	1 st Pre		
				Grid	Flood	4 Horse
MAT	—	—	—	—	—	—
Rep Att	0.713*	—	—	—	—	—
Compro	0.514*	0.636*	—	—	—	—
Grid	-0.747*	-0.736*	-0.577*	—	—	—
Flood	-0.673*	-0.706*	-0.540*	0.848*	—	—
4 Horse	-0.745*	-0.700*	-0.605*	0.819*	0.813*	—

* Correlations significant at the 0.01 level.

Table 3

Durability of Intercorrelations of Each Self-Report Measure
Across Session One and Session Two

1 st Pre	MAT	Rep Att	Compro	Grid	Flood	4 Horse
MAT	—	—	—	—	—	—
Rep Att	0.713 (0.717)	—	—	—	—	—
Compro	0.514 (0.530)	0.636 (0.645)	—	—	—	—
Grid	-0.747 (-0.728)	-0.736 (-0.821)	-0.577 (-0.570)	—	—	—
Flood	-0.673 (-0.691)	-0.706 (-0.764)	-0.540 (-0.567)	0.848 (0.757)	—	—
4 Horse	-0.745 (-0.748)	-0.700 (-0.756)	-0.605 (-0.503)	0.819 (0.792)	0.813 (0.798)	—

() Correlations between session one and session two.

In order to determine differential effects of the independent variable on the self-report outcome measures, several separate Analyses of Covariance (ANCOVA's) were conducted with initial marital satisfaction (i.e., MAT scores) as the covariate. Because baseline levels of marital satisfaction are conceptually and empirically related to outcomes of marital interventions, statistically controlling for this should increase power to detect changes between groups. *A priori* analyses of the range of initial marital satisfaction for the sample revealed a broad range of scores (28 to 145), which suggests no restriction in range, an important requirement of the ANCOVA analysis. Because

Table 4

Demographic Variables, Marital Satisfaction, and Communication Skills Scores
for the Two Groups at Session 1

Variable	Within (<i>n</i> = 30)			Outside (<i>n</i> = 30)		
	M	SD	Range	M	SD	Range
Years married	19.34	15.99	2.83-48.00	17.29	12.12	1.58-42.00
Age						
Husbands	45.87	14.91	24-71	45.33	12.41	23-67
Wives	45.07	14.29	24-69	43.27	12.92	23-64
Family Income	60-70,000	19,900	30-90,000+	60-70,000	20,000	20-90,000+
MAT						
Husbands	97.20	27.28	51-145	108.53	30.16	42-144
Wives	97.73	32.11	28-145	101.80	33.54	31-144
Repair Attempts						
Husbands	12.80	4.90	6-20	13.27	4.88	4-20
Wives	12.40	4.69	3-19	11.63	4.84	5-20
Compromise						
Husbands	13.40	4.08	4-20	13.43	2.47	9-19
Wives	14.53	3.20	9-19	12.67	3.31	4.5-19
Gridlock						
Husbands	6.90	4.86	0-17	7.37	6.27	0-18
Wives	7.37	5.06	0-19	7.43	5.98	0-18
Flooding						
Husbands	6.10	3.59	0-12	6.10	4.68	0-13
Wives	7.80	4.13	1-14	6.27	4.29	0-14
Four Horsemen						
Husbands	13.17	7.00	1-24	11.40	8.18	0-26
Wives	10.73	7.80	1-27	12.73	8.12	0-29

Note. *n*=30 for each group denotes individuals, not couples.

ANCOVA assumes homogeneity of regression, homogeneity and linearity of slope tests were conducted. All revealed nonsignificant results, suggesting that this ANCOVA assumption had also been met. A series of separate ANCOVA analyses, with initial marital satisfaction as the covariate and each of the self-report communication measures as the outcome variable, were conducted on these data. Although none of the individual

comparisons were significant at the 0.05 level, the covariate, initial marital satisfaction, accounted for a large proportion of variance in each of the analyses. This suggests that variance in outcome measures, regardless of the type of issue discussed by the couple, was more a function of marital satisfaction as measured prior to the intervention than a function of the topic discussed.

Observational Data

In addition to the self-report data, event behavioral data were coded and analyzed. Over the course of training and coding, data were collected to determine interrater agreement coefficients. Exact point-by-point agreement for event occurrences was calculated during training for seven consecutive weeks yielding a mean of 83% agreement, with coefficients ranging from 81% to 93%. During recalibration and coding, point-by-point exact agreement was calculated based on 15 sessions over the course of 10 weeks, yielding 86% agreement, ranging from 80–100%.

During coding, videotaped segments were randomly assigned to each coder, with 40 of the 120 segments (33%) randomly assigned to two coders to provide inter-rater agreement checks. Inter-rater agreement was calculated using point-by-point agreement for occurrences for the entire system across both males and females. Average event agreement for the entire coding system was 50.41%, ranging from 0–100%. Point-by-point agreement for each code individually can be found in Table 5. Several of the event code categories occurred relatively infrequently and this may have artificially have deflated our coefficients of rater agreement. To increase the quality of the data, the 12

Table 5

Point-by-Point Agreement Coefficients for Each Original Code Category During Coding

Code	Gender	Agreement/Agreements + Disagreements	Point-by-point Agreement
Harsh Start-up	Female	0/0	N/A
	Male	0/1	0%
Soft Start-up	Female	21/21	100%
	Male	14/16	87%
Complaint	Female	36/85	42%
	Male	7/15	47%
Defensiveness	Female	4/10	40%
	Male	3/6	50%
Criticism	Female	47/109	43%
	Male	13/29	45%
Contempt	Female	5/10	50%
	Male	0/0	N/A
Stonewalling	Female	2/2	100%
	Male	0/0	N/A
Gridlock	Female	2/4	50%
	Male	1/1	100%
Flooding	Female	0/2	0%
	Male	0/0	N/A
Repair Attempts	Female	11/35	31%
	Male	14/40	35%
Repair Attempts Accepted	Female	12/35	34%
	Male	8/14	57%
Repair Attempts Rejected	Female	2/7	29%
	Male	2/6	33%
Bids for Connection	Female	4/10	40%
	Male	5/10	50%
Compromise	Female	5/12	42%
	Male	1/3	33%
Depart from Technique	Female	1/8	13%
	Male	2/7	29%
Depart from Topic	Female	0/2	0%
	Male	4/9	44%
Physiological Arousal	Female	60/93	65%
	Male	33/36	92%

event codes were collapsed into nine code categories and agreement was recalculated. Point-by-point agreement for the remaining nine code categories yielded overall exact agreement of 58.92%, with a range of 0–100%. However, point-by-point agreement for each code category for each gender revealed some categories with relatively high reliabilities: Soft Start-up (female = 100%; male = 88%); Verbal Critique (female = 70%; male = 49%); Approach Behavior (female = 62%; male 50%); and Physiological Arousal (female = 92%; male =65%) (Table 6).

Table 6

Point-by-Point Agreement Coefficients for Each Collapsed Code Category During Coding

Code	Gender	Agreement/Agreements + Disagreements	Point-by-point Agreement
Harsh Start-up	Female	0/0	N/A
	Male	0/1	0%
Soft Start-up	Female	21/21	100%
	Male	14/16	87%
Negative Verbal Statement	Female	138/196	70%
	Male	32/65	49%
Defensiveness	Female	4/10	40%
	Male	3/6	50%
Contempt	Female	5/10	50%
	Male	0/0	N/A
Withdrawal	Female	2/4	50%
	Male	0/0	N/A
Positive Verbal Behavior	Female	50/101	50%
	Male	45/73	62%
Depart from Technique	Female	1/8	13%
	Male	2/7	29%
Depart from Topic	Female	0/2	0%
	Male	4/9	44%
Physiological Arousal	Female	60/93	65%
	Male	33/36	92%

In order to evaluate treatment integrity as well as couples' adherence to the Speaker-Listener technique, behavioral data was coded to determine the percentage of time in which couples departed from either the Speaker-Listener technique or their experimental assignment (i.e., discussing a topic within or outside the marriage). Data were collected for each couple on the percent of their total interaction time in which such departures occurred. In terms of couples departure from their experimental assignment, data suggest that couples assigned to Group A departed from their assigned topic 0% of the time for both session one and session three, while couples assigned to Group B departed an average of 11.56% of the total interaction time at session one and 28.77% of the time in session three. Independent sample *t*-tests were conducted on these data to determine if the groups differed significantly on their adherence to their experimental assignment. This revealed that for session three, but not for session one, the difference was statistically significant ($t(28) = -2.943, p = 0.006$). Thus, couples assigned to Group B had significantly more difficulty adhering to their assigned topic, but only when instructed to utilize the Speaker-Listener, which was consistent with the reports of the therapists during sessions.

In order to assess the degree to which couples departed from the Speaker-Listener technique during the third session, the percent of total interaction time in which they departed from the technique was calculated. Specifically, these data were examined to determine if couples in either group departed for significantly different percentages of time. For Group A, couples departed an average of 44.47% of the time, with a range of 0–99.73%, while couples assigned to Group B departed an average of 37.16% of the total

interaction time, with a range of 0–99.52%. A *t*-test was conducted to determine if the groups differed significantly in the percent of time departing from the Speaker-Listener technique, which revealed a non-significant difference ($t(28) = 0.443$, *ns*). Thus, while the groups did not differ significantly in the degree to which they departed from the Speaker-Listener technique, the percent of time departing from the technique reveals that the couples in both groups departed for anywhere from a third to half the time on average, suggesting that many couples had difficulty utilizing the technique, even after repeated trainings.

A secondary hypothesis in this study speculated that self-reported frequencies of various behaviors would be discrepant from observed behavioral indices of such behavior. In order to examine the differences between these two assessment modalities, a series of Pearson Product Moment Correlations were conducted between the behavioral frequencies of behaviors in both session one and session three, and the self-reports of each individual at the corresponding sessions (see Tables 7 and 8). Due to multiple analyses, a Bonferroni corrected alpha level was utilized, resulting in a more stringent criteria for significance. While most of the correlations were in the expected direction, the results of these analyses revealed no statistically significant correlations between any of the observed behaviors and self-report measures at either session. Given the low correlations between self-report and behavioral indicators of the same behavioral classes, this suggests that self-reported data are not necessarily analogous to behavioral indicators.

Table 7

Correlations Between Self-Reported Frequency and Observed Frequency at Session One

Self-Reported	Positive	Negative	Flood	Behavioral
				4 Horse
MAT	0.097	-0.129	-0.038	-0.257
Rep Att	0.201	-0.227	0.010	-0.303
Compro	0.108	-0.134	-0.038	-0.245
Grid	-0.104	0.152	0.122	0.286
Flood	-0.142	0.166	0.100	0.256
4 Horse	-0.114	0.191	0.131	0.299

Significant at the 0.05 Bonferroni level.

Table 8

Correlations Between Self-Reported Frequency and Observed Frequency
at Session Three

Self-Reported	Positive	Negative	Flood	Behavioral
				4 Horse
MAT	0.225	-0.038	0.042	-0.109
Rep Att	0.193	0.028	-0.017	0.002
Compro	-0.042	-0.066	0.061	-0.134
Grid	-0.198	0.115	0.068	0.147
Flood	-0.290	0.061	0.002	0.081
4 Horse	-0.291	0.061	0.031	0.104

Significant at the 0.05 Bonferroni level.

This suggests that a discrepancy exists between the behaviors noted by objective observers and the individuals' interpretation and self-report of the occurrences of such behaviors.

Sequential Analyses

Behavioral data also were analyzed sequentially to examine conditional probabilities of certain behaviors given a specific antecedent behavior of the spouse. Given the variable interobserver reliability data, only codes with point-by-point exact agreements of at least 49% were used in these analyses. However, selected code categories with lower agreement coefficients will be discussed in exploratory analyses in later sections. Lag sequential analyses were conducted on negative and positive affect reciprocity, soft start-up, and physiological arousal. Lag sequential analyses are widely used in the field of marital interactions (Gottman, Markman, & Notarius, 1977; Jacobson, et al., 1994). In sequential analyses, a behavior code is selected as the criterion and transitional probabilities of all the other codes are calculated with respect to the criterion code as a function of lag from the criterion. This statistical approach allows examination of the probability of a given behavior on the part of one spouse given a particular behavior of the other partner, and determines a z-score probability of this sequence occurring for each couple.

For both session one and session three, lag sequential analyses were conducted for two-sequence behaviors at lag 1 and within a 20-second interval following the criterion behavior. The 20-second interval analyses were conducted in order to capture other

behaviors that may occur with greater frequency, but which may be masked in lag 1 analyses by interceding behaviors. Z-score probabilities and significance levels were corrected for these multiple analyses and a more conservative Bonferroni level of significance was used in all analyses. Tables 9 and 10 show the percentages of statistically significant lag sequential data across groups at the Bonferroni alpha level. Results at lag 1 at session one indicate that within the total sample, 26.67% (N=8) of couples revealed a significant pattern of positive affect reciprocity, while 3% (N=1) displayed a sequential pattern of negative affect reciprocity. When examining physiological arousal and sequential behaviors, the results revealed that 3% (N=1) of the total sample evidenced positive behaviors following their partner's physiological arousal while 3% (N=1) evidenced negative behaviors at session one. Significant sequences of behavior with soft-start up indicated that at session one, 6.67% (N=2) of the total sample evidenced a significant conditional probability with positive behaviors, while 6.67% (N=2) emitted a significant sequential pattern involving negative behaviors. When examining the percent of couples evidencing a significant sequential pattern within 20 seconds at session 1, results were highly similar to those at lag 1, as reported above, with the exception of soft-start up. Approximately 10% (N=3) of the sample evidencing a significant sequential pattern of positive behaviors following soft start-up, within 20 second frames.

Results were also examined at session three for all couples (i.e., during the use of the Speaker-Listener technique) using a series of lag sequential analyses both at lag 1 and within a 20 second frame of the criterion behavior. Again, examining only significant

Table 9

Percentage of Significant Lag Sequential Analyses Given a Selected Target Behavior Across Groups

Given	Target	Session 1				Session 3			
		Lag 1		20 Second Lag		Lag 1		20 Second Lag	
		Group A	Group B	Group A	Group B	Group A	Group B	Group A	Group B
Positive Behavior	Positive	50.00%	13.33%	35.00%	20.00%	26.67%	40.00%	20.00%	0%
	Negative	9.09%	0%	20.00%	6.67%	0%	6.67%	0%	0%
	Arousal	4.55%	0%	5.00%	0%	0%	6.67%	0%	0%
	No Sign. Seq.	36.36%	86.67%	40.00%	73.33%	73.33%	46.67%	80.00%	100%
Negative Behavior	Positive	38.10%	13.33%	36.84%	13.33%	0%	0%	0%	0%
	Negative	0%	6.67%	0%	6.67%	0%	0%	0%	0%
	Arousal	0%	0%	0%	0%	0%	0%	0%	0%
	No Sign. Seq.	61.90%	80.00%	56.49%	80.00%	100%	100%	100%	100%
Physiological Arousal	Positive	6.67%	0%	6.67%	0%	6.67%	0%	6.67%	0%
	Negative	6.67%	0%	6.67%	0%	0%	0%	0%	0%
	Arousal	0%	6.67%	0%	0%	0%	0%	0%	0%
	No Sign. Seq.	86.67%	93.33%	86.67%	100%	93.33%	100%	93.33%	100%
Soft Start Up	Positive	6.67%	6.67%	6.67%	13.33%	20.00%	0%	13.33%	0%
	Negative	13.33%	0%	13.33%	0%	0%	6.67%	0%	0%
	Arousal	0%	0%	0%	0%	13.33%	0%	6.67%	0%
	No Sign. Seq.	80.00%	93.33%	80.00%	86.67%	66.67%	93.33%	80.00%	100%

Note. Some couples contributed more than once in each category if they evidenced the significant pattern more than once.

Table 10

Percentage of Couples Evidencing Significant Lag Sequential Analyses Across Groups for Each Sequence Analyzed

Sequence	Session 1				Session 3			
	Lag 1		20 Second Lag		Lag 1		20 Second Lag	
	Group A	Group B	Group A	Group B	Group A	Group B	Group A	Group B
Positive Reciprocity	40.00%	13.33%	33.33%	13.33%	26.67%	40.00%	20%	0%
Negative Reciprocity	0%	6.67%	0%	6.67%	0%	0%	0%	0%
Physiological Arousal	6.67%	6.67%	6.67%	0%	6.67%	0%	6.67%	0%
	(neg)	(arousal)	(neg)		(pos)		(pos)	
Soft Start and positivity	6.67%	6.67%	6.67%	13.33%	20%	0%	13.33%	0%
Harsh Start and negativity	13.33%	0%	6.67%	0%	0%	0%	0%	0%
Contempt and negativity	33.33%	6.67%	33.33%	6.67%	13.33%	6.67%	13.33%	6.67%
						(arousal)		(arousal)
Defensiveness and negativity	33.33%	6.67%	33.33%	6.67%	6.67%	0%	6.67%	0%
Withdrawal and negativity	6.67%	0%	6.67%	0%	6.67%	0%	6.67%	0%

Note. Declines in percentages from lag 1 to 20 sec. lag likely due to delay between behaviors of more than 20 seconds.

sequences for the total sample, 26.67% (N=8) revealed a significant pattern of positive affect reciprocity, while 0% displayed a sequential pattern of negative affect reciprocity. When examining physiological arousal and subsequent sequential behaviors, 3.33% (N=1) of the total sample emitted positive behaviors following their partner's physiological arousal while 0% evidenced negative behaviors. Significant sequences of behavior beginning with soft-start up indicated that at session three, 10% (N=3) of the total sample evidenced a significant probability for positive behaviors, while 3.33% (N=1) had a significant sequential pattern for negative behaviors. Examining behaviors sequentially within 20 seconds of the criterion behavior revealed highly similar data to those analyses conducted at lag 1.

To examine differences between the experimental groups, percentages of significant z-scores on the lag sequential analyses were calculated both at session one and session three for the two groups. At session 1, 40% (N=6) of couples in Group A evidenced a significant pattern of positive affect reciprocity, such that if one partner displayed a positive behavior, the other responded in kind. The percentage of significant positive affect reciprocity sequences in couples in Group B at session one was 13.33% (N=2). With regard to negative affect reciprocity, 0% of couples in Group A revealed a significant pattern, while 6.67% (N=1) in Group B displayed this pattern. Examination of physiological reactivity indicated that 6.67% (N=1) of couples in both Groups A and B displayed a pattern in which their partner responded with either negative behavior or arousal. Sequential analyses with soft start-up as the criterion behavior revealed that

6.67% (N=1) of couples in both Groups A and B at session 1 responded with a positive behavior at a significant level.

Examining data at session one within 20 seconds of each criterion behavior allowed examination of behaviors that could have occurred with greater than expected frequency, but which might have been masked by intervening behaviors at lag 1. When examining data within 20 seconds of each criterion behavior, at session 1, 33.33% (N=5) of couples in Group A displayed a significant pattern of positive affect reciprocity, such that if one partner emitted a positive behavior, the other responded in kind within the next 20 seconds. The percentage of significant positive affect reciprocity in couples in Group B at session one was 13.33% (N=2). With regard to negative affect reciprocity, 0% of couples in Group A evidenced a pattern, compared to 6.67% (N=1) of couples in Group B. The relation of physiological reactivity indicated that 6.67% (N=1) of couples in Group A displayed a pattern in which their partner responded with negative behavior, while 0% in Group B displayed this pattern. Sequential analyses with soft start-up as the criterion behavior revealed that 6.67% (N=1) of couples in Group A at session one responded with a positive behavior within 20 seconds, whereas 13.33% (N=2) in Group B had this pattern at a significant level.

Examining these differences between the two groups at session three (i.e., when they were using the Speaker-Listener technique) indicated that 26.67% (N=4) of couples in Group A evidenced a significant pattern of positive affect reciprocity, such that if one partner displayed a positive behavior, the other responded in kind. The percentage of significant positive affect reciprocity in couples in Group B at session three was 40.00%

(N=6). No couples in either group showed a significant pattern of negative affect reciprocity at session three. The relation of physiological reactivity indicated that 6.67% (N=1) of couples in Group A displayed a pattern in which their partner responded with positive behavior, while 0% in Group B displayed this pattern. Sequential analyses with soft start-up as the criterion behavior revealed that 20% (N=3) of couples in Group A at session 3 displayed a significant pattern in which they responded with a positive behavior, while 0% in Group B had this pattern at a significant level. Data at session three were also analyzed for sequential patterns within 20 seconds of each criterion behavior. These data were highly similar to data collected at lag one, and did not produce percentages that were noticeably different from those collected at lag one.

Differences between the two groups were analyzed to determine if the sequential differences manifested between the two groups were clinically or statistically significant. Clinically, given the relatively low percentages of cases in which couples were displaying patterns and the relatively small sample size, it did not appear that differences between the two groups on the percentages of significant sequential patterns was meaningful. Chi-square analyses were run on the differences between the two groups on the percentages of significant sequential patterns. Chi-square was chosen because it is particularly robust in terms of the impact of violating assumptions while allowing analysis of the observed differences between the two groups compared to expected differences. Results of the chi-square analyses revealed no statistically significant differences between Group A and Group B on the frequency of significant lag sequential analyses at either session one or

session three. The comparison most likely to reach significance, positive reciprocity at session one, yielded a $\chi^2(1, N=30) = -3.519, p = 0.061$.

Because percentages of significant sequential patterns were quite low, results were also examined in terms of the proportion of positive and negative reciprocity that occurred in all data sets, even if the pattern was not significant for that couple. To assess this, the proportion of positive or negative reciprocity was calculated with respect to the number of opportunities for such a response to occur. No differences between the two experimental groups emerged on the proportion of responses in which negative reciprocity occurred at either session one ($t(28) = 1.168, ns$) or session three ($t(28) = -0.144, ns$). However, at session one, couples in Group A were evidencing significantly higher proportions of positive reciprocity compared to Group B ($t(28) = 3.658, p = 0.001$). Interesting, this pattern reversed at session three, when the couples were utilizing the Speaker-Listener technique, such that couples in Group B evidenced significantly higher proportions of positive reciprocity than couples in Group A ($t(28) = -2.284, p = 0.030$).

Exploratory Analyses

As discussed earlier, a few of the code categories yielded low interobserver exact agreement coefficients, due, in part, to the low frequency of those behaviors in the reliability sample. However, some of those behaviors, namely, contempt, defensiveness, and withdrawal, have been noted to be highly predictive of marital distress and divorce, and warrant consideration here, albeit exploratory. Thus, while these data cannot be

considered definitive and caution should be applied when making inferences, these categories, because of their historical role in predicting distress, will be considered in an exploratory fashion.

A series of lag sequential analyses were conducted with contempt, defensiveness, and withdrawal as criterion behaviors to determine the probability of other behaviors subsequent to one of these antecedent behaviors. Analyses were conducted for both session 1 and session 3. At session 1, 33.33% (N=5) of couples in Group A evidenced a significant sequential pattern of negative behavior following contempt, while 6.67% (N=1) evidenced a similar significant pattern in Group B. This is an interesting finding, and suggests that couples discussing an issue within the marriage were more likely to evidence a pattern of negative reciprocity when one partner is contemptuous than when discussing an issue outside the marriage. Likewise, at session 1 with defensiveness as the criterion, 33.33% (N=5) of couples in Group A evidenced a significant sequential relationship with subsequent negative behaviors, while 6.67% (N=1) in Group B demonstrated a similar, significant pattern. For withdrawal, 6.67% (N=1) of couples in Group A had a significant sequential pattern with a subsequent negative behavior by their partner, compared to 0% in Group B. At session 3, while using the Speaker-Listener technique, 13.33% (N=2) of couples in Group A demonstrated a significant pattern of negative reciprocity with contempt, compared to 6.67% (N=1) of couples revealing a significant pattern with physiological arousal. Similarly, with defensiveness as the criterion at session 3, 6.67% (N=1) of couples in Group A had a significant sequential pattern of responding with a negative behavior, while 0% in Group B demonstrated this

pattern. Lastly, with withdrawal, 6.67% (N=1) of couples in Group A evidenced a significant sequential pattern of negativity, compared to 0% in Group B. While these sequential patterns emerged, it is interesting that examining the differences in the raw frequency of these behaviors revealed that the rates of behavior were very similar and relatively low across the two groups, and there were no significant differences in the frequency of the behaviors across the two groups.

Data Analyses for Couples at the MAT Satisfaction Extremes

The five most distressed and five most maritally satisfied couples, as measured by the MAT, were examined to determine the degree to which they tended to display different significant sequential patterns. At session one, the most maritally satisfied couples and the most distressed couples in the sample both evidenced identical percentages of positive affect reciprocity (two of five), while one in five of the maritally satisfied group evidenced a significant pattern of negative affect reciprocity, compared with none of the most dissatisfied couples. Physiological reactivity data indicated that no maritally satisfied couples evidenced a significant pattern with negativity or positivity, while one of the dissatisfied couples displayed a significant pattern with negativity. Sequential analyses with soft start-up as the criterion behavior revealed that one of five of the most maritally satisfied couples displayed a significant pattern in which they responded with a positive behavior, while no dissatisfied couples showed this pattern at a significant level.

Examining these differences between the two extremes of self-reported marital satisfaction at session three (i.e., when they were using the Speaker-Listener skills), indicated that two of the five most maritally satisfied couples evidenced a significant pattern of positive affect reciprocity, such that if one partner displayed a positive behavior, the other responded in kind. Significant positive affect reciprocity was noted in only one of the five most distressed couples. No couples in either group showed a significant pattern of negative affect reciprocity or a significant relationship with physiological arousal at session three. Sequential analyses with soft start-up as the criterion behavior revealed that none of the maritally satisfied couples displayed any significant pattern with this behavior, while two of the five maritally dissatisfied couples showed a significant pattern with physiological arousal following soft start-up.

When isolating the most maritally distressed and maritally satisfied couples, differences were detected in the degree to which they departed from the topical theme of their experimental assignment, such that maritally satisfied couples were more likely to depart from their assigned topic than maritally dissatisfied couples at session three, although this difference did not reach significance ($t(8) = 0.600, ns$). In terms of adherence to the Speaker-Listener technique, maritally dissatisfied couples were more likely than happily married couples to depart from this technique, which while non-significant, was approaching significance, even with the limited power of the small sample size ($t(8) = -1.841, p = 0.103$).

Interestingly, some differences between these two groups were evident on the behaviors considered most toxic in marital relationships. While again acknowledging that

these analyses are exploratory, given that these were not highly reliable code categories, none of the maritally satisfied couples displayed any significant sequential patterns with contempt at either session one or three, whereas two of the dissatisfied couples evidenced a significant pattern with contempt at session one and one couple did at session three. Similarly, with defensiveness, none of the maritally satisfied couples evidenced a significant sequential pattern between this as a criterion and negative behaviors at session one or three, whereas three of the five dissatisfied couples evidenced this pattern significantly at session one, and one couple did so at session three. While exploratory, it is notable that these significant patterns are evident in maritally distressed couples at higher rates than maritally satisfied couples. Neither the most maritally satisfied nor the most maritally dissatisfied couples evidenced any significant conditional pattern with withdrawal behavior as the criterion at either session.

Analyses of Overall Rates of Behaviors Between Groups

In addition to the significant lag sequential patterns of behavior, analyses were conducted within each couple to determine if, over time, couples were displaying significantly different frequencies of various behaviors. That is, were couples displaying differing frequencies of behavior while utilizing the technique than when they were engaging in a conversation without the technique? In order to examine this, a series of repeated-measures Analyses of Variance (ANOVA's) were conducted. However, it should be noted that one of the assumptions of a repeated-measures ANOVA is that there is no dependency in the scores between participants. Because our data are coupled, and

there likely *is* dependency between the scores of coupled participants in the frequency of the behaviors during interactions, ANOVA's were calculated on the summed frequency of behaviors for each couple, rather than for each individual. This resulted in a smaller sample ($N=30$), which subsequently reduces power, but was deemed necessary given the assumption violation.

For each behavior category, a repeated-measures ANOVA was conducted to determine if the frequency at which couples were displaying the behaviors was changing over time. For example, the frequency of positive behaviors was examined for each couple over time, that is, during session one and session three. Results of these analyses suggested that the frequencies did not change over time for positive behaviors or physiological arousal. However, changes in the frequency of negative behaviors over time, that is, session one and session three, approached significance, and it is possible that with a larger sample and resulting increased power, this analysis might have reached significance ($F(1, 29) = 3.481, p = 0.072$).

To determine if this change over time was differential across the experimental groups, a two-way repeated-measures ANOVA was conducted, and revealed that the difference approached significance, with individuals in Group B demonstrating greater decreases in negative behavior than individuals in Group A ($F(1, 28) = 3.604, p = 0.064$). Interestingly, examination of the frequency of behavioral indicators of the Four Horsemen (Negative Behavior, Defensiveness, Contempt and Withdrawal summed) revealed a significant overall decline in the frequency of this class of behaviors over time ($F(1, 29) =$

6.082, $p = 0.02$). There were no statistically significant differences in the decline of Four Horsemen behaviors between the two experimental groups.

DISCUSSION

The results of the self-report analyses are reported in other documents, and, as such, will be discussed only briefly here. The results of the self-report data alone did not support our and Gottman, et al.'s (1998) hypotheses that differential topics would affect in session communication tactics, and that such effects would be moderated by the initial level of marital distress. Group assignment did not produce significantly different outcomes on any of the communication tactics dependent measures. However, the initial level of marital satisfaction or distress, the MAT covariate, was significantly related to the outcome on all the measures for all analyses conducted. The test-retest reliability data for the self-report data suggest that the null results found in this study are likely not due to unreliable instrumentation, because the assessment measures did demonstrate strong test-retest stability, prior to introduction of the independent variable.

It should be noted that statistically significant intercorrelations in the expected directions were found between the MAT and all of the communication measures prior to the intervention. The high degree of intercorrelation may suggest that Gottman's communication measures are assessing similar constructs as the MAT, and may be functioning as a proxy of sorts for the MAT. If this is the case, we would not expect these measures to detect variance already accounted for by the MAT at pre-intervention, given the high degrees of intercorrelations. In other words, the results of the ANCOVA analyses would not yield statistically significant results if the covariate (i.e., initial MAT scores),

already had accounted for the outcome variance measured by the various communication skills questionnaires.

To address this limitation with the self-report data, behavioral data were coded and analyzed sequentially, to determine if perhaps the self-report measures had been insensitive to group differences and changes over time for each couple. A requirement of meaningful analyses of behavioral data is reliable coding, in the form of interobserver agreement. With the original coding system in particular, the point-by-point agreement coefficients obtained were lower than desired. There are several possible explanations for this. First, the complexity of the coding system likely contributed to the lower agreement rates. Several researchers note that there is an inverse relationship between observer agreement and the complexity of the coding system, such that the more complex the system, the lower rates of agreement tend to be (Sharpe & Koperwas, 2003; Patterson, 1982; Bakeman & Gottman, 1997). The original coding system in this study was designed to assess those areas of marital interactions that were considered to be most toxic to marital relationships as well as related to the self-report measures of the couples. "The paradox in reliability analysis is that the more precisely one tries to record behavior, the more likely it is that one will get disagreements, and the lower one's values of reliability measures will become" (Jansen, et al., 2003, p. 396).

Additionally, some of the codes in the original system required coders to discern the function of a behavior, rather than simply code the topography of the response, which likely further led to lower observer agreement. Coders needed, in many cases, to discern the intent or the function of the behavior, which is more difficult than simply identifying

a readily apparent overt behavior. The function of a particular behavior, in a marital interaction, may be difficult to discern to an outside observer, who does not have access to the couples' idiographic learning histories. Additionally, several code categories, such as contempt, required inferences about the intent of the speaker, which likely contributed to lower agreement. To some degree, the impact and the function of various behaviors in marital interactions are related to the history of the couple; some remarks, seemingly innocuous to an observer, may have a unique meaning related to the history of the couple. "Without access to previous dialogs, quarrels, and negotiations, coders face serious obstacles to accurate interpretation" (King, 2001, p. 13). Additionally, some of the code categories required observers to examine the interactional pattern of the couples' behaviors, rather than simply counting behaviors in isolation. This limitation of the coding system is evident in examining the data on repair attempt reciprocity, which required the coder to determine an interactional pattern. As seen in Table 6, the agreement coefficients for repair attempts that were rejected and accepted were relatively low, demonstrating the difficulty of coding interactional data between two individuals.

The complexity of the original coding system did not yield acceptable agreement indices, and, as a result, the coding system was collapsed into fewer, more general, categories of behavior. This is a commonly employed technique in behavioral research, and is often necessary to achieve acceptable levels of interobserver agreement. Without collapsing codes, it is probable that researchers would be overly harsh in their reliability analyses, and might overlook important, consistent patterns (Jansen, et al., 2003). As the leading researchers in behavioral observation and analysis contend; "There is

considerable merit in locating at least some of the categories one level below, on a slightly more detailed level than seems required. ... When data are collected at a somewhat more detailed level than required, we are in a position to justify empirically our later lumping" (Bakeman & Gottman, 1997, p. 24–25). This collapsing of behavioral categories resulted in increased, although still not ideal, interobserver agreement, which allowed analyses of some of the behavioral categories. Thus, although complexity of the coding system played a role in the lower than expected agreement data, it is likely not the only factor that led to this outcome.

In addition to the complexity of the coding system, the relatively low frequency of behaviors in several code categories likely contributed to the low agreement coefficients found in this sample. Interobserver agreement is highly affected by low frequency behaviors, since each instance of agreement or disagreement has a relatively large impact on the coefficient, expressed as percentage of agreement (Kazdin, 1982; Hux et al., 1997; Heyman, et al., 2001). For example, several of our code categories had fewer than 10 observations on which the agreement coefficient was based. Therefore, a single instance of disagreement would lower these coefficients by 10%. Were the frequency of behavior higher, a single disagreement would have a considerably smaller impact on the percentage of agreement coefficient. Additionally, because we calculated exact agreement on occurrences only, combined with the fact that the behaviors were occurring with low frequency, our estimates of agreement are likely overly stringent. In cases where percent agreement is calculated for both occurrences and non-occurrences, or with relatively high frequency behavior, point-by-point agreement is likely to be inflated, and Kappa may

offer a more appropriate approach. However, with this data set, given that the behavior categories were yielding infrequent behavior and the data were calculated on occurrence of behavior only, Kappa is not necessary, since exact point-by-point agreement is already a relatively stringent criterion of agreement (Kazdin, 1982). Thus, the data on agreement may be artificially deflated due to infrequency of the behavior and stringent criteria for agreement (Hux, et al., 1997).

It is notable that the agreement coefficients obtained in this study are not dissimilar to those of other researchers utilizing similar methodologies and criteria for agreement. While a criterion of 80% agreement is generally acceptable for most studies using interval data recording, a much lower level of agreement would be expected for event recording systems using point-by-point exact agreement. One of the leading and pioneering researchers in the field, Gerald Patterson, noted that rates of agreement for his coding system, which went through 6 revisions over a three year period, averaged 72%, with some codes evidencing percent agreements as low as 38% (Patterson, 1982). Other researchers examining family processes with observational methodologies, found correlations between observers assessing agreement to range from 0.57 to 0.75 (Loeber & Dishion, 1984). Patterson and Stouthamer-Loeber (1984) presented data on observations of positive parent-child interactions, which is conceptually similar to observing couples' interactions, and found their agreement rate averaging .69 over the course of 20 observations. Heyman, et al. (2001) coded behavioral segments of couples similar in length and with a similarly complex coding system as utilized in the present study. For one study within this publication, the researchers found interrater agreement, as measured

by Kappa, to be 0.57, which is similar to the overall rate in the present study.

Additionally, agreement rates, as measured by Kappa, for each code category ranged from 0.51 to 0.89 in one study and 0.43 to 0.67 in another (Heyman, et al., 2001). The agreement coefficients in their study, utilizing a similar methodology and coding system, are roughly comparable to those found for the coding system in the present study.

Several researchers do not provide data on the reliability of each code in their coding system, but rather report overall agreement for the entire coding system. This makes it difficult for the reader to discern if any particular code categories reached adequate levels of agreement (Heyman, 2001). Leading researchers in the field are advocating for these data to be measured and reported, because it likely will provide useful information at the theoretical and empirical level. This is a significant limitation of the field. This study, because it provides data on the agreement for each code category, likely will add to the literature body in terms of determining behavior categories that are difficult to code, and thus, may require additional revision.

A different issue with the interobserver agreement coefficients relates to the relatively high rates of agreement during training and recalibration, and the subsequent drop in agreement during coding. There are several possible explanations for this. First, during training and recalibration, the coders were coding a five-minute segment, whereas during the actual coding, they were often coding much longer segments (e.g., up to 15 minutes). It is possible that fatigue played a role in decreasing rates of agreement in the coded, but not in the training components of the study. This is consistent with self-reports of the coders themselves, who stated that, given that they were often required to watch the

same videotape for several hours, fatigue may have decreased their accuracy during coding. Additionally, the training tapes, because they were segments of distressed couples arguing, were more heavily focused on severely negative behaviors, such as contempt and defensiveness. As it turned out, these behaviors were relatively infrequent during the actual videotaped data. It is plausible that more time was spent in training on behaviors that would not be encountered as often in coding, and less time was spent training on other behavior code categories.

Additionally, given that training and recalibration took place with all coders in the same room, it is possible that the coders could have attended to subtle cues of other coders, yielding higher rates of agreement during training and recalibration. For example, if coder #1 leaned forward or moved his pencil toward his sheet to record a behavior, it is possible that another coder could see that behavior, and thus, attend more closely to a particular behavior. This type of subtle influence was only possible during training and recalibration, and not during coding or reliability samples, since all coding took place individually and alone in the coding room. Future research should not assume that because coders do not overtly or verbally confer during training, that the coding is actually "independent." It is possible that coders in training could subtly influence each other through behaviors or movements, thus contaminating the independence desired during interobserver agreement checks.

Another possible explanation for the discrepant observer agreement data during training, recalibration and coding, relates to the knowledge the coders have during reliability checks. During such checks, they recognize that their behavior is being

“watched,” and may code differently than when they code in the absence of such recognition. In the current study, coders recognized that agreement was being checked only in training and recalibration, but not necessarily in the actual coding or reliability sessions. During the coding and reliability sessions, the initial coder did not know if the particular session would be included in the 33% reliability sample. While the reliability coder did know that they were conducting a reliability check, because the computer file was saved to reflect this, this coder did not have access to the previously coded session. It is plausible that knowledge related to being evaluated for reliability affects the coders’ behavior. Several researchers have directly tested this effect, and indeed found a subsequent drop in agreement when the coder was unaware that an agreement check would be conducted. Reid (1970) experimentally examined the inherent assumption in interobserver agreement probes that the observer’s behavior during overt reliability assessments is representative of his/her behavior when he is not being evaluated. Their study examined the behavior of 11 coders under conditions of overt reliability assessment, when they knew they were being evaluated for agreement, and covert reliability assessment, when they did not know they were being evaluated. During training and overt assessment, agreement for each observer exceeded 70%. However, during covert assessment, every observer demonstrated a significant drop in percent agreement, with an average drop of approximately 25%. It is notable that the drop did not occur gradually, as would be expected by observer drift, which is generally the reason for frequent recalibration, but rather the drop “...occurred suddenly as the observer made the transition from overt to covert assessment” (Reid, 1970, p. 1149).

Romanczyk et al. (1971) in Patterson (1982) found that observers obtained an average of 76% agreement during training and overt checks, but dropped to 39% agreement when measured covertly. Other researchers have found similar drops in reliability assessment from training to coding (Taplin & Reid, 1977). These data are similar to the drop observed in the present study, particularly in terms of magnitude of decline. As noted above, during training, agreement coefficients for the entire coding system averaged 83%, which subsequently dropped during coding to approximately 59%. This is a drop of 24%, which is similar to the Reid (1970) data. Patterson (1982) noted that "reliable observers" are not static entities, but rather that reliability changes over time and situation. Given the data in this study and others, researchers should be wary of assuming that reliability during training is necessarily indicative of agreement during the coding, since several studies have noted a drop in agreement over time, as was the case in the present study.

As noted earlier, a secondary goal of this study was to determine the degree of relationship between self-reported frequencies of marital behavior and more objective behavioral measures. The data from the current study suggest that while most were in the expected direction, correlations between self-reported data and behavior in session of those behavior classes was minimal. No statistically significant correlations were found and many correlations approached zero. These data support the hypothesis that an individual's self-report of marital communication behavior is not necessarily representative of the behavior displayed in session. The self-report of marital behaviors may be related more to the particular learning history of the individual, rather than the

behaviors emitted by the individual and his/her spouse. This has significant clinical implications in that altering behavior patterns may not be sufficient to improve the individuals' perceptions of their communication skills, as well as improve marital interactions. For example, while increasing positive behaviors and decreasing negative behaviors may improve the couples' particular interaction patterns displayed, this may not affect their perceptions, and thus, marital satisfaction, without addressing more pervasive belief systems and "state-trait" distinctions that are embedded in their learning histories.

This is consistent with Gottman (1999) and others who contend that communication skills training may be misguided when couples are displaying patterns of negative sentiment override, in which they attribute positive behaviors to state or situational factors and negative behaviors to trait or dispositional characteristics. With these types of attributions, couples, even in the face of positive behavior change, may be unlikely to change their patterns of interpretation, and thus, will not see the resulting improvements as we might expect, given the positive behavioral indicators of change. This is consistent with criticisms of global, behavioral coding systems that contend that marital interactions cannot be reduced to a series of discrete behaviors, and that attributions, interpretations and covert verbal behavior relate to marital satisfaction as well (King, 2001). In marital therapy in particular, with couples who often have significant learning histories, it is likely necessary to target belief systems and interpretive frameworks as well as address problematic communication patterns in order to significantly impact marital satisfaction and the individual's perceptions of their own and their partner's communication skills.

Several findings emerged from analysis of the behavioral and physiological data. The results of the lag sequential analyses suggest that few couples across both groups were evidencing significant sequential patterns of behavior as expected by our hypotheses. Thus, contrary to our hypotheses, patterns of significant conditional physiological arousal, soft start-up, negative and positive affect reciprocity occurred in some couples, but not frequently enough to identify a systematic pattern or to conclude that patterns were differential across groups. There are a host of possible explanations for this. First, sequential analyses require a large number of behaviors, on average, to detect meaningful conditional probabilities between different behaviors (Bakeman & Gottman, 1997). For this sample, many couples were evidencing few coded behaviors, sometimes as few as two behaviors during the whole session. This would yield a lower probability of detecting sequential patterns in a systematic fashion. Additionally, because the percentage of couples in our sample who manifested significant sequential patterns is relatively low, it is uncertain whether these patterns are representative of a population characteristic, or represent variability expected in a sample of this sort. It is possible, with a larger sample, that these patterns would have emerged in more couples and differentially across the two groups. However, the size of our sample and the limited frequencies of behaviors coded for the couples likely inhibited the ability to detect differences across groups, if they were indeed present.

However, it is notable that percentages of significant positive affect reciprocity patterns remained relatively constant across the two sessions, while negative affect reciprocity declined to zero levels. An interesting, yet exploratory, finding in these

analyses is the absence of significant sequential pattern of negative affect reciprocity during session three for couples in both Group A and Group B. Whereas the percentages of significant patterns of negative affect reciprocity at session one were low, it would be an interesting area for future research to determine if, with higher base rates of behavior, negative reciprocity would similarly decline to low levels while utilizing the technique. Though based on these sequential data such a conclusion is not warranted, it is possible that in future studies the Speaker-Listener technique would lead to declines in negative patterns of behavior, but not for patterns of positive reciprocity.

The data from this study on the frequency of behaviors and the declines over time in overall rates of negative behavior is suggestive of such a result. Examination of the repeated measures ANOVA's, designed to determine the degree to which the frequency of behaviors displayed changed over time, and particularly, when couples were utilizing the Speaker-Listener technique, were largely consistent with the prediction that the Speaker-Listener technique would result in declines in negativity but no changes in positivity. Specifically, changes were not evident in either physiological arousal or positive behaviors over time for couples. However, the behavioral category of negative behaviors approached significance, and with a larger sample, might have reached statistical significance. This is consistent with the decline to zero levels in significant lag sequential patterns of negativity during session three, compared to session one. Perhaps more notably, behavioral indicators of the Four Horsemen, which is considered to be the most toxic class of behaviors, revealed statistically significant declines over time, suggesting that couples were less likely to display these behaviors while using the

Speaker-Listener technique. This is also consistent with the exploratory lag sequential analyses conducted on the lower frequency behaviors of contempt, defensiveness, and withdrawal. Thus, while these behavior categories were infrequent, they did tend to decline between the first and third sessions. The ANOVA data support the hypothesis that negative behaviors are reduced with the use of the Speaker-Listener technique, but that the technique did not facilitate increases in positive behaviors.

These results are similar to previous research comparing active listening skills training to behavioral couples treatment (Hahlweg, et al., 1984). As noted in the introduction, the results of that study suggested that active listening protocols resulted in a reduction in negative behaviors in the short term, but did not increase positive behaviors. Furthermore, this effect declined at follow-up, such that couples in this treatment group returned to pre-treatment levels of negativity over time. Although the present data are not definitive in this respect, these data are similar to the immediate results found by Hahlweg, et al. (1984). It would be interesting to note if this decrease in negativity endures beyond the immediate behavior in session to other marital conversations longitudinally, or if the effect fades, as demonstrated in the Hahlweg, et al. (1984) data.

The repeated measures ANOVA data did not provide definitive support for the hypothesis that changes over time would differ for the two types of topics assigned to the experimental groups. Decreased frequencies of negative behaviors were relatively consistent across the two groups. While decreases in negative behavior approached significance in terms of differential effects across the two groups, such that Group B

showed larger average declines in the frequency of negative behavior over time than did Group A, these data did not reach statistical significance. Data on the frequency of the Four Horsemen behaviors likewise suggest that there were no statistically significant differential changes over time between the two groups. Thus, these data suggest that the Speaker-Listener technique, when discussing an emotionally charged topic within or outside the marriage, did not lead to differential outcomes in negative behavior, at least immediately. It is possible that deterioration of this pattern might occur over time, as noted in the Hahlweg et al. (1984) research, and that this effect would differentiate the two groups. Additionally, given the relatively low frequencies of these behaviors in our sample, it is possible that with a larger distressed sample, results may show more definitive relationships with negativity and the Speaker-Listener technique, as well as find differential outcomes for the two groups. Given that the rates of negative behavior were relatively low in this sample, our ability to discern meaningful relationships between negativity and the Speaker-Listener technique, as well as between group differences, was limited. The frequency of these behaviors were simply too low in this sample. It is possible that with a population of individuals displaying more negative behavior, such a relationship might be detected.

Gottman (1999) speculated that the Speaker-Listener technique forces couples into a pattern of “emotional gymnastics” in which they suppress negativity but remain physiologically and emotionally aroused. However, our data do not support that hypothesis, in that frequencies of physiological arousal at session three were not significantly higher than the mean at session one. Given this, it is possible that

suppressing negativity while using the Speaker-Listener technique does not lead to increased frequency of physiological arousal. It is possible that differences in physiological arousal were not found between session one and session three because rates of negative expressions declined as well, thus confounding these data. The measure of physiological arousal used in this study was notably crude, and it is possible that this measure was simply not sensitive enough to detect physiological arousal. It is possible that the decline in negative reciprocity while using the Speaker-Listener technique did result in emotional suppression, but the sole measure of physiological arousal was insensitive to these changes. Given that several other researchers have noted a relationship between marital interactions and physiological arousal (Sanford, 2003; Gottman, et al., 1998; Richards, Butler, & Gross, 2003; Berg-Cross, 2001; Gottman & Levenson, 1988; Denton et al., 2001), it is necessary to assess more completely how this relates to negative reciprocity while using the Speaker-Listener technique, using a more sensitive and sophisticated measure of arousal.

Although the data on more infrequent, yet toxic, behaviors in marital interactions cannot be interpreted definitively, given the low frequencies and resulting low interobserver agreement of these code categories, it is interesting that few couples across the two experimental groups in this sample engaged in significant sequential patterns with these behaviors, and that the percentages of these couples were relatively consistent across groups. The raw frequencies of these more toxic behaviors were similar across groups as well. This suggests that, while certainly exploratory, couples discussing a problem issue within the marriage are not more likely to display these toxic indicators

than were individuals discussing a topic outside the marriage. This is contrary to the hypothesis that couples assigned to Group A would show higher percentages of these toxic sequences and higher rates of these behaviors.

The role of positive behavior in such interactions is certainly interesting, given that our data suggest that percentages of significant patterns of positive reciprocity in this sample remained intact during the structured communication tasks. Although this is certainly exploratory, given our relatively low percentages of couples displaying significant lag sequential patterns, this may be an interesting area of continued research, to determine the effect of positive reciprocity in marital interactions, and the degree to which these behaviors facilitate marital communication, particularly when utilizing structured communication techniques. As noted earlier, negative behavior has been researched more thoroughly and has been found to be a more robust correlate to marital dissatisfaction. It is still possible that positive behavior, and particularly positive affect reciprocity, may be important in facilitating understanding and listening. This is consistent with the conceptualization of marital satisfaction postulated by Gottman (1999) that basic positive exchanges, including fondness and admiration, should be intact prior to initiating communication skills training modules.

Although significant differences did not emerge in the percentages of positive affect reciprocity across the two experimental conditions, descriptive analyses of the proportion of reciprocity relative to the opportunities for responses revealed an interesting relationship with positive affect reciprocity. Specifically, at session one, couples discussing a problem issue within the marriage were more likely to display positive affect

reciprocity than couples discussing a problem issue outside the marriage. However, at session three, this pattern was reversed, such that, when using the Speaker-Listener technique, couples discussing an issue outside the marriage were more able to engage in positive reciprocity than when the topic was related to the marital relationship. Whereas the exact nature of this relationship cannot be gleaned from this data set, it suggests that when the topic is highly personal and relates to the current relationship, the Speaker-Listener technique may not be indicated because it reduces positive reciprocity, compared to proportions in couples discussing an issue outside the marriage. While positive reciprocity remained evident while utilizing the technique, it may be that discussing an issue within the marriage suppressed it more than when using the Speaker-Listener technique to discuss an emotionally charged, yet less personal, topic. This is consistent with the hypothesis that the Speaker-Listener technique may be more appropriate for emotional topics outside the marital relationship.

Given the above discussion, examination of the two extremes of this sample, in terms of marital satisfaction, may provide some evidence about the relationships between significant patterns of negative affect reciprocity and toxic marital behaviors in relation to maritally distressed couples. A series of analyses were conducted examining the five most maritally satisfied couples ($MAT = 129$) and the five most maritally dissatisfied couples in the sample ($MAT = 69$). Analyses were conducted to determine if these couples differed significantly in their tendency to display sequential patterns of behavior as well as examining the differences in the frequency of behaviors, particularly the most toxic behaviors. Given the small sample size, statistical analyses lacked sufficient power to

reveal many statistically significant differences in sequential patterns. The data on positive and negative affect reciprocity between these two groups did not reveal any clinically or statistically interesting differences. However, although exploratory, clinically significant differences were evident on those behavior patterns considered to be most toxic in marital relationships. None of the couples who reported high levels of marital satisfaction displayed any significant sequential patterns with either contempt or defensiveness, while the maritally distressed couples displayed significant patterns ranging from 20–60% on these two behaviors at both session one and session three. Interestingly, and consistent with the data on negative behaviors discussed earlier, declines in the percentages of negative responses were evident for the most distressed couples at session three, compared to session one. This suggests that while distressed couples may still engage in these types of toxic patterns while using the Speaker-Listener technique, they do so less often when using the Speaker-Listener technique than during less structured conversations. It is also notable that none of the maritally satisfied couples displayed these toxic patterns, suggesting that, and consistent with other data, that these behaviors are indicative of self-reported marital distress.

A series of analyses were conducted to determine if there were differences in the overall frequencies of these toxic behaviors between the most and least maritally satisfied couples. While certainly exploratory, given the low interobserver agreement of this code category, a statistically significant difference was found between distressed and non-distressed couples on the frequency of contempt at session one, such that distressed couples were more likely to display this behavior. However, given that the frequency of

this behavior was relatively low, even in the distressed couples, it should be noted that the difference is likely not to be clinically significant. It is possible, with a larger sample of behavior, that differences would emerge that were more clinically significant for couples.

An interesting finding in this study is the relatively poor adherence to the Speaker-Listener skill protocol, despite repeated trainings on this technique to a point of mastery. It should be noted that these data reflect training on the Speaker-Listener technique, and are not necessary directly applicable to other training modules (i.e., Relationship Enhancement, Couples Communication), since these programs may involve more intensive and longer training sessions. With this qualification, as noted earlier, couples were trained in the Speaker-Listener technique on two separate occasions and practiced the technique with a neutral topic until they appeared to have mastered the technique. However, it appears that when utilizing the technique with an emotionally charged topic, they had difficulty adhering to the protocol, despite previously demonstrated competence with the procedure. The data on percentage of time in which couples departed from the Speaker-Listener technique demonstrates that couples across both groups departed, on average, 40.82% of the time during the experimental interaction during session three. There are several possible explanations for these findings. First, it is possible that the couples did not acquire the skill to fluency during training and practice. However, given that the technique is relatively simple, that they were repeatedly trained, and were judged by the therapist to have acquired the technique, it is less plausible that this would explain these data. More likely, when discussing an emotionally charged issue, couples may revert back to old, well-rehearsed and likely more natural communication behaviors,

rather than utilizing the structured technique. While couples “can do” the technique, and appear to have acquired the skill, they may not engage in the technique, even when directly instructed to and in an experimental situation. Given this, it is less likely that couples would comply with this technique at home, under much less rigid environmental and stimulus control conditions. Thus, even if this technique does result in decreases in negative behaviors in therapy sessions, in the short term, it may not be reasonable to expect couples to use it at home, because a large percentage of the time in session, for both groups, represented departures from the technique. In other words, if couples are not utilizing this technique, it seems unlikely that, clinically, it would be a useful approach, since couples have difficulty adhering even in experimental sessions, while being observed by a clinician.

The data on adherence to the Speaker-Listener technique is consistent with data presented by Gottman, et al. (1998) that suggest that happily married couples do not communicate in a manner analogous to the Speaker-Listener paradigm. Data from the current study support this finding, in that there were no statistically significant differences in the degree to which the most maritally satisfied and the most dissatisfied couples departed from the technique. Thus, couples may have been unable to adhere to a technique designed to slow down the marital interaction and increase understanding, and may instead have reverted to old, well-practiced behaviors. There also were no differences in the degree to which couples departed from the technique across the two experimental topic conditions. This suggests that even when a couple was discussing an issue outside their marriage, they might have been unable to adhere to the technique.

Clinically, these data are useful, in that training couples in a technique that they are not likely to comply with may be a misuse of already sparse clinical resources. It is plausible that clinicians may be better suited to employ other techniques that derive the same benefits in terms of decreasing negativity, but that couples are more likely to use.

LIMITATIONS AND FUTURE DIRECTIONS

This study did not provide definitive support for the hypothesis that Speaker-Listener skills training would be differentially impacted depending on the topic discussed, and that such an effect would be mediated by the couple's initial level of marital satisfaction. However, these data should be considered preliminary and tentative, given the fact that this is the first attempt at experimentally investigating this relationship. Several limitations of this investigation are notable and, as such, these results should be interpreted and integrated into clinical settings with caution.

The sample size for this study was relatively small ($N = 30$ couples), drawn from a small, Midwestern community. The results of this intervention may not necessarily be applicable to other couples in different socioeconomic and geographic locations.

Although power analyses revealed that this sample size was sufficient to detect moderate changes, perhaps a larger sample would have allowed the detection of small changes.

Furthermore, as noted earlier, some couples in this sample were emitting few coded behavioral responses throughout the experimental manipulation, thus limiting the ability to detect sequential patterns of behavior. Because lag sequential analyses require a relatively large frequency of coded behaviors, it is possible that the data in this sample were simply insufficient in number to detect meaningful sequential patterns of behavior.

This sample was composed of couples that volunteered for participation, rather than couples referred for marital interventions per se. Although the initial MAT scores indicated a wide range of marital satisfaction prior to the intervention, the overall mean of

the total sample was 101.37, suggesting a sample that was, on the average, within normal limits of marital satisfaction. This is consistent with the behavioral data indicating that the overall sample displayed few of the most toxic behaviors in marital interactions. Given that several of the analyses for the more toxic and negative behaviors approached significance, it is possible that, for a larger and more distressed sample, sequential patterns might have been detected with greater frequency both within and between groups. Trends in the data suggest that future research might detect effects within and across groups. Results of this study may not be representative of distressed couples that present for marital therapy in a clinical setting. Given the trends in this data set, future researchers should replicate this study with a distressed sample. Differences may emerge in negative reciprocity, contempt, and defensiveness over time for distressed couples using the Speaker-Listener technique and between groups discussing differing types of topics.

The coding system designed for this study was explicitly designed to detect negative behaviors in marital interactions, because these have been determined to be robust predictors of marital dissatisfaction. However, it would also be interesting to determine more precisely how positive behaviors play a role in marital communication and marital interactions. Given that the data in this current study suggest that positive behaviors endured during the structured communication task, it might be interesting to examine more closely their role in these interactions. The current coding system, because it more heavily focused on negative behaviors, does not permit this kind of analysis. Future researchers might consider developing coding systems more focused on positive

behaviors and the role of positivity in marital interactions, perhaps to determine, with more precision, the protective role of these responses in emotionally charged discussions.

Several researchers are advocating for broadening the scope of marital research beyond negativity and conflict to include behaviors that relate to marital satisfaction (Heyman, 2001; Gottman & Notarius, 2000; Roberts & Greenberg, 2003). To date, researchers have largely explored what nondistressed couples *do not do* that prevents distress, but have done little to discern those behaviors that promote satisfaction. That is, we can define marital satisfaction by exclusion of certain behaviors, but work still needs to be conducted to determine those behaviors that promote and maintain marital happiness.

Another limitation of this study, particularly with regard to the physiological data, is the relatively unsophisticated measure of arousal. Although the wrist-heart rate monitor was convenient and relatively unobtrusive, a limitation of this approach was that it only allowed for measurements when one of the partners exceeded a certain threshold. The null results with regard to physiological arousal patterns relating to other behaviors in session could be due to insensitivity of measures, rather than indicative of data suggesting that there is no effect. The failure to identify a relationship with physiological arousal to other behaviors or the suppression of negative behaviors during session three could be due to instrumentation limitations. Future researchers should consider utilizing measures of physiological arousal that are more sensitive, that monitor more subtle changes in arousal, including a more sensitive measure of heart rate, breathing patterns, and galvanic skin response.

Because a cross-sectional design was used in this study, longitudinal effects could not be evaluated. Future researchers may consider using longitudinal research methods in order to evaluate differential effects of the topic discussed over the short and long term and to better determine the nature of the relationship between communication behaviors and marital satisfaction. This is particularly important in order to determine if the declines in negative behavior and negative reciprocity to zero levels endure beyond the immediate behavior in the session, as was the case in Hahlweg, et al. (1984). It would be important to examine these changes longitudinally to investigate whether the change in negativity endured or if it predicts a corresponding change in the trajectory of relationship satisfaction over time.

The intent of this investigation was to examine this one component of marital therapies. Thus, the results of this intervention may not necessarily apply to marital interventions that incorporate other techniques and skills training. Additionally, because this study was based on the PREP communication skills training module (Markman, Stanley, & Blumberg, 1994), it may not be representative of the training and techniques utilized in other marital programs for communication skills training. Thus, although the results of this research may not be directly applicable to other marital packages, given the centrality of communication skills training in marital and premarital interventions, researchers and clinicians in the field should take into consideration the utility of communication skills training and its relation to marital satisfaction for different couples.

This study provided information on assessing interobserver agreement, both in terms of the conditions under which coding should occur, as well as the differences

between overt and covert measurement conditions. Future researchers should recognize that just because two coders do not discuss or confer on a particular coding assignment, does not necessarily mean that they have coded an interaction “independently.” As was noted in this study, coders likely attending to subtle changes in body postures as well as writing of other coders that may have affected their agreement during training and recalibration, but not during the experimental coding. Future researchers, in efforts to obtain truly independent observation, should consider conducting training and recalibration individually, such that observers are not able to attend to behavioral cues of other coders. Additionally, a limitation of the present study was that coders spent significantly more time during training on identifying and distinguishing between more distressed behaviors, which, in the experimental tapes, were less common. Future researchers should ensure that coders have the opportunity to practice with tapes that provide exemplars of positive, neutral, and less overtly negative behaviors. Finally, given that data in this study and other studies (Reid, 1970) demonstrated a notable and dramatic drop in agreement when the coders transitioned from overt to covert coding, future researchers may wish to keep coders blind to whether or not their behavior is being evaluated for agreement during training and recalibration. In this way, all data on agreement would be covert, and a drop would not be evident between overt and covert assessment. These approaches may provide a more accurate assessment of interobserver agreement under truly independent and experimentally realistic conditions.

The statistical analyses utilized in this study were relatively primitive and exploratory, given recent advances in statistical technology. Hierarchical Linear

Modeling, also referred to as Growth Curve Analysis, is a newer technique, and has been recently applied within the field of marital interactions (Karney & Bradbury, 1997; Caughlin & Huston, 2002; Caughlin, 2002). These techniques were outside the scope of expertise and feasibility for the current project. However, as further data mount on the utility and appropriateness of these methods in marital research, future researchers may consider utilizing these methods in examining the trajectory of marital interactions from behavioral data. This may illuminate differences both over time and across groups that other methods, notably lag sequential methods, are less sensitive to detect.

This study experimentally examined the effect of different topics discussed on marital satisfaction and self-reported communication behaviors, within the Speaker-Listener format. However, it is important to note that this is only one facet of most marital and premarital interventions. The intent of this investigation was to examine this one component of marital therapies. Thus, the results of this intervention may not necessarily apply to marital interventions that incorporate other techniques and skills training. However, as noted previously, most marital interventions utilize the Speaker-Listener format as a central component of their programs. Thus, although the results of this research may not be directly applicable to other marital packages, given the centrality of communication skills training in marital and premarital interventions, researchers and clinicians in the field should take into consideration the utility of communication skills training and its relation to marital satisfaction for different couples. This is particularly important given the data in this study regarding the degree to which couples, across both groups, departed from the technique. Researchers may need to start looking beyond the

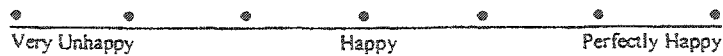
Speaker-Listener format for techniques that couples are more likely to utilize, both in experimental and naturalistic conditions. Future research may help resolve the question of whether the topic of discussion can negatively impact the use of communication skills within the Speaker-Listener format, as well as how other communication modules are affected by differential topics.

Appendix A

Self-Report Measures, Observational Code Categories and Definitions

Locke-Wallace Marital Adjustment Test

Check the dot on the scale line 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 few who are very unhappy in marriage, and on the other, to those few who experience extreme joy or felicity in marriage.



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
Handling family finances						
Matters of recreation						
Demonstrations of affection						
Friends						
Sex relations						
Conventionality (right, good, or proper conduct)						
Philosophy of life						
Ways of dealing with in- laws						

Check one:

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

REPAIR ATTEMPTS

Read each statement and circle the appropriate answer.

DURING OUR ATTEMPTS TO RESOLVE CONFLICT	RESPONSE	
We are good at taking breaks when we need them.	True (1)	False (2)
When I apologize, it usually gets accepted by my partner.	True (1)	False (2)
I can say that I am wrong.	True (1)	False (2)
I am pretty good at calming myself down.	True (1)	False (2)
Even when arguing, we can maintain a sense of humor.	True (1)	False (2)
When my partner says we should talk to each other in a different way, it usually makes a lot of sense.	True (1)	False (2)
My attempts to repair our discussions when they get negative are usually effective.	True (1)	False (2)
We are pretty good listeners even when we have different positions on things.	True (1)	False (2)
If things get heated, we can usually pull out of it and change it.	True (1)	False (2)
My spouse is good at soothing me when I get upset.	True (1)	False (2)
I feel confident that we can resolve most issues between us.	True (1)	False (2)
When I comment on how we could communicate better, my spouse listens to me.	True (1)	False (2)
Even if things get hard at times, I know we can get past our differences.	True (1)	False (2)
We can be affectionate even when we are disagreeing.	True (1)	False (2)
Teasing and humor usually work with my spouse for getting over negativity.	True (1)	False (2)
We can start all over again and improve our discussions when we need to.	True (1)	False (2)
When emotions run hot, expressing how upset I am makes a real difference.	True (1)	False (2)
Even when there are big differences between us, we can discuss them.	True (1)	False (2)
My partner expresses appreciation for nice things I do.	True (1)	False (2)
If I keep trying to communicate, it will eventually work.	True (1)	False (2)

COMPROMISE

Read each statement and circle the appropriate answer.

DURING OUR ATTEMPTS TO RESOLVE CONFLICT	RESPONSE	
Our decisions often get made by both of us compromising.	True (1)	False (2)
We are usually good at resolving our differences.	True (1)	False (2)
I can give in when I need to and often do.	True (1)	False (2)
I can be stubborn in an argument, and I'm opposed to compromising.	True (1)	False (2)
I think that sharing power in a marriage is very important.	True (1)	False (2)
My partner is not a very stubborn person.	True (1)	False (2)
I believe that one person is usually right and the other wrong on most issues.	True (1)	False (2)
We both believe in meeting each other halfway when we disagree.	True (1)	False (2)
I am able to yield somewhat even when I feel strongly on an issue.	True (1)	False (2)
The two of us usually arrive at a better decision through give and take.	True (1)	False (2)
It's not a good idea to give in too much in my view.	True (1)	False (2)
In discussing issues, we can usually find out common ground of agreement.	True (1)	False (2)
No one ever gets what they want when there is a compromise.	True (1)	False (2)
My partner can give in, and often does.	True (1)	False (2)
I wait until my partner gives in before I do.	True (1)	False (2)
When I give in first, my partner then gives in too.	True (1)	False (2)
Yielding power is very difficult for my spouse.	True (1)	False (2)
Yielding power is very difficult for me.	True (1)	False (2)
Give and take in making decisions is not a problem in this marriage.	True (1)	False (2)
I will never compromise when I believe I am right.	True (1)	False (2)

GRIDLOCK

Read each statement and circle the appropriate response.

WHEN WE DISCUSS OUR MARITAL ISSUES	RESPONSE	
The same problems keep coming up again and again in our marriage.	True (1)	False (2)
We rarely make much progress on our central issues.	True (1)	False (2)
We keep hurting each other whenever we discuss our core issues.	True (1)	False (2)
I feel criticized and misunderstood when we discuss our hot topics.	True (1)	False (2)
My partner has a long list of basically unreasonable demands.	True (1)	False (2)
When we discuss our basic issues, I often feel that my partner doesn't even like me.	True (1)	False (2)
My partner wants me to change my basic personality.	True (1)	False (2)
I often keep quiet and withdraw to avoid stirring up too much conflict.	True (1)	False (2)
I don't feel respected when we disagree.	True (1)	False (2)
My partner often acts in a selfish manner.	True (1)	False (2)
What I say in our discussions rarely has much effect.	True (1)	False (2)
I feel put down in our discussions of key issues.	True (1)	False (2)
I can't really be myself in this marriage.	True (1)	False (2)
I often think my partner is manipulating me.	True (1)	False (2)
Sometimes I think that my spouse doesn't care about my feelings.	True (1)	False (2)
My partner rarely makes a real effort to change.	True (1)	False (2)
There are some basic faults in my partner's personality that he or she will not change.	True (1)	False (2)
My partner disregards my fundamental needs.	True (1)	False (2)
Sometimes I feel that my values don't matter to my spouse.	True (1)	False (2)
When we discuss our issues, I feel I am right and my partner is wrong.	True (1)	False (2)

FLOODING

Read each statement and circle the appropriate response.

STATEMENT	RESPONSE	
Our discussions get too heated.	True (1)	False (2)
I have a hard time calming down.	True (1)	False (2)
One of us is going to say something we will regret.	True (1)	False (2)
My partner gets too upset.	True (1)	False (2)
After a fight, I want to keep my distance.	True (1)	False (2)
My partner yells unnecessarily.	True (1)	False (2)
I feel overwhelmed by our arguments.	True (1)	False (2)
I can't think straight when my partner gets hostile.	True (1)	False (2)
I think to myself, "Why can't we talk about logically?"	True (1)	False (2)
My partner's negativity often comes out of nowhere.	True (1)	False (2)
There's often no stopping my partner's temper.	True (1)	False (2)
I feel like running away during our fights.	True (1)	False (2)
Small issues suddenly become big ones.	True (1)	False (2)
I can't calm down very easily during an argument.	True (1)	False (2)
My partner has a long list of unreasonable demands.	True (1)	False (2)

THE FOUR HORSEMEN

Read each statement and circle the appropriate response.

WHEN WE DISCUSS OUR MARITAL ISSUES

	RESPONSE	
I feel attacked or criticized when we talk about our disagreements.	True (1)	False (2)
I usually feel like my personality is being assaulted.	True (1)	False (2)
In our disputes, at times, I don't even feel like my partner likes me very much.	True (1)	False (2)
I have to defend myself because the charges against me are so unfair.	True (1)	False (2)
I often feel unappreciated by my spouse.	True (1)	False (2)
My feelings and intentions are often misunderstood.	True (1)	False (2)
I don't feel appreciated for all the good I do in this marriage.	True (1)	False (2)
I often just want to leave the scene of the argument.	True (1)	False (2)
I get disgusted by all the negativity between us.	True (1)	False (2)
I feel insulted by my partner at times.	True (1)	False (2)
I sometimes just clam up and become quiet.	True (1)	False (2)
I can get mean and insulting in our disputes.	True (1)	False (2)
I feel basically disrespected.	True (1)	False (2)
Many of our issues are just not my problem.	True (1)	False (2)
The way we talk makes me want to just withdraw from the whole marriage.	True (1)	False (2)
I think to myself "Who needs all this conflict?"	True (1)	False (2)
My partner never really changes.	True (1)	False (2)
Our problems have made me feel desperate at times.	True (1)	False (2)
My partner uses phrases like "you always" or "you never" when complaining.	True (1)	False (2)
I often get the blame for what are really our problems.	True (1)	False (2)
I don't have a lot of respect for my partner's position on our basic issues.	True (1)	False (2)
My spouse can be quite selfish and self-centered.	True (1)	False (2)
I feel disgusted by some of my spouse's attitudes.	True (1)	False (2)
My partner gets far too emotional.	True (1)	False (2)
I am just not guilty of many of the things I get accused of.	True (1)	False (2)
Small issues often escalate out of proportion.	True (1)	False (2)
Arguments seem to come out of nowhere.	True (1)	False (2)
My partner's feelings get hurt so easily.	True (1)	False (2)
I often will become silent to cool things down a bit.	True (1)	False (2)
My partner has a lot of trouble being rational and logical.	True (1)	False (2)

Original Video Coding Categories:

Start-Up: Refers to the first 30 seconds of the Speaker's turn. All start up behavior will be coded as either harsh start-up or softened start up.

Harsh Start-up: Escalating from neutral to negative affect during the initial broaching of the topic of discussion; broaching a topic *initially* in a negative or accusatory fashion. This may include using the word "You" in an accusatory fashion to begin the discussion. This refers to the first thirty seconds of the discussion.

Soft Start-up: Broaching the initial topic in a neutral, positive, or nonaccusatory fashion. This may include using the word "I" in a nonaccusatory fashion to imply taking responsibility for one's own feelings, attributions, or behaviors in initiating the discussion. This refers to the first 30 seconds of the speaker's turn. (Gottman, 1999, p. 41)

Complaint: A specific statement about an area of dissatisfaction with one's partner. It is a specific, rather than global, statement about a specific problem or dissatisfaction. It is an expression of disagreement or anger about a specific issue. Example: "I'm upset that you talked about yourself all through dinner and you didn't ask me anything about my day." (Gottman, 1999, pp. 42-44)

Criticism: Any statement that implies that there is something globally wrong with one's partner; a negative statement about something that is a lasting aspect of the partner's character. Any statement that begins with "you always" or "you never" will be a criticism rather than a complaint. Criticisms are global and judgmental. Example: "You *always* talk about yourself all through dinner and don't ask me about my day. What kind of self-centered person are you?" (Gottman, 1999, pp. 42-44)

Defensiveness: This is an attempt to defend oneself from a perceived attack. There are many ways to be defensive. Examples include blaming your partner for not preventing your mistake and counter-complaining, in which one partner answers a partner's complaint with one of his/her own. Defensiveness is a general stance of warding off a perceived attack. It often takes the form of crossing the arms or taking an innocent victim posture, with accompanying whining. The message is, "Why are you picking on me? I didn't do anything wrong. What about all the good things I do? I never get any appreciation. Poor me. I am innocent" (Gottman, 1999, pp. 44-45)

Contempt: Any statement or nonverbal behavior that puts oneself on a higher plane than one's partner. Contempt can take the form of mockery, such as answering a criticism in an exaggerated, high-pitched, sing-songy voice, correcting the grammar of the partner's complaint, hostile joking (joking or teasing that faults the partner), hostile questioning (directive or leading questions that fault the partner), using facial expressions (pulling the

lip corners to the side and creating a dimple in the cheek, rolling the eyes, glancing upward). This also includes hostile anger and belligerence. Contempt also includes mockery, insult, derision, or sarcasm of another individual indicating incompetence or absurdity (disapproval, disdain, putdowns). Statements such as putdowns intended to hurt, demean or embarrass, or statements that directly criticize the personal characteristics of the spouse can be conceptualized as contempt. (Gottman, 1999, pp. 45–46)

Stonewalling: This occurs when the listener withdraws from the interaction. This may involve the partner physically leaving, failing to give the speaker cues that he/she is tracking the conversation by mirroring or responding to the speaking partner (maintaining eye contact, head nodding, facial movements such as raising and lowering the brows to show concern, worry, expectation, or delight, brief vocalizations and grunts, such as uh-huh). Stonewalling involves using brief monitoring glances, looking away and down, maintaining a stiff neck, and vocalizing hardly at all. Often, it will involve using a “controlled facial expression,” like tightening the chin and jaw, in order to conceal facial expressions. The speaker will often perceive the listener as detached, smug, hostile, cold, or disinterested. Stonewalling may also involve pretending that the spouse does not exist, giving the “silent treatment,” not responding to direct questions or suggestions and acting as if those statements were never said or registered. (Gottman, 1999, pp. 46–47)

Repair Attempts: The degree to which one partner attempts to minimize negative statements, uses humor, and takes breaks during marital conflict situations. These may include commenting on the communication itself, supporting or soothing one another, or expressing appreciation to soften their complaints. (Gottman, 1999, pp. 49–50)

Accepted/Rejected: The receiving partner’s reaction to repair attempts. Accepted repair attempts are characterized by smiling, laughing or agreeing with the partner’s statement. Rejected repair attempts are characterized by increased negativism or hostility following such an attempt. (Gottman, 1999, pp. 49–50)

Bids for Connection: Any statement or nonverbal behavior that attempts to reduce the negativity of the interaction or attempts by one partner to align oneself with the other partner. It may include statements of fondness or appreciation, such as saying, “It’s not so bad,” or “we can work it out,” statements that express understanding, acceptance, or positive regard for the partner, statements that comment on shared interests, goals or commonalities, as well as overt behaviors designed to convey such a message (reaching for the partner’s hand, touching them affectionately, leaning toward partner).

Compromise: This includes any behavior on the part of either spouse to concede their position or recognize the validity of their partner’s statements. This includes statements that imply yielding power to the partner, giving in to the partner’s position, or pointing out the common ground on an issue. Statements that attribute responsibility to self or both partners are examples of compromise, as are statements that initiate mutual consideration of the two positions for problem-solving. Examples include, “Let’s just compromise on

this one,” “Can we meet in the middle?”

Gridlock: This includes behaviors that indicate an unwillingness or refusal to relinquish one’s position, failing to make any headway on an issue, or repeating the same statements repeatedly, without any resolution. Possible statements include, “We keep talking about this and getting nowhere,” “We never give in on our positions.”

Flooding: Flooding occurs when one or both partners become upset, yells, when small issues escalate into large issues, inability to calm oneself, and the discussions become heated quickly. This also includes instances in which one partner feels overwhelmed or that one partner fears that she/he will say something that they will regret. Examples of possible statements indicating flooding include, “I feel overwhelmed,” “We get mad so fast,” “I want to yell at you.”

Departures from Speaker-Listener Technique: This will be a duration measure in which departures from the technique will be coded and included in the sequential analyses. This may include failing to pass the floor, failing to paraphrase, and speaking for long intervals, rather than in short chunks.

Departure from Topical Theme: If a couple switches from their assigned topic theme (i.e., from an outside to an inside the marriage topic or vice versa), and/or the therapist redirects the couple to the assigned topic, this will be coded.

Physiological Arousal: When an individual’s heart rate exceeds 100 beats per minute, an audible alarm will sound (3 beeps in succession, lasting approximately 2 seconds). Each instance in which this three-beep alarm sounds, code an instance of physiological arousal.

Collapsed Code Categories:

Start-Up: Refers to the first 30 seconds of the Speaker's turn. All start up behavior will be coded as either harsh start-up or softened start up.

Harsh Start-up: Escalating from neutral to negative affect during the initial broaching of the topic of discussion; broaching a topic *initially* in a negative or accusatory fashion. This may include using the word "You" in an accusatory fashion to begin the discussion.

Soft Start-up: Broaching the initial topic in a neutral, positive, or nonaccusatory fashion. This may include using the word "I" in a nonaccusatory fashion to imply taking responsibility for one's own feelings, attributions, or behaviors in initiating the discussion.

Negative Verbalization: Any behavior previously coded as complaint, criticism, gridlock, or repair attempt rejected. This is a category that includes negative verbalizations made during the sessions.

Positive Verbalization: Any repair attempts, accepted repair attempts, compromise and bids for connection. This category includes positive behaviors that conveyed connectedness, admiration, or aligning.

Departures from Speaker-Listener Technique: This will be a duration measure in which departures from the technique will be coded. This may include failing to pass the floor, failing to paraphrase, and speaking for long intervals, rather than in short chunks.

Departure from Topical Theme: If a couple switches from their assigned topic theme (i.e., from an outside to an inside the marriage topic or vice versa), and/or the therapist redirects the couple to the assigned topic, this will be coded.

Physiological Arousal: When an individual's heart rate exceeds 100 beats per minute, an audible alarm will sound (3 beeps in succession, lasting approximately 2 seconds). Each instance in which this three-beep alarm sounds, code an instance of physiological arousal.

Defensiveness: This is an attempt to defend oneself from a perceived attack. There are many ways to be defensive. Examples include blaming your partner for not preventing your mistake and counter-complaining, in which one partner answers a partner's complaint with one of his/her own. Defensiveness is a general stance of warding off a perceived attack. It often takes the form of crossing the arms or taking an innocent victim posture, with accompanying whining.

Contempt: Any statement or nonverbal behavior that puts oneself on a higher plane than

one's partner. Contempt can take the form of mockery, such as answering a criticism in an exaggerated, high-pitched, sing-songy voice, correcting the grammar of the partner's complaint, hostile joking (joking or teasing that faults the partner), hostile questioning (directive or leading questions that fault the partner), using facial expressions (pulling the lip corners to the side and creating a dimple in the cheek, rolling the eyes, glancing upward). This also includes hostile anger and belligerence. Contempt also includes mockery, insult, derision, or sarcasm of another individual indicating incompetence or absurdity (disapproval, disdain, putdowns).

Withdrawal Behavior: Any behavior previously coded as stonewalling or flooding. This category includes behaviors in which the presumed function of the behavior is to withdraw from the conversation.

Appendix B

Scoring Instructions for the Marital Adjustment Test

Scoring Instructions

Locke-Wallace Marital Adjustment Test

Check the dot on the scale line 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 few who are very unhappy in marriage, and on the other, to those few who experience extreme joy or felicity in marriage.



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
Handling family finances	5	4	3	2	1	0
Matters of recreation	5	4	3	2	1	0
Demonstrations of affection	5	4	3	2	1	0
Friends	5	4	3	2	1	0
Sex relations	15	12	9	4	1	0
Conventionality (right, good, or proper conduct)	5	4	3	2	1	0
Philosophy of life	5	4	3	2	1	0
Ways of dealing with in-laws	5	4	3	2	1	0

Check one:

- When disagreements arise, they usually result in:
 - husband giving in 0
 - wife giving in 2
 - agreement by mutual give and take 10
- Do you and your mate engage in outside interests together?
 - all of them 10
 - some of them 8
 - very few of them 3
 - none of them 0
- In leisure time do you generally prefer:
 - to be "on the go" ____
 - to stay at home ____ (see #4 for scoring)
- Does your mate generally prefer:
 - to be "on the go" ____
 - to stay at home ____
 (stay at home for #3 and #4, 10 points; on the go for both, 3 points; disagreement 2 points)
- Do you ever wish you had not married?
 - frequently 0
 - occasionally 3
 - rarely 8
 - never 15
- If you had your life to live over again, do you think you would:
 - marry the same person 15
 - marry a different person 0
 - not marry at all 1
- Do you ever confide in your mate:
 - almost never 0
 - rarely 2
 - in most things 10
 - in everything 10

Appendix C

Communication Skills Ground Rules, Scripts, and Current Issue Lists

Ground Rules of the Speaker-Listener Technique

RULES FOR BOTH OF YOU:

1. *The Speaker has the floor.* The linoleum will be used to designate the floor. If you do not have the floor, you're the Listener. As Speaker and Listener, you follow the rules for each role.
2. *Share the floor.* You share the floor over the course of the conversation. One person has it to start, and may say a number of things. At some point, you switch roles and continue as the floor changes hands.
3. *No problem solving.* When you use this technique, you're going to focus on understanding and listening, not trying to come up with solutions for the problem.

RULES FOR THE SPEAKER:

1. *Speak for yourself. Don't try to be a mind reader.* Talk about your thoughts, feelings, and concerns, not your perceptions of the Listener's point of view or motives. Try to use "I" statements, and talk about your own point of view. "I think you're a jerk" is not an "I" statement. "I was upset when you forgot our date" is.
2. *Don't go on and on.* You'll have plenty of opportunities to say all you need to say. To help the Listener to listen actively, it will be very important to confine what you say to brief, manageable statements. If you're in the habit of giving monologues, remember that having the floor protects you from interruptions, so you can afford to pause and be sure that your partner understands you.
3. *Stop and let Listener paraphrase.* After you have talked for a while, stop and allow the Listener to paraphrase what you have just said. If the paraphrase wasn't quite accurate, you should politely restate what was not heard the way it was intended to be heard. Your goal is to help the Listener hear and understand your point of view. This is not a test--- it is designed to make sure that the Listener really hears you.

RULES FOR THE LISTENER:

1. *Paraphrase what you hear.* You must paraphrase what the Speaker is saying. Briefly report back what you heard the Speaker say, using your own words if you like, and make sure that you understand what was said. The key is to show your partner that you are listening by restating what you heard. If the paraphrase is not quite right (which happens often), the Speaker should gently clarify the point being made. If you truly don't understand some phrase or example, you may ask the Speaker to clarify, but you may not ask questions on any other aspect of the issue unless you have the floor.
2. *Focus on the Speaker's message. Don't rebut.* In the Listener's role, you may not offer your opinions or thoughts. This is the hardest part of being a good Listener. If you're upset by what your partner says, you need to edit out any response you may want to make and pay attention to what your partner is saying. Wait until you get the floor to make your response. As the Listener, your job is to speak only in the service of understanding your partner. Any words or gestures that would show your opinion are not allowed, including making faces.

Potential Research Couple Phone Script:

"MAY I PLEASE SPEAK TO: _____"

"HELLO, MY NAME IS _____ FROM WESTERN MICHIGAN UNIVERSITY AND I AM CALLING REGARDING THE RESEARCH STUDY THAT YOU EXPRESSED INTEREST IN. BEFORE I SCHEDULE A TIME FOR US TO MEET AND DISCUSS THE STUDY, LET ME TELL YOU A BIT ABOUT THE PROJECT AND ASK YOU SOME QUESTIONS TO SEE IF YOU ARE ELIGIBLE FOR THE STUDY."

"THIS STUDY IS LOOKING AT A PARTICULAR COMMUNICATION SKILLS TECHNIQUE AND HOW IT MAY BE EFFECTIVE FOR DIFFERENT COUPLES, DEPENDING ON THE TOPIC DISCUSSED. IT REQUIRES THAT YOU AND YOUR SPOUSE COME FOR THREE TRAINING SESSIONS, AND TWO FOLLOW-UP SESSIONS. IS THIS SOMETHING THAT YOU AND YOUR SPOUSE MAY BE INTERESTED IN PARTICIPATING IN?"

IF YES: CONTINUE WITH SCRIPT

IF NO: THANK YOU FOR YOUR INTEREST.

IF NEED TO TALK TO SPOUSE: OK, WELL, HOW ABOUT IF I CALL YOU BACK IN A FEW DAYS ONCE YOU HAVE HAD A CHANCE TO TALK TO YOUR SPOUSE? (CALL BACK IN THREE DAYS).

"NOW I WOULD LIKE TO ASK YOU A FEW QUESTIONS TO SEE IF YOU ARE ELIGIBLE FOR THE RESEARCH PROJECT:"

- "ARE YOU CURRENTLY MARRIED AND LIVING WITH YOUR SPOUSE?"

IF YES: CONTINUE WITH SCRIPT

IF NO: UNFORTUNATELY, THIS STUDY REQUIRES THAT YOU BE CURRENTLY MARRIED AND LIVING WITH YOUR PARTNER, SO AT THIS POINT, YOU AND YOUR SPOUSE ARE NOT ELIGIBLE TO PARTICIPATE, BUT THANK YOU FOR YOUR INTEREST.

- "ARE YOU OR YOUR PARTNER CURRENTLY INVOLVED IN ANY FORM OF PSYCHOLOGICAL TREATMENT?"

IF NO: CONTINUE WITH SCRIPT

IF YES: UNFORTUNATELY, THIS STUDY REQUIRES THAT NEITHER YOU OR YOUR SPOUSE BE INVOLVED IN ANY FORM OF PSYCHOLOGICAL TREATMENT, SO AT THIS POINT, YOU AND YOUR SPOUSE ARE NOT ELIGIBLE TO PARTICIPATE, BUT THANK YOU FOR YOUR INTEREST.

- "HAVE YOU AND YOUR SPOUSE EVER PARTICIPATED IN ANY SORT OF PREMARITAL COUNSELING OR MARRIAGE COUNSELING?"

IF NO: CONTINUE WITH SCRIPT

IF YES:

WHEN DID THAT TAKE PLACE? _____

DO YOU REMEMBER THE NAME OF THE PROGRAM OR COULD YOU DESCRIBE WHAT YOU DID?

(IF MENTION PREP, MILLER MODEL, GUERNEY MODEL, OR DESCRIBE ANY PROGRAM THAT INVOLVED STRUCTURED COMMUNICATION SKILLS TRAINING ANALOGOUS TO THAT IN THE STUDY IN THE LAST TWO YEARS) UNFORTUNATELY, THIS STUDY REQUIRES THAT YOU AND YOUR PARTNER MUST NOT HAVE PARTICIPATED IN MARRIAGE COUNSELING LESS THAN TWO YEARS PREVIOUS, SO AT THIS POINT, YOU AND YOUR SPOUSE ARE NOT ELIGIBLE TO PARTICIPATE, BUT THANK YOU FOR YOUR INTEREST.

(IF STILL ELIGIBLE AFTER SCREENING QUESTIONS) "FROM YOUR RESPONSES, IT LOOKS LIKE YOU ARE ELIGIBLE FOR THE STUDY. LET'S SCHEDULE AN INITIAL APPOINTMENT TO DISCUSS THIS STUDY AND DETERMINE IF THIS MAY BE SOMETHING THAT YOU AND YOUR SPOUSE ARE INTERESTED IN PARTICIPATING IN." (SCHEDULE SESSION AND GIVE DIRECTIONS, IF NEEDED)

"OK, THANK YOU FOR YOUR INTEREST AND WE'LL SEE YOU ON _____"

Initial Session Introduction Script

(Welcome and seat the couple in the therapy room.)

“Before we get started, I want to tell you a little about the reason why we are conducting this study. The purpose of this study is to learn more about how different couples may benefit from communication skills training, depending on their level of marital satisfaction prior to the training, and how the issue being discussed may impact the effectiveness of the training. During the course of the study, you will be asked to complete questionnaires regarding your level of marital satisfaction and current communication skills. Also, you will be participating in two communication training sessions, and will be asked to use those techniques while discussing either a current problem within your marriage or a problem not related to your marriage. Following the training sessions, you will be asked to return for two, brief follow-up sessions, at which you would complete the same questionnaires. The first thing that I ask you to do is carefully read and sign this consent form, and as you are reading, if you have any questions, please feel free to ask me. You will also be given a copy of this form to take home with you.”

(After signing consent document)

“Now I would like the two of you to generate a list of current problems (within or outside) your marriage, and rate each of these problems with regard to how severe or emotionally disturbing they are. It is important that you think of problems or difficulties that you rate as severe or emotionally charged. Please fill out this list with regard to how *you* feel about the issue, regardless of how you think your partner feels about the issue.”

(After completing the list and ratings)

“Now I would like the two of you to engage in a conversation regarding a current issue (within or outside) of your marriage. During this conversation, you will be wearing the heart rate monitors and the video camera will be recording, but please try to be as comfortable and open as possible.”

(After completing the conversation)

“Thank you so much for your honest effort in engaging in that conversation. Now I would like to schedule your next session sometime next week. During that session, you will be learning the communication skills technique, and practicing it using different topics.”

Speaker-Listener Technique Script Group A (Second and Third Sessions)

Rationale:

“Before we begin, I want to tell you a little bit about this communication skills training and why it may be helpful to you and your partner. This communication technique, called the Speaker-Listener technique, offers couples an alternative mode of communication when issues are hot or sensitive, or when they are likely to get that way. This communication technique offers couples a structured context in order to facilitate communication about current problems within the marriage. When using this technique, each person will get an opportunity to talk and also to listen to the input of their partner. The purpose of this technique is not to *solve* problems, but rather is a means to facilitate *listening* and better understanding of your partner’s concerns about issues within the marriage. This technique may feel awkward or forced at times, but the structure of the technique is designed to help you better understand the issue at hand. Are there any questions about the basic purpose of the technique?”

Basic Procedures:

“Let me explain to you the basic ‘ground rules’ of this communication skills training. Here is a handout that may help you understand the rules that I am about to explain, so let’s go through this together. There are several things that you should keep in mind as we proceed. During each conversation, each of you will be designated as either the Speaker or the Listener at different points in the interaction. The first thing you should know is that the Speaker has the floor, which will be represented by this piece of linoleum. If you do not have the floor, you are designated as the Listener. Although only one of you will

have the floor at a time, it is important that you share the floor over the course of the conversation. That is, one person may start with it and say a number of things, but following that statement, it is important that the floor be given to the other person. Also, as I mentioned before, this technique focuses on facilitating understanding and encouraging listening, so no problem solving is to take place during the discussion. The focus of the conversation should be only on listening and trying to understand your partner's statements.

In addition to these general rules, there are specific rules for the Speaker and the Listener individually. First, with regard to the Speaker, the Speaker should speak only for himself. That is, the Speaker should talk about his/her own feelings, thoughts, and concerns, not his/her perceptions of the Listener's point of view or motives. The Speaker would use statements like 'I think or I feel' rather than 'You think or you feel.' Second, the statements made by the Speaker should be short enough so that the Listener can effectively paraphrase the statements, and the Speaker should pause briefly to let the Listener paraphrase the previous statements. Third, as the Listener, there are specific rules that need to be followed. Specifically, after the Speaker has finished a statement, the Listener should paraphrase what the Speaker has just said. The Listener should focus on understanding the comments of the Speaker, and should restate the meaning in his/her own words. If the paraphrased meaning is not quite right, the Speaker may gently clarify the point, and the Listener should make another attempt at paraphrasing the statements. Finally, the Listener should focus on the Speaker's message, without attempting to rebut their statement. That is, the Listener does not offer his/her opinions or thoughts, but rather

simply paraphrases the partner's response.”

Neutral Conversation Script:

“Now that we’ve reviewed the basic rules of this communication technique, let’s practice. What I would like you to do is choose a *neutral topic*, and we will practice this technique. The topic that you choose should not be something that is a current conflict or problem in your marriage, but rather something that does not evoke any strong emotions or thoughts. Some examples of possible topics might be colors of cars, breakfast cereals, or the weather. It is very important that this topic is a neutral one. Go ahead and talk about what topic you both would like to discuss, and then tell me what that is. During this practice session, I will be giving you feedback about how you are doing with following the ground rules we just talked about, and I will try to give you suggestions about how you could use the technique better.”

Experimental Manipulation Instructions:

Couples in experimental Group A will be read the following instructions:

“Now that you have learned this communication technique, I would like you to use this method to discuss a current problem *within your marriage*. This could include financial problems, distribution of household chores, sex, or annoyances of your partner. It is important that the discussion focus upon a conflict *within the marriage*, rather than an outside person or problem. You should look at the list you generated of current issues within the marriage that you generated last time, and chose one that is rated as a 6 or higher. When you feel that you are done discussing the issue, tell me you are done. I will now give you a few moments to think and talk about the issue you both would like to

discuss. When you decide on a topic you both agreed to discuss, let me know, and I'll write it on this white board, and then I will stand in the corner of the room and signal for you to begin the conversation. During this discussion, I will not be able to offer you feedback on your technique. The video camera will be recording the interaction. It is very important that you continue to use the Speaker-Listener technique during this conversation, even though the conversation may get heated."

(If the couple switches to an "outside of marriage" topic, prompt them with, "Remember, you need to be discussing an issue from your marriage" and point to the topic written on the white board)

Speaker-Listener Technique Script Group B

Rationale:

“Before we begin, I want to tell you a little bit about this communication skills training and why it may be helpful to you and your partner. This communication technique, called the Speaker-Listener technique, offers couples an alternative mode of communication when issues are hot or sensitive, or when they are likely to get that way. This communication technique offers couples a structured context in order to facilitate communication about current problems outside of the marriage. When using this technique, each person will get an opportunity to talk and also to listen to the input of their partner. The purpose of this technique is not to *solve* problems, but rather is a means to facilitate *listening* and better understanding of your partner’s concerns about issues outside of the marriage. This technique may feel awkward or forced at times, but the structure of the technique is designed to help you better understand the issue at hand. Are there any questions about the basic purpose of the technique?”

Basic Procedures:

“Let me explain to you the basic ‘ground rules’ of this communication skills training. Here is a handout to help you understand the rules that I am about to explain. Let’s go through it together. There are several things that you should keep in mind as we proceed. During each conversation, each of you will be designated as either the Speaker or the Listener at different points in the interaction. The first thing you should know is that the Speaker has the floor, which will be represented by this piece of linoleum. If you do not have the floor, you are designated as the Listener. Although only one of you will have the

floor at a time, it is important that you share the floor over the course of the conversation. That is, one person may start with it and say a number of things, but following that statement, it is important that the floor be given to the other person. Also, as I mentioned before, this technique focuses on facilitating understanding and encouraging listening, so no problem solving is to take place during the discussion. The focus of the conversation should be only on listening and trying to understand your partner's statements.

In addition to these general rules, there are specific rules for the Speaker and the Listener individually. First, with regard to the Speaker, the Speaker should speak only for himself. That is, the Speaker should talk about his/her own feelings, thoughts, and concerns, not his/her perceptions of the Listener's point of view or motives. The Speaker would use statements like 'I think or I feel' rather than 'You think or you feel.' Second, the statements made by the Speaker should be short enough so that the Listener can effectively paraphrase the statements, and the Speaker should pause briefly to let the Listener paraphrase the previous statements. Third, as the Listener, there are specific rules that need to be followed. Specifically, after the Speaker has finished a statement, the Listener should paraphrase what the Speaker has just said. The Listener should focus on understanding the comments of the Speaker, and should restate the meaning in his/her own words. If the paraphrased meaning is not quite right, the Speaker may gently clarify the point, and the Listener should make another attempt at paraphrasing the statements. Finally, the Listener should focus on the Speaker's message, without attempting to rebut their statement. That is, the Listener does not offer his/her opinions or thoughts, but rather simply paraphrases the partner's response."

Neutral Conversation Script:

“Now that we’ve reviewed the basic rules of this communication technique, let’s practice. What I would like you to do is choose a *neutral topic*, and we will practice this technique. The topic that you choose should not be something that is a current conflict or problem in your lives, but rather something that does not evoke any strong emotions or thoughts. Some examples of possible topics might be colors of cars, breakfast cereals, or the weather. It is very important that this topic is a neutral one. Go ahead and talk about what topic you both would like to discuss, and then tell me what that is. During this practice session, I will be giving you feedback about how you are doing with following the ground rules we just talked about, and I will try to give you suggestions about how you could use the technique better.”

Experimental Manipulation Instructions:

Couples in experimental Group B will be read the following instructions:

“Now that you have learned this communication technique, I would like you to use this method to discuss a current problem *outside of your marriage*. This could include difficulties with a mutual friend, your work, or family members. It is important that the discussion focus upon a conflict *outside of the marriage*, rather than on a current marital problem. You should look at the list you generated of current issues outside your marriage that you generated last time, and chose one that is rated as a 6 or higher. When you feel that you are done discussing the issue, tell me you are done. I will now give you a few moments to think and talk about the issue you both would like to discuss. When you decide on the topic you both agreed to discuss, let me know and I will write it on this

white board, and I will stand in the corner of the room and signal for you to begin the conversation. During this discussion, I will not be able to offer you feedback on your technique. The video camera will be recording the interaction. It is very important that you continue to use the Speaker-Listener technique during this conversation, even though the conversation may get heated.”

(If the couple switches to an “outside of marriage” topic, prompt them with, “Remember, you need to be discussing an issue from your marriage” and point to the topic written on the white board)

Current Problems or Concerns for Couple # _____

Date: _____

Group A

Please generate a list of current problems, difficulties or concerns that that you are presently experiencing *within your marriage*. Also, please rate the severity or emotional tension that you experience with regard to this difficulty.

Problem #1: _____

1 2 3 4 5 6 7 8 9 10

Not severe/emotionally charged

Very severe/emotionally charged

Problem #2: _____

1 2 3 4 5 6 7 8 9 10

Not severe/emotionally charged

Very severe/emotionally charged

Problem #3: _____

1 2 3 4 5 6 7 8 9 10

Not severe/emotionally charged

Very severe/emotionally charged

Problem #4: _____

1 2 3 4 5 6 7 8 9 10

Not severe/emotionally charged

Very severe/emotionally charged

Problem #5: _____

1 2 3 4 5 6 7 8 9 10

Not severe/emotionally charged

Very severe/emotionally charged

Problem #6: _____

1 2 3 4 5 6 7 8 9 10

Not severe/emotionally charged

Very severe/emotionally charged

Current Problems or Concerns for Couple # _____

Date: _____

Group B

Please generate a list of current problems, difficulties or concerns that that you are presently experiencing *outside of your marriage*. Also, please rate the severity or emotional tension that you experience with regard to this difficulty.

Problem #1: _____

1 2 3 4 5 6 7 8 9 10

Not severe/emotionally charged

Very severe/emotionally charged

Problem #2: _____

1 2 3 4 5 6 7 8 9 10

Not severe/emotionally charged

Very severe/emotionally charged

Problem #3: _____

1 2 3 4 5 6 7 8 9 10

Not severe/emotionally charged

Very severe/emotionally charged

Problem #4: _____

1 2 3 4 5 6 7 8 9 10

Not severe/emotionally charged

Very severe/emotionally charged

Problem #5: _____

1 2 3 4 5 6 7 8 9 10

Not severe/emotionally charged

Very severe/emotionally charged

Problem #6: _____

1 2 3 4 5 6 7 8 9 10

Not severe/emotionally charged

Very severe/emotionally charged

Appendix D

Miscellaneous Forms and Advertisement

Demographic Questionnaire

Please answer the following demographic questions:

Your present age: _____ Date of birth: _____

Racial identity: _____

Religious affiliation: _____

How many years of high school have you completed? 0 1 2 3 4

How many years of college have you completed? 0 1 2 3 4

How many years of school have you completed after college? 0 1 2 3 4 5 6+

What educational degrees do you hold? _____

Are you in school? NO YES If Yes, Where? _____

Are you enrolled full-time or part-time? FULL-TIME PART-TIME

Are you employed? NO YES If Yes, Where? _____

What sort of work do you do? _____

What was your approximate individual income last year, before taxes? _____

What was your approximate family income last year, before taxes? _____

When did you get married? _____

Approximately how long did you date before you got engaged? _____

Approximately how long were you engaged before you got married? _____

Are you currently living with your spouse? NO YES

Have you been married before? NO YES If yes, how many times? _____

Are you currently seeing a counselor/therapist for any psychological services? NO YES

If yes, what for? _____

How long have your parents been married? _____

Have your parents separated at any time during their marriage? NO YES

Have your parents divorced? NO YES

Outside of Session Communication Skills Use

Research Number: _____

Session Number: _____

Date: _____

Total Hours Reported: _____

Topics Discussed: _____

Consistent with group assignment?

YES

NO

Referral Resources

INPATIENT SERVICES:

- Borgess Mental Health 226-4858
- Borgess Emergency Services 226-1010
- Bronson Hospital 341-7654
- Kalamazoo Psychiatric Hospital 337-3000

OUTPATIENT SERVICES:

- Adult Protective Services 337-5086
- Child Protective Services 337-5046
- Delano Clinic 226-5600
- Family & Children Services 344-0202
- Gryphon Place 381-1510
- Gryphon HELPLINE 381-HELP (4357)
- Kalamazoo Consultation Center 343-6109

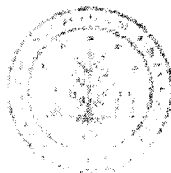
Are you currently
married and want to
learn communication
skills that may enhance
your marriage?

WMU is conducting a research study on
the effectiveness of communication skills
training with married couples.

If you and your spouse are interested in
participating, please contact Tara
Cornelius at (616) 387-4456 to schedule
an appointment.

Appendix E

HSIRB Approval and Participant Consent Forms



WESTERN MICHIGAN UNIVERSITY

Date: 6 December 2000

To: Galen Alessi, Principal Investigator
Tara Cornelius, Student Investigator for thesis

From: Michael S. Prichard, Interim Chair

A handwritten signature in cursive script, reading "Michael S. Prichard".

Re: HSIRB Project Number: 00-11-01

This letter will serve as confirmation that your research project entitled "The Effectiveness of Communication Skills Training with Married Couples: Does the Issue Discussed and Initial Level of Distress Matter?" has been **approved** under the full category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the application.

Please note that you may **only** conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval/Termination: 6 December 2001

WESTERN MICHIGAN UNIVERSITY

Date: March 30, 2001

To: Galen Alessi, Principal Investigator
Tara Cornelius, Student Investigator for thesis

From: Michael S. Pritchard, Interim Chair

Michael S. Pritchard

Re: Changes to HSIRB Project Number: 00-11-03

This letter will serve as confirmation that the changes to your research project "The Effectiveness of Communication Skills Training with Married Couples: Does the Issue Discussed and Initial Level of Distress Matter?" requested in your memo dated March 28, 2001 have been approved by the Human Subjects Institutional Review Board.

The conditions and the duration of this approval are specified in the Policies of Western Michigan University.

Please note that you may **only** conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: 6 December 2001



WESTERN MICHIGAN UNIVERSITY

Human Subjects Institutional Review Board

Date: January 30, 2002

To: Galen Alessi, Principal Investigator
Tara Cornelius, Student Investigator for thesis

From: Mary Lagerwey, Chair

A handwritten signature in cursive script, likely belonging to Mary Lagerwey, the Chair of the HSIRB.

Re: Changes to HSIRB Project Number: 00-11-03

This letter will serve as confirmation that the changes to your research project "The Effectiveness of Communication Skills Training with Married Couples: Does the Issue Discussed and the Initial Level of Distress Matter?" requested in your memo dated January 29, 2002 have been approved by the Human Subjects Institutional Review Board.

The conditions and the duration of this approval are specified in the Policies of Western Michigan University.

Please note that you may only conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: November 2, 2002

DEC 06 2000

x. Michael A. Patchel
HSIRB Chair

Research Consent Document

The Effectiveness of Communication Skills Training with Married Couples: Does the Issue Discussed and Initial Level of Marital Distress Matter?

Principal Investigator: Galen Alessi, Ph.D.

Research Associate: Tara Cornelius, B.S.

Behavioral Pediatrics Laboratory
Department of Psychology
Western Michigan University

You and your spouse have been invited to participate in a research study entitled, "The Effectiveness of Communication Skills Training with Married Couples: Does the Issue Discussed and Initial Level of Marital Distress Matter?" The purpose of this study is to learn more about how different couples may benefit from communication skills training, depending on their level of marital satisfaction prior to the training, and how the issue they discuss may impact the effectiveness of the training.

Your consent to participate in this study means that researchers will ask you to complete a few questionnaires regarding your marital relationship and your current communication tactics. Once this information is obtained, you and your spouse may be asked to continue participation. Participation in this study will include two training sessions, in which you and your spouse will be taught the communication skills techniques and asked to use those techniques while discussing either a current problem within your marriage, or a problem that is not related to your marriage. You will be asked to wear a small, wrist heart-rate monitor during these interactions in order to assess your level of physiological arousal. Additionally, during each training session, you will be asked to complete questionnaires regarding your level of marital satisfaction and current communication skills. Both treatment sessions will be videotaped to ensure that the treatment is being properly administered by the research assistant and in order to assess your current communication. Finally, participation in this study requires that you return for two, brief, follow-up sessions three-months and six-months following the training, in which you will complete the same questionnaires regarding your level of marital satisfaction and communication tactics. The phases of the study and the specific activities you will be asked to participate in are described in the timeline below.

First Meeting: The first meeting will take place in the therapy rooms within the Research Commons area of 2505 Wood Hall. During this meeting, you will be asked to complete a few questionnaires regarding your marital relationship and your current communication tactics. Also, you will be asked to engage in two conversations with your partner while wearing the wrist heart-rate monitor, and these interactions will be videotaped. During this meeting, you will also schedule a time to meet for the next session. This session will likely last approximately 30 minutes.

Second Meeting: The second session will consist of training in the communication techniques, as well as practicing those techniques using real-life examples. During this session, you will be asked to discuss a current marital or non-marital conflict using the communication skills that you have been taught while wearing the heart-rate monitor device. You will also be asked to complete the same questionnaires regarding your marital relationship and communication tactics, both before the communication training, and immediately after. During this session, you will also schedule a time to complete the third session of

DEC 06 2000

x. *Michael A. Pritchard*
HSIRB Chair

the study. You will also be given instructions with regard to practicing the communication skills technique during the time between this session and the next session. This session will likely last approximately 1-1/2 hours.

Third Meeting: This meeting will consist of a review of the communication training taught in the previous session, and you will be asked to practice these skills using real-life examples. Again, you will be asked to discuss a current marital or non-marital conflict using the communication skills that you have been taught while wearing the heart-rate monitor. In addition, you will be asked to complete the questionnaires regarding your marital relationship and communication tactics. Following this session, you will be asked to schedule an appointment for the three-month follow-up session. You will also be given instructions with regard to practicing the communication skills technique during the time between this session and the next session. This session will likely last approximately 1-1/2 hours.

Three-Month and Six-Month Follow-up: The fourth and fifth meetings will consist of the three-month and six-month follow-up sessions, respectively. During these sessions, you will be asked about the degree to which you used the communication technique during the previous months, and will be asked to complete the same questionnaires regarding your marital relationship and communication tactics. During the fifth session, the researcher will explain the purpose of the study and verify your contact information should you decide that you would like to know the final results when the study is completed. Each follow-up session will likely last approximately 30 minutes.

Potential Benefits of Participating in the Study:

There are a number of benefits of participating in this study. You will be receiving a brief communication skills training, which may improve your ability to better communicate in marital, as well as in other significant relationships in your life. The communication skills that will be taught are commonly used in most marital therapies in clinical settings, and will be offered to you free of charge if you decide to participate in this research. In addition, at the conclusion of the study, you will be offered a list of community resources should you decide that these may be beneficial for your marriage.

Risks of Participating in the Study:

There are minimal risks to you in this study. Completing the questionnaires regarding your level of marital satisfaction and current communication tactics may reveal to you aspects of your marital relationship that you may not have been aware of previously, which may be mildly distressing. Additionally, within the treatment sessions, you may be discussing personal and potentially anxiety-provoking topics that may cause some discomfort. Also, you may be mildly inconvenienced by having to fill out the questionnaires and engaging in the intervention sessions. In addition, treatment sessions will be videotaped, which may be mildly distressing to you. However, all videotapes and questionnaire data will be kept confidential and seen only by trained research assistants, and destroyed at the end of the study.

In the event that you or your spouse are significantly distressed or it becomes clear that individual/marital therapy may be immediately useful, appropriate referrals will be made. Additionally, all experimenters will be clinical psychology doctoral students, and will be trained in crisis counseling, if the need arises. If there is any indication of significant risk to you or your partner, suicidality, or psychotic behavior, the experimenter will provide the necessary intervention or ensure that you or your spouse is referred to a competent mental health professional.

DEC 06 2000

x *Michael A. Pritchard*
HSIRB Chair

As in all research, there may be unforeseen risks to the participant. If an accidental injury occurs, appropriate emergency measures will be taken; however, no compensation or additional treatment will be made available to the participant except as otherwise stated in this consent form.

Confidentiality of Data:

Any information obtained in connection with this study that can identify you will remain confidential. If the information from your data becomes part of a publication in a professional journal or a conference presentation, it will be anonymous in order to ensure your confidentiality. Additionally, any data collected from you will be coded with a unique number in order to ensure your confidentiality. You will be asked *not* to share any information regarding your answers on the questionnaires with your spouse, and any information collected from you will be kept confidential from your spouse. You and your spouse will be completing all questionnaires independently, and he/she will not have access to your answers. All written and videotaped information pertaining to you, including screening measures, will be labeled with this research number and stored in a locked cabinet in the Behavioral Pediatrics Laboratory.

Your decision whether or not to participate will not jeopardize future relations with Western Michigan University. Furthermore, you may discontinue participation at any time without penalty. If you decide to withdraw from this study, you may also withdraw any information that has been collected regarding you.

We invite you to ask any questions you may have. If you have additional questions later, please feel free to contact Dr. Alessi or Tara Cornelius at 387-4456. We will be happy to answer your questions. You may also contact the Chair of the Human Subjects Institutional Review Board (387-8293) or the Vice President for Research (387-8298) if questions or problems arise during the course of the study. You will be given a copy of this form to keep.

YOU ARE MAKING A DECISION WHETHER OR NOT TO PARTICIPATE. YOUR SIGNATURE INDICATES THAT YOU HAVE DECIDED TO PARTICIPATE HAVING READ THE INFORMATION PROVIDED ABOVE.

This consent document has been approved for use for one year by the Human Subjects Institutional Review Board (HSIRB) as indicated by the stamped date and the signature of the board chair in the upper right corner. Participants should not sign this document if the corner does not show a stamped date and signature.

Date _____

Time _____

Signature of Research Participant

Signature of Investigator

BIBLIOGRAPHY

- Amato, P. R., & Keith, B. (1991). Parental divorce and the well-being of children: A meta-analysis. *Psychological Bulletin*, 110, 26–46.
- Bader, E., & Rimmel, A. (1987). *Learning to Live Together leader's guide*. Toronto, Ontario: University of Toronto, Family and Community Medicine.
- Bakeman, R., & Gottman, J. M. (1997). *Observing interaction: An introduction to sequential analyses*. New York, NY: Cambridge University Press.
- Beckerman, N. L., & Shepard, L. (2002). Couple therapy: Identification of conflict areas. *Family Therapy*, 29, 77–87.
- Bedell, J. R., & Lennox, S. S. (1997). *Handbook for communication and problem-solving skills training: a cognitive-behavioral approach*. New York, NY: J. Wiley.
- Berg-Cross, L. (2001). *Couples Therapy*. Binghamton, NY: The Haworth Press.
- Bittker, T. E., Buschbaum, M. S., Williams, R. B., & Wynne, L. C. (1975). Cardiovascular and neurophysiologic correlates of sensory intake and rejection. *Psychophysiology*, 12, 434–438.
- Bloom, B., Asher, S., & White, S. (1978). Marital disruption as a stressor: A review and analysis. *Psychological Bulletin*, 85, 867–894.
- Buchanan, C. M., Maccoby, E. E., & Dornbusch, S. M. (1991). Caught between parents: Adolescents' experiences in divorced homes. *Child Development*, 62, 1008–1029.

- Burman, B., & Margolin, G. (1992). Analysis of the association between marital relationships and health problems: An interactional perspective. *Psychological Bulletin*, 112, 39–63.
- Butler, M. H., & Wampler, K. S. (1999). A meta-analytic update of research on the Couple Communication Program. *The American Journal of Family Therapy*, 27, 223–237.
- Carter, E. A., & McGoldrich, M. (1988). *Family life cycle: A framework for family therapy*. New York, NY: Gardner Press.
- Caughlin, J. P. (2002). The demand/withdraw pattern of communication as a predictor of marital satisfaction over time. *Human Communication Research*, 28, 49–85.
- Caughlin, J. P., & Huston, T. L. (2002). A contextual analysis of the association between demand/withdraw and marital satisfaction. *Personal Relationships*, 9, 95–119.
- Chandra, A. J., Mosher, W., Peterson, L., & Piccinino, L. (1997). Fertility, family planning, and women's health: New data from the National Survey of Family Growth. National Center for Health Statistics. *Vital Health Stat*, 23, 1–113.
- Cherlin, A. J. (1992). *Marriage, divorce, remarriage*. Cambridge, MA: Harvard University Press.
- Christensen, A., & Heavey, C. L. (1990). Gender and social structure in the demand/withdraw patterns of marital conflict. *Journal of Personality and Social Psychology*, 59, 73–81.

- Cole, C. L., & Rice, M. (1996). *The first year marriage project*. Paper presented at the annual meeting of the American Association for Marriage and Family Therapy, Toronto, Ontario.
- Cornelius, T. L., & Alessi, G. (2002). *The effectiveness of communication skills training with married couples: Does the issue discussed and initial level of marital distress matter?* Unpublished master's thesis, Western Michigan University, Kalamazoo, Michigan.
- Crowther, J. H. (1985). The relationship between depression and marital adjustment: A descriptive study. *The Journal of Nervous and Mental Disease*, 173, 227–231.
- Denton, W. H., Burleson, B. R., Hobbs, B. V., Von Stein, M., & Rodriguez, C. P. (2001). Cardiovascular reactivity and initiate/avoid patterns of marital communication: A test of Gottman's psychophysiologic model of marital interaction. *Journal of Behavioral Medicine*, 24, 401–421.
- Dinkmeyer, D., & Carlson, J. (1984). *Training in marital enrichment*. Circle Pines, MN: American Guidance Services.
- Dyer, P., & Dyer, G. (1990). *Growing Together*. Minneapolis, MN: PREPARE/ENRICH.
- Emmons, R. A., & Colby, P. M. (1995). Emotional conflict and well-being: Relation to perceived availability, daily utilization and observer report of social support. *Journal of Personality and Social Psychology*, 68, 947–959.
- Gill, D. S., Christensen, A., & Fincham, F. D. (1999). Predicting marital satisfaction from behavior: Do all roads really lead to Rome? *Personal Relationships*, 6, 369–387.

- Gottman, J. M. (1979). *Marital interaction: Experimental investigations*. New York: Academic Press.
- Gottman, J. M. (1994). *What predicts divorce? The relationship between marital processes and marital outcomes*. Hillsdale, NJ: Erlbaum.
- Gottman, J. M. (1996). *What predicts divorce? The measures*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Gottman, J. M. (1999). *The marriage clinic*. New York, NY: W. W. Norton & Company, Inc.
- Gottman, J. M., Coan, J., Carrere, S., & Swanson, C. (1998). Predicting marital happiness and stability from newlywed interactions. *Journal of Marriage and the Family*, 60, 5–22.
- Gottman, J. M., Jacobson, N. S., Rushe, R. H., Short, J. W., Babcock, J. C., LaTaillade, J. J., & Waltz, J. (1995). The relationship between heart rate reactivity, emotionally aggressive behavior, and general violence in batterers. *Journal of Family Psychology*, 9, 227–248.
- Gottman, J. M., & Krokoff, L. J. (1989). Marital interaction and satisfaction: A longitudinal view. *Journal of Consulting and Clinical Psychology*, 57, 47–52.
- Gottman, J. M., & Levenson, R. W. (1984). Why marriages fail: Affective and physiological patterns in marital interaction. In J. C. Masters & K. Yarkin-Levin (Eds.), *Boundary areas in social and developmental psychology* (pp. 67–106). New York: Academic Press.

- Gottman, J. M., & Levenson, R. W. (1986). Assessing the role of emotion in marriage. *Behavioral Assessment*, 8, 31–48.
- Gottman, J. M., & Levenson, R. W. (1988). The social psychophysiological of marriage. In P. Noller & M. A. Fitzpatrick (Eds.), *Perspectives on marital interaction* (pp. 182–202). Clevedon, England: Multilingual Matters.
- Gottman, J. M., & Levenson, R. W. (1992). Marital processes predictive of later dissolution: Behavior, physiology, and health. *Journal of Personality and Social Psychology*, 63, 221–233.
- Gottman, J. M., Markman, H. J., & Notarius, C. I. (1977). The topography of marital conflict: A sequential analysis of verbal and nonverbal behaviors. *Journal of Marriage and the Family*, 39, 466–477.
- Gottman, J. M., & Notarius, C. (2000). Decade review: Observing marital interaction. *Journal of Marriage and the Family*, 62, 927–947.
- Gottman, J. M., Notarius, C. I., Gonso, J., & Markman, H. J. (1976). *A couple's guide to communication*. Champaign, IL: Research Press.
- Guerney, B. G., Jr. (1977). *Relationship enhancement*. San Francisco, CA: Jossey-Bass Inc., Publishers.
- Guerney, B. G., Jr., Vogelsong, E., & Coufal, J. (1983). Relationship Enhancement versus a traditional treatment: Follow-up and booster effects. In D. H. Olson & B. C. Miller (Eds.), *Family studies review yearbook, Volume 1* (pp. 738–756). Beverly Hills, CA: Sage Publications.

- Hahlweg, K., & Markman, H. J. (1988). Effectiveness of behavioral marital therapy: Empirical status of behavioral techniques in preventing and alleviating marital distress. *Journal of Consulting and Clinical Psychology, 56*, 440–447.
- Hahlweg, K., Revenstorf, D., and Schindler, L. (1984). Effects of behavioral marital therapy on couples' communication and problem-solving skills. *Journal of Consulting and Clinical Psychology, 52*, 553–566.
- Halford, W. K., Hahlweg, K., & Dunne, M. (1990). Cross-cultural study of marital communication and marital distress. *Journal of Marriage and the Family, 52*, 487–500.
- Halford, W. K., & Markman, H. J. (Eds.). (1997). *Clinical handbook of marriage and couples intervention*. Chichester, UK: John Wiley & Sons.
- Hawley, D. R., & Olson, D. H. (1995). Enriching newlyweds: An evaluation of three enrichment programs. *American Journal of Family Therapy, 23*, 129–147.
- Heaton, T. B. (2002). Factors contributing to increasing marital stability in the United States. *Journal of Family Issues, 23*, 392–409.
- Heavey, C. L., Christensen, A., & Malamuth, N. M. (1995). The longitudinal impact of demand and withdrawal during marital conflict. *Journal of Consulting and Clinical Psychology, 63*, 797–801.
- Heavey, C. L., Layne, C., & Christensen, A. (1993). Gender and conflict structure in marital interaction: A replication and extension. *Journal of Consulting and Clinical Psychology, 61*, 16–27.

- Heyman, R. E. (2001). Observation of couple conflicts clinical assessment applications, stubborn truths, and shaky foundations. *Psychological Assessment, 13*, 5–35.
- Heyman, R. E., Chaudhry, B. R., Treboux, D., Crowell, J., Lord, C., Vivian, D., & Waters, E. B. (2001). How much observational data is enough? An empirical test using marital interaction coding. *Behavior Therapy, 32*, 107–122.
- Holman, T. B., & Jarvis, M. O. (2003). Hostile, volatile, avoiding, and validating couple-conflict types: An investigation of Gottman's couple-conflict types. *Personal Relationship, 10*, 267–282.
- Hux, K., Sanger, D., Reid, R., & Maschka, A. (1997). Discourse analysis procedures: Reliability issues. *Journal of Communication Disorders, 30*, 133–150.
- Jacobson, N. S., & Addis, M. E. (1993). Research on couples and couples therapy. What do we know? Where are we going? *Journal of Consulting and Clinical Psychology, 61*, 85–93.
- Jacobson, N. S., Gottman, J. M., Waltz, J., Rushe, R., Babcock, J., & Holtzworth-Munroe, A. (1994). Affect, verbal content, and psychophysiology in the arguments of couples with a violent husband. *Journal of Consulting and Clinical Psychology, 62*, 982–988.
- Jacobson, N. S. & Gurman, A. S. (Eds.). (1995). *Clinical handbook of couple therapy*. New York, NY: Guilford Press.
- Jacobson, N. S., Waldron, H., & Moore, D. (1980). Toward a behavioral profile of marital distress. *Journal of Consulting and Clinical Psychology, 48*, 696–703.

- Jansen, R. G., Wiertz, L. F., Meyer, E. S., & Noldus, L. P. J. J. (2003). Reliability analysis of observational data: Problems, solutions, and software implementation. *Behavior Research Methods, Instruments, & Computers*, 35, 391–399.
- Johnson, S. L., & Jacob, T. (2000). Sequential interactions in the marital communication of depressed men and women. *Journal of Consulting and Clinical Psychology*, 68, 4–12.
- Julien, D., Brault, M., Chartrand, E., & Begin, J. (2000). Immediacy behaviours and synchrony in satisfied and dissatisfied couples. *Canadian Journal of Behavioural Science*, 32, 84–90.
- Julien, D., Markman, H. J., & Lindahl, K. M. (1989). A comparison of a global and a microanalytic coding system: Implications for future trends in studying interactions. *Behavioral Assessment*, 11, 81–100.
- Kahng, S. W., & Iwata, B. A. (2000). Computer systems for collecting real-time observational data. In T. Thompson, D. Felce, & F. J. Symons (Eds.), *Behavioral observation: Technology and applications in developmental disabilities* (pp. 35–45). Baltimore, MD: Brookes Publishing.
- Karney, B., & Bradbury, T. (1997). Neuroticism, marital interaction, and the trajectory of marital satisfaction. *Journal of Personality and Social Psychology*, 72, 1075–1092.
- Kazdin, A. E. (1982). *Single case research designs: Methods for clinical and applied settings*. New York, NY: Oxford University Press.
- King, K. (2001). A critique of behavioral observational coding systems of couples' interaction: CISS and RCISS. *Journal of Social and Clinical Psychology*, 20, 1–23.

- Klein, R. C. A., & Johnson, M. P. (1997). Strategies of couple conflict. In S. Duck (Ed.), *Handbook of personal relationships* (2nd ed., pp. 469–489). New York: Wiley.
- Klinetob, N. A., & Smith, D. A. (1996). Demand-withdraw communication in marital interaction: Tests of interspousal contingency and gender role hypotheses. *Journal of Marriage and the Family*, 58, 945–957.
- Koerner, A. F., & Fitzpatrick, M. A. (2002). Nonverbal communication and marital adjustment and satisfaction: The role of decoding relationship relevant and relationship irrelevant affect. *Communication Monographs*, 69, 33–51.
- Krokoff, L. J., Gottman, J. M., & Hass, S. D. (1989). Validation of a global rapid couples interaction scoring system. *Behavioral Assessment*, 11, 65–79.
- Levenson, R. W., & Gottman, J. M. (1983). Marital interaction: Physiological linkage and affective exchange. *Journal of Personality and Social Psychology*, 45, 587–597.
- Levenson, R. W., & Gottman, J. M. (1985). Physiological and affective predictors of change in relationship satisfaction. *Journal of Personality and Social Psychology*, 49, 85–94.
- Locke, H. J. & Wallace, K. M. (1959). Short marital-adjustment and prediction tests: Their reliability and validity. *Marriage and Family Living*, 21, 251–255.
- Loeber, R. & Dishion, T. J. (1984). Boys who fight at home and school: Family conditions influencing cross-setting consistency. *Journal of Consulting and Clinical Psychology*, 52, 759–768.

- Margolin, G. & Wampold, B. E. (1981). Sequential analysis of conflict and accord in distressed and nondistressed marital partners. *Journal of Consulting and Clinical Psychology, 49*, 554–567.
- Markman, H. J. (1979). Application of a behavioral model of marriage in predicting relationship satisfaction for couples planning marriage. *Journal of Consulting and Clinical Psychology, 47*, 743–749.
- Markman, H. J. (1981). Prediction of marital distress: A 5-year follow-up. *Journal of Consulting and Clinical Psychology, 49*, 760–762.
- Markman, H. J., Renick, M. J., Floyd, D. J., Stanley, S. M., Clements, M. (1993). Preventing marital distress through communication and conflict management training: A 4- and 5-year follow-up. *Journal of Consulting and Clinical Psychology, 61*, 70–77.
- Markman, H., Stanley, S. & Blumberg, S. L. (1994). *Fighting for your marriage*. San Francisco, CA: Jossey-Bass Inc., Publishers.
- Martin, T. C., & Bumpass, L. (1989). Recent trends in marital disruption. *Demography, 26*, 37–51.
- Miller, R. B., Yorgason, J. B., Sandberg, J. G., & White, M. B. (2003). Problems that couples bring to therapy: A view across the family life cycle. *The American Journal of Family Therapy, 31*, 395–407.
- Miller, S., Miller, P. A., Nunnally, E. W., & Wackman, D. B. (1991). *Talking and listening together*. Littleton, CO: Interpersonal Communication Programs, Inc.

- Miller S., Nunnally, E. M., & Wackman, D. B. (1972). *The Minnesota couples communication program couples handbook*. Minneapolis, MN: Minnesota Couples Communication Program, Inc.
- Mongrain, M., & Vettease, L. C. (2003). Conflict over emotional expression: Implications for interpersonal communication. *Personality and Social Psychology Bulletin*, 29, 545–555.
- Notarius, C. I., & Markman, H. J. (1993). *We can work it out*. New York, NY: Putnam Press.
- O’Leary, K. D., & Smith, D. A. (1991). Marital interactions. *Annual Review of Psychology*, 42, 191–212.
- Pasupathi, M., Carstensen, L. L., Levenson, R. W., & Gottman, J. M. (1999). Responsive listening in long-married couples: A psycholinguistic perspective. *Journal of Nonverbal Behavior*, 23, 173–193.
- Patterson, G. R. (1982). *Coercive family process*. Eugene, OR: Castalia.
- Patterson, G. R., & Stouthamer-Loeber, M. (1984). The correlation of family management practices and delinquency. *Child Development*, 55, 1299–1307.
- Pinsof, W. M., & Wynne, L. C. (1995). The efficacy of marital and family therapy: An empirical overview, conclusions, and recommendations. *Journal of Marital and Family Therapy*, 21, 585–613.
- Polefrone, J. M., & Manuck, S. B. (1987). Gender differences in cardiovascular and neuroendocrine response to stressors. In R. C. Barnett, L. Biener, & G. K. Baruck (Eds.), *Gender and stress* (pp. 13–38). New York: Free Press.

- Powell, G. S. & Wampler, K. S. (1982). Marital enrichment participants: Levels of marital satisfaction. *Family Relations*, 31, 389–393.
- Reid, J. B. (1970). Reliability assessment of observation data: A possible methodological problem. *Child Development*, 41, 1143–1150.
- Richards, D. C. S., & Bobicz, K. (2003). Computers and behavioral assessment: 6 years later. *Behavior Therapist*, 26, 219–223.
- Richards, J. M., Butler, E. A., & Gross, J. J. (2003). Emotional regulation in romantic relationships: The cognitive consequences of concealing feelings. *Journal of Social and Personal Relationships*, 20, 599–620.
- Roberts, L. J. (2000). Fire and ice in marital communication: Hostile and distancing behaviors as predictors of marital distress. *Journal of Marriage and the Family*, 62, 693–707.
- Roberts, L. J., & Greenberg, D. R. (2003). Observational “windows” to intimacy processes in marriage. In P. Noller & J. Feeney (Eds.), *Understanding marriage: Developments in the study of couple interaction* (pp. 118–149). New York, NY: Cambridge University Press.
- Roberts, L. J., & Krokoff, L. J. (1990). A time-series analysis of withdrawal, hostility, and displeasure in satisfied and dissatisfied marriages. *Journal of Marriage and the Family*, 52, 95–105.
- Ross, E. R., Baker, S. B., & Guerney, B. G. (1985). Effectiveness of Relationship Enhancement therapy versus therapist’s preferred therapy. *American Journal of Family Therapy*, 13, 11–21.

- Sanford, K. (2003). Problem-solving conversations in marriage: Does it matter what topics couples discuss? *Personal Relationships*, 10, 97–112.
- Schaap, C. (1982). *Communication and adjustment in marriage*. Lisse, The Netherlands: Swets & Zeitlinger.
- Schaap, C. (1984). A comparison of the interaction of distressed and nondistressed married couples in a laboratory situation: Literature survey, methodological issues, and an empirical investigation. In K. Hahlweg & N. S. Jacobson (Eds.), *Marital interaction: Analysis and modification* (pp. 133–158). New York: Guilford Press.
- Schmoldt, R. A., Pope, C. R., & Hibbard, J. H. (1989). Marital interaction and the health and well-being of spouses. *Women and Health*, 15, 35–56.
- Schnelle, J. F. (1974). A brief report on invalidity of parent evaluations of behavior change. *Journal of Applied Behavior Analysis*, 7, 341–343.
- Shadish, W. R., Montgomery, L. M., Wilson, P., Wilson, M. R., Bright, I., & Okwumabua, T. (1993). Effects of family and marital psychotherapies: A meta-analysis. *Journal of Consulting and Clinical Psychology*, 74, 992–1002.
- Sharpe, T. & Koperwas, J. (2003). *Behavioral and sequential analyses*. Thousand Oaks, CA: Sage Publications.
- Sillars, A. L. (1986). *Procedures for coding interpersonal conflict (revised manual)*. Missoula: University of Montana, Department of Interpersonal Communication.

- Sillars, A., Roberts, L. J., Lonard, K. E., & Dun, T. (2000). Cognition during marital conflict: The relationship of thought and talk. *Journal of Social and Personal Relationships, 17*, 479–502.
- Smith, D. A., Vivian, D., & O'Leary, K. D. (1990). Longitudinal prediction of marital discord from premarital expressions of affect. *Journal of Consulting and Clinical Psychology, 58*, 790–798.
- Spence, D. P. (1982). *Narrative truth and historical truth*. New York: W. W. Norton.
- Stanley, S.M., Markman, H. J., & Blumberg, S. L. (1996). *Fighting for your marriage: Coach's manual*. Denver, CO: PREP Educational Products, Inc.
- Stanley, S. M., Markman, H. J., & Whitton, S. W. (2002). Communication, conflict, and commitment: Insights on the foundations of relationship success from a national survey. *Family Process, 41*, 659–675.
- Taplin, P. S., & Reid, J. B. (1977). Changes in parental consequences as a function of family intervention. *Journal of Consulting and Clinical Psychology, 45*, 973–981.
- Thomsen, D. G. & Gilbert, D. G. (1998). Factors characterizing marital conflict states and traits: physiological, affective, behavioral and neurotic variable contributions to marital conflict and satisfaction. *Personality and Individual Differences, 25*, 833–855.
- Ting-Toomey, S. (1983). An analysis of verbal communication patterns in high and low marital adjustment groups. *Human Communication Research, 9*, 306–319.
- Weiss, R. L., Hops, H., & Patterson, G. R. (1973). A framework for conceptualizing marital conflict: A technology for altering it, some data for evaluating it. In F. W.

- Clark & L. A. Hamerlynck (Eds.), *Critical issues in research and practice: Proceedings of the Fourth Banff International Conference on Behavior Modification*. (pp. 309–342). Champaign, IL: Research Press.
- Weiss, R. L., & Summers, K. J. (1983). Marital Interaction Coding System-III. In E. Filsinger (Ed.), *Marriage and Family Assessment*. Beverly Hills, CA: Sage Publishing.
- Wile, D. B. (1995). *After the fight: A night in the life of a couple*. New York, NY: Guilford Press.