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Development of a Romantic Self-Efficacy Scale (ROSES)

by

Shauna Howarth Springer

A thesis submitted to the graduate faculty
in partial fulfillment of the requirements for the degree of
MASTER OF SCIENCE

Major: Psychology

Program of Study Committee:
Lisa M. Larson, Major Professor
David Vogel
John Littrell

Iowa State University

Ames, Iowa

2002

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Graduate College
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This is to certify that the master's Thesis of

Shauna Howarth Springer

has met the requirements of Iowa State University

Signatures have been redacted for privacy

To my family and, especially, to my loving husband, Utaka, who supported me throughout the ups and downs of developing the ROSES.

I also wish to express my heartfelt gratitude to Dr. Lisa Larson, who mentored me, instructed me in the mysteries of the factor analysis, and allowed me to pursue the study of such a fascinating topic.

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Abstract

This study describes the development of the Romantic Self-efficacy Scale (ROSES) and the initial validation of the ROSES with a sample of 800 undergraduates. Items on the ROSES were based on empirically supported relationship promoting and harming behaviors identified in the past three decades of research. In the development process, ROSES items were evaluated both empirically and conceptually and a revised 38-item version of the ROSES was factor analyzed. The factor analysis yielded four factors for females and males that reflect dimensions of relationship behaviors associated with relationship satisfaction and adjustment. Factor loadings were discrepant between males and females, prompting the question of whether measures can or should be created to equally apply across genders. Reliability estimates indicate that items were internally consistent for females (α s range from .70-.84) and consistent for males in factors 1 and 2 (α s= .88 and .85) but less consistent for males in factors 3 and 4 (α s = .57 and .52). These results suggest a need for continued revision of these factors, possibly requiring the development of new items to fill out the breadth of factors 3 and 4 for males. Initial convergent validity estimates indicate that the ROSES is moderately positively correlated for both females and males (α s= .30 and .31, $p < .01$) with the Relationship Adjustment Scale (Hendrick, 1988). The development of a reliable and valid romantic self-efficacy scale has clinical implications. The ROSES may be used to pinpoint high and low areas of relational self-efficacy along dimensions shown to predict relationship success and failure.

Brief Overview

Research on self-efficacy, defined as “people’s beliefs in their capability to successfully engage in a given action” according to Social Cognitive Theory (Bandura, 1982), has proliferated in many areas of Counseling Psychology (Betz, 2000; Brown, 2000; Collins & Lapp, 1991; Hackett & Betz, 1995; Larson, Suzuki, Gillespie, Potenza, Bechtel, & Toulouse, 1992; Lent, Brown, and Hackett, 1994; Love, Ollendick, Johnson, & Schlezinger, 1985). Consistently, across these studies, self-efficacy has been shown to predict decision-making, goal formation, motivation, and persistence in the face of obstacles.

Recently, self-efficacy has been studied in the domain of interpersonal relationships (Fincham & Bradbury, 1987; Hopf & Colby, 1992; Lopez & Lent, 1991; Makoul & Roloff, 1998). The results of these studies are exciting; self-efficacy has proven to be a powerful predictor of persistence in problem-solving (Fincham & Bradbury, 1987), self-reported relationship satisfaction (Lopez & Lent, 1991), interpersonal communication apprehension (Hopf & Colby, 1992), and the decision to confront one’s partner (Makoul & Roloff, 1998).

Despite the contribution of self-efficacy in achieving these compelling results, further exploration in this area calls for the creation of a close relationship self-efficacy scale based on the most current research. As such, the aim of this study is to construct and factor analyze the Romantic Self-efficacy Scale (ROSES) based on current empirical research that links specific behaviors to relationship satisfaction or adjustment.

A recent literature search revealed only five potentially useful relationship self-efficacy scales (Fincham & Bradbury, 1987; Lopez & Lent, 1991; Makoul & Roloff, 1998 ; Moe & Zeiss, 1982; Sherer, Maddux, Mercandante, Prentice-Dunn, Jacobs, & Rogers, 1982). Moe & Zeiss' scale seems more focused on unchangeable trait-like qualities (e.g. "being attractive") rather than state-like relationship promoting behaviors that can be acquired with practice. The scales created by Fincham and Bradbury (1987) and Sherer and colleagues (1982) seem overly broad in their scope. Although Fincham and Bradbury's scale was ostensibly created to capture "an individual's sense of personal mastery or ability to perform the behaviors needed to resolve a conflict," a sample item, "I am able to do the things needed to settle our conflicts" suggests that the measure does not focus on specific conflict resolution behaviors. Sherer and colleagues (1982) created and tested a "social self-efficacy" scale with six items. Again, rather than being based on specific behaviors, the items featured in this scale seem to reflect more broad-based notions of efficacy (e.g. "It is difficult for me to make new friends"). Furthermore, this scale was not created for specific application to close romantic relationships, but was meant to be applied more generally to social functioning.

On the opposite end of the spectrum, Makoul & Roloff (1998) created a very specific six-item self-efficacy scale for the domain of confrontational behaviors with items reflecting micro-level interpersonal behaviors (e.g. "I would have trouble asking my partner to stop doing things that irritated me"). However, because the scale is so restricted by its exclusive focus on one element of interpersonal interaction, confrontational behaviors, its applicability is limited.

The most promising scale created to measure relationship self-efficacy was that of Lopez and Lent (1991). This scale contains 25 specific behavioral items such as “share equally with your partner in planning activities together” and “tell your partner when you feel hurt or upset.” There are three note-worthy strengths with the Lopez and Lent scale. Firstly, the scale is theoretically grounded in that it is based on past empirical research that identified specific behaviors associated with relationship adjustment and satisfaction. Second, developing a self-efficacy scale that focuses on behaviors rather than trait-like qualities (e.g. being attractive, being warm, etc.) seems more theoretically consistent with Bandura’s (1982) formulation of self-efficacy as “expectations about one’s ability to execute *specific actions*.” Finally, the scale was tested and reached an impressive range of internal consistency, with alpha levels ranging from .87 to .90 (Lopez & Lent, 1991).

However, despite the clear strengths of Lopez and Lent’s scale, the items created for the scale were based on research conducted from 1979-1983. Since 1983, relationship research has exploded to the extent that, today, a team of researchers can discriminate, with 93% accuracy, between couples that will stay married and couples that will divorce based on an analysis of three minutes of videotaped conversation (Gottman & Levenson, 1999). In recognition of the significant advances achieved in relationship research, this study’s aim is to develop a romantic relationship self-efficacy scale based on specific relationship promoting and harming behaviors identified in the most current relationship research. Such a scale could have far-reaching implications in the application of Social Cognitive Theory to romantic relationship functioning. For example, using such a scale, it may be possible to predict decisions relevant to intimate relationships such as a battered

woman's choice to stay in an abusive situation or a young woman's choice to engage in unwanted sexual intercourse following pressure from her partner.

Creating the ROSES required an extensive review of the literature in several areas of relationship research. Over 200 potentially-relevant articles were located using the following keywords in Psych-Lit: attachment, commitment, communication, conflict resolution, marital functioning, problem solving, relational competence, relational efficacy, relationship adjustment, relationship satisfaction, and dyadic trust. These 200 articles were then narrowed down to a pool of 54 articles that explicitly linked specific relationship behaviors (e.g. giving affection, criticizing partner) to either relationship satisfaction or adjustment. Of these 54 articles, 12 were conceptual pieces, and 42 were empirical research reports. In the empirical research articles, a distinction was made between relationship satisfaction, a subjective concept measured with various self-report scales, and relationship adjustment, measured with objective methods such as the use of trained raters who coded videotaped interactions.

The pool of 42 empirical articles was evaluated in terms of various quality indicators (e.g. reliability of measures used, sampling procedures). Subsequently, a conceptual scaffolding based on 12 categories of relationship behavior (e.g. displaying positive and negative affect, expressing anger, self-expression/self-disclosure, withdrawal/disengagement, perspective taking/understanding, acting defensive, criticizing partner, validating partner, giving affection, avoiding conflict, escalating conflict, de-escalating/repairing conflict) was formed to give structure to a detailed

review of the findings linking specific behaviors to relationship satisfaction or adjustment. An explanation of collapsing similar constructs in the literature ensued (e.g. What Noller and colleagues (1994) refer to as “destructive process” in which a woman demands and a man withdraws is referred to in other studies simply as “demand-withdraw (Gottman, 1998).” Within each of these categories, the number of studies focusing on a specific behavior was reported, in addition to the results obtained.

Inconsistent findings were associated with the categories of expressing anger and validating one’s partner. As such, expressing anger and validating one’s partner were not reflected in ROSES items. Categories that were supported in the literature by meaningful correlations between specific behaviors and relationship satisfaction or adjustment included the empirically supported relationship-promoting behaviors of displaying positive affect, self-disclosure/self-expression, perspective taking/understanding, giving affection, and de-escalating/repairing conflict and the empirically-supported relationship-harming behaviors of withdrawal/disengagement, acting defensive, criticizing one’s partner, avoiding conflict, and escalating conflict. The category of displaying positive and negative affect was seen as too global to be consistent with Bandura’s assertion that self-efficacy beliefs are held in relation to decisions to execute specific actions (1982). The other categories, listed above, informed the creation of ROSES items.

Following the aforementioned literature review is a methods section, outlining the proposed development and validation of the ROSES. Included in the methods section is a description of the expected profile of participants based on past research, the instruments to be used in the present study (e.g., Informed consent, ROSES, Relationship Assessment

Scale (RAS; Hendrick, 1988)), the proposed procedure, research questions, rationale for convergent validity hypotheses, and statistical analyses. Finally, the paper concludes with an Appendix containing the instruments described in the methods section and a list of relevant references.

Chapter 1: Introduction

Albert Bandura's Social Cognitive Theory (SCT), which posits that human beings are proactive shapers of their lives, catalyzed an explosion of new thinking and research in psychology. Just as the biologist Stephen Pinker identified the "language instinct" (Pinker, 1994), the ability to use language to describe abstract concepts, as a capacity that sets humans apart from all other species of animals, Bandura identified self-referent thought as a second distinguishing characteristic of the human race (1989).

Self-referent thought, the ability to envision versions of our past and future selves, may be the very capacity that has allowed humankind to exercise dominion over all other creatures on the earth. To understand the fundamental difference between humankind and lower life forms, consider the goldfish. Goldfish have been shown to have a total memory capacity of less than three seconds. So, from the perspective of the goldfish, an entirely new world materializes with the passage of every three seconds. The fish is guided, always in the moment, by a set of simplistic instincts and basic sensory cues (e.g. the sight of floating food). On the opposite end of the food chain, humans are able to call upon an endless array of past learning experiences, which enable a mental rehearsal of the likely outcomes of future events given various behavioral choices. Perhaps one of the most significant limitations in theories proposed before SCT (e.g., Behaviorism) is their one-dimensional portrayal of a human, who, like a ship with a rudder, engages in some action until thwarted (e.g., with negative reinforcement), at which point the rudder adjusts to a new route. In this analogy, humans are not directing the course of their own experiences; they jaggedly zig-zag across the ocean of life, guided by an endless series of

shaping influences. The problem with this kind of thinking is that humankind is falsely equated with lower forms of life that can live only in response to the changes in their environments. In contrast, Social Cognitive Theory clearly champions our potential to exercise personal agency, allowing a much more directive role in relation to the course of their lives.

Self-efficacy Beliefs (SEBs)

On the basis of a virtually limitless memory and the capacity to mentally rehearse future events, we form what Bandura calls “self-efficacy beliefs” (SEBs) and “outcome expectancies” (OEs). According to Bandura, self-efficacy beliefs are “judgments of one’s ability to execute given types of performances whereas an outcome expectation is a judgment of the likely consequences such performances will produce” (Bandura, 2000, p. 21). Both SEBs and OEs are formed on basis of several sources of information, including performance mastery experiences, vicarious learning experiences, verbal persuasion exposure, and physiological states from which we may partly judge our capabilities, strengths and vulnerabilities (Bandura, 1989). Furthermore, both SEBs and OEs are domain-specific notions; one may have high self-efficacy beliefs and positive outcome expectancies in terms of playing a round of golf, while concurrently having low self-efficacy beliefs and negative outcome expectancies in terms of engaging in public speaking. As shown in this example, the two constructs are theoretically related in that high self-efficacy in a given domain will often correlate with high outcome expectancies. In other words, if one has high confidence in one’s ability to successfully complete an

action, then one would also be likely to have highly positive outcome expectancies about the expected results of completing the action.

Although both SEBs and OEs have been shown to be proximal predictors of present performance and future behavioral choices across several domains, Bandura (2000) asserts that “beliefs of personal efficacy constitute the key factor of human agency.” As such, the present study will focus exclusively on self-efficacy beliefs. The study of self-efficacy beliefs has been extended to a variety of research settings (e.g. educational settings, the military, vocational psychology). For example, Pajares (1996) found that self-efficacy in gifted students made an independent contribution to the prediction of problem solving when the effects of math anxiety, cognitive ability, and mathematics GPA were systematically removed from analysis. In a military setting, Eden and Zuk (1995) experimentally augmented self-efficacy in order to combat seasickness by telling naval cadets that they were unlikely to experience seasickness and that, if they did, it was unlikely to affect their performance at sea. As expected, “experimental cadets reported less seasickness and were rated as better performers by naïve training officers than the control cadets.” As shown in these findings, SEBs functioned as strong predictors of present and future performance.

Applications of SEBs to Counseling Psychology

Self-efficacy has also been featured prominently within the counseling psychology literature, applied to such diverse areas as eating disorders (Love, Ollendick, Johnson, & Schlezinger, 1985), alcohol and drug abuse (Collins & Lapp, 1991), academic and career decision-making (Lent, Brown, & Hackett, 1994; Betz, 2000,

Hackett & Betz, 1995), and multicultural issues (Betz, 1997; Brown, 2000). In the area of eating disorders, for example, Love and colleagues found that “a low sense of efficacy to manage stressful events and to resist the urge to binge emerged as the most consistent predictor of bulimic behavior” (Love, Ollendick, Johnson, & Schlezinger, 1985). Self-efficacy has also been shown to meaningfully predict alcohol abuse; Collins & Lapp (1991) found that “perceived self-inefficacy influences unrestrained drinking directly...through its effects on causal attributions.” To return to the goldfish example, without a healthy sense of self-efficacy, these two groups of people seem more like goldfish that live in response to environmental cues rather than the powerful pro-active agents of change that they could be. As Bandura says, “if people believe they have no power to produce results, they will not attempt to make things happen” (2000). In the area of vocational psychology, Betz (2000) found that “high self-efficacy is related to the pursuit of careers in engineering, science, and technology, where women have been historically under-represented.” When applied to multicultural research, for example, self-efficacy has helped explain the connection between career motivations and persistence in spite of numerous obstacles faced by persons of color (Betz, 1997; Brown, 2000). In all of these areas of study, self-efficacy beliefs functioned as important determinants of motivation and action; people with high self-efficacy beliefs were more likely to pursue a given course of action and were more likely to persist in the face of obstacles.

Applications of SEBs to Interpersonal Functioning

Given the meaningful discoveries that applications of SCT have catalyzed in so many important areas of research, it is exciting to imagine the potential of applying SCT

to the realm of interpersonal functioning. Larson and colleagues (1992) assert that perceived self-efficacy partly determines people's behavior, thought patterns, and emotional reactions in a variety of interpersonal contexts. High levels of perceived self-efficacy have been associated with more self-esteem, less state and trait anxiety, and stronger perceived problem solving effectiveness (Larson, et. al., 1992). On the other hand, perceived self-inefficacy in the realm of social relationships can "induce depression both directly and indirectly by curtailing the cultivation of interpersonal relationships that can provide satisfactions and buffer the effects of chronic daily stressors" (Bandura, 1989).

At present, an emerging body of research suggests that self-efficacy beliefs powerfully influence interpersonal functioning. Larson and colleagues (1992) showed that a self-estimate measure of counseling self-efficacy predicted higher levels of performance in the counseling relationship. A handful of researchers have recently applied self-efficacy to non-professional intimate relationships as well (e.g. Doherty, 1981; Fincham & Bradbury, 1987; Lopez and Lent, 1991; Hopf & Colby, 1992; Makoul & Roloff, 1998). Doherty (1981) developed a model of efficacy expectations which are defined as an "individual's expectations for the couple or family as a group to engage in effective problem-solving activity" (Doherty, 1981). This concept sounds less like individually-based self-efficacy and somewhat more like Bandura's recent formulation of "collective efficacy" which involves "a group's shared belief in its conjoint capabilities to organize and execute courses of action required to produce given levels of attainment" (Bandura, 2000).

Fincham and Bradbury (1987) revised Doherty's model by restricting efficacy expectations to feelings of personal mastery and investigated the relationship between this type of self-efficacy expectations and conflict behavior in close relationships. In Fincham and Bradbury's study, efficacy was significantly correlated with partner persistence in problem solving, and inversely related to perceived helplessness. Lopez and Lent (1991) explored efficacy-based predictors of relationship adjustment in a college sample and found that self-efficacy was significantly positively correlated with self-report measures of relationship functioning. Hopf and Colby (1992) found a strong inverse relationship between self-efficacy and interpersonal communication apprehension, and, along similar lines, Makoul and Roloff (1998) showed that efficacy expectations predicted the likelihood that a confrontation would occur within a relationship. In all of these studies, self-efficacy proved to be a valuable predictor of relationship satisfaction or various interpersonal behaviors.

Existing Measures of Relationship Self-efficacy

Despite the clear importance of self-efficacy in contributing to these compelling results, further exploration in this area calls for the creation of a close relationship self-efficacy scale based on the most current research. A recent literature search revealed only five potentially useful scales in the relationship domain. Moe and Zeiss (1982) developed a scale to measure social skills self-efficacy. However, the "social skills" that Moe and Zeiss focused on, which include "keeping a positive outlook, being confident, acting socially skillful, being friendly, being humorous, being trusting, being assertive, being attractive, being open, being warm, communicating clearly, and speaking fluently (Moe

and Zeiss, 1982), seem more like attributes or qualities along the trait dimension, rather than state-like skills that can be acquired with training.

Fincham and Bradbury (1987) measured efficacy expectations with items designed to capture “an individual’s sense of personal mastery or ability to perform the behaviors needed to resolve a conflict.” Although Fincham and Bradbury do not provide a list of the items contained in their scale, the example they do provide, “I am able to do the things needed to settle our conflicts” suggests that the measure does not focus on specific conflict resolution behaviors. Sherer and colleagues (1982) created and tested a “social self-efficacy” scale with six items. Again, rather than being based on specific behaviors, the items featured in this scale seem to reflect more broad-based notions of efficacy (e.g. “It is difficult for me to make new friends”). Furthermore, this scale was not created for specific application to close romantic relationships, but was meant to be applied more generally to social functioning.

On the opposite end of the spectrum, Makoul & Roloff (1998) created a very specific six-item self-efficacy scale for the domain of confrontational behaviors with items reflecting micro-level interpersonal behaviors (e.g. “I would have trouble asking my partner to stop doing things that irritated me”). However, because the scale is so restricted by its exclusive focus on one element of interpersonal interaction, confrontational behaviors, its applicability is accordingly limited. So, the scales created by Moe and Zeiss (1982), Fincham and Bradbury (1987), Sherer and colleagues (1982), and Makoul and Roloff (1998) seem to be either too general or too specific in their overall foci.

Finally, Lopez and Lent (1991) created a scale of 25 items representing “a range of instrumental and affective responses dealing with communication, conflict-resolution, physical intimacy, conjoint decision making, and provision of social support.” Example items in this scale include “share equally with your partner in planning activities together” and “tell your partner when you feel hurt or upset.” There are three note-worthy strengths with the Lopez and Lent scale. Firstly, the scale is theoretically grounded in that it is based on past empirical research that identified specific behaviors associated with relationship adjustment and satisfaction. Second, developing a self-efficacy scale that focuses on behaviors rather than trait-like qualities (e.g. being attractive, being warm, etc.) seems more theoretically consistent with Bandura’s formulation of self-efficacy as “expectations about one’s ability to execute specific actions” (Bandura, 1986, in Lopez & Lent, 1991). Finally, the scale was tested and reached an impressive range of internal consistency alpha levels, ranging from .87 to .90 (Lopez & Lent, 1991).

Need for a Romantic Self-efficacy Scale (ROSES)

However, despite the clear strengths of Lopez and Lent’s scale, the items created for the scale were based on research conducted from 1979-1983. Since 1983, relationship research has exploded to the extent that, today, a team of researchers can discriminate, with 93% accuracy, between couples that will stay married and couples that will divorce based on an analysis of three minutes of videotaped conversation (Gottman & Levenson, 1999). In recognition of the significant advances achieved in relationship research, this study’s aim is to develop a romantic relationship self-efficacy scale based on specific relationship promoting and harming behaviors identified in the most current relationship

research. Such a scale could have far-reaching implications in the application of Social Cognitive Theory to romantic relationship functioning. For example, using such a scale, it may be possible to predict decisions relevant to intimate relationships such as a battered woman's choice to stay in an abusive situation or a young woman's choice to engage in unwanted sexual intercourse following pressure from her partner.

Chapter 2: Development of Items for the ROSES

The aim of this study is to construct and factor analyze a romantic relationship self-efficacy scale (ROSES) based on current empirical research that links specific behaviors to relationship satisfaction or adjustment. To accomplish this goal in a methodical manner required an extensive review of several areas of relationship research. Relationship research has been conducted for the past five decades using a variety of theoretical models subsumed under diverse research traditions. Thus, it is a broad and extensive domain represented by lines of research under several names (e.g. communication research, conflict resolution, problem solving). Within these broad lines of relationship research, a search was initiated for articles that tied relationship satisfaction or adjustment to specific behaviors (e.g. self-disclosure during a conflict) performed by members in a romantic dyad. A Psych-Lit search was performed using variations of the following keywords: attachment, commitment, communication, conflict behavior, marital functioning, problem solving, relational competence, relational efficacy, relationship adjustment, relationship satisfaction, and dyadic trust. This search yielded over two hundred potentially relevant articles.

The initial pool of over two hundred articles was then narrowed down to fifty-four articles that related specific interpersonal behaviors to either relationship satisfaction or relationship adjustment. Of these fifty-four articles, twelve articles were conceptual pieces or literature reviews of relevant marital research, and the remaining forty-two were empirical articles. These articles, which were carefully scrutinized, form the pool for the current literature review. Each of these forty-two articles used a correlation analysis model rather than an experimental model, and each employed either relationship

satisfaction or adjustment as a core variable of interest measured in a variety of ways, including self-report, use of trained coders, and a sophisticated computer program capable of analyzing affective changes on the microscopic level.

Relationship Satisfaction and Relationship Adjustment

Before proceeding further, a major distinction between relationship satisfaction and relationship adjustment should be articulated. Relationship satisfaction refers to a subjective sense of happiness with one's current relationship. Because it is a subjective construct, relationship satisfaction is measured by means of self-report. A large majority of the research articles, twenty-five in total, focused exclusively on relationship satisfaction, using self-report only. The potential weakness of this method lies in the fact that relationship satisfaction does not consistently predict relationship outcome.

According to Raush, Barry, Hertel, and Swain (1974), "questionnaires and scales of marital satisfaction and dissatisfaction have yielded very little." Perhaps this is not surprising given that subjective ratings of behavior are often quite discrepant from objective ratings. For example, Lewinsohn, Mischel, Chaplin, and Barton (1980) found that individuals judged their performance in a group interaction task as significantly better than that suggested by objective raters.

A line of research in social psychology might explain the reason for this discrepancy. Taylor and Brown (1988) state that each of us tends to perceive ourselves as better than the average person. These views, called positive illusions, are sustained by a number of interesting phenomena. For instance, Kuiper & Derry (1982) established that "positive personality information is efficiently processed and easily recalled whereas negative personality information is poorly processed and difficult to recall." Along the

same lines, “most individuals also show poorer recall for information related to failure than to success” (Silverman, 1964) and a tendency to recall task performances as more positive than they actually were (Crary, 1966). Thus, it appears that we are simply not very accurate reporters of our own situations.

Quality Indices of Previous Studies

Another problem with the self-reported relationship satisfaction approach involves a mono-method bias: exclusive reliance upon only one measure as opposed to multiple measures. John Gottman (1998) refers to using self-report only as “the glop problem,” that is, finding high correlations among variables obtained using a common method of measurement usually...self-report data obtained from a single reporter.” Gottman admonishes against “living with glop,” allowing one’s findings to be precariously balanced atop only one type of measure rather than being buttressed by several sources of data. He asserts, “it is absolutely critical that any theory of marriage be very careful about how a construct was measured in drawing conclusions...all studies of marriage [should] employ multiple methods to operationalize constructs” (p.173). The 25 studies that used self-report only were not excluded from contributing to the theoretical foundation of the scale, but studies that avoided the mono-method problem are clearly stronger.

Ultimately, in the present study, people’s perceptions of their happiness at the time of study were seen as less important than behaviors shown to predict long-term relationship success or failure identified by more objective sources. Studies that used objective raters or longitudinal designs looked at “relationship adjustment” rather than “relationship satisfaction.” In contrast to relationship satisfaction, relationship adjustment

as the term is used in the present paper *is always measured objectively*. Because of their use of multiple coding processes and a longitudinal design, Gottman's studies are the most promising, well-designed studies in the relationship area. By using a more stringent standard, that meaningful research must include objective measures of functioning, Gottman and colleagues have taken the research on relationships to a higher level. The proof of these studies' value is aptly summed up in the fact that Gottman and colleagues have consistently been able to identify, with 93% accuracy, those couples that will remain happy over time versus those that are likely to be divorced or separated within three years (Gottman & Levenson, 1999).

Specifically, John Gottman and colleagues pioneered the development of a research scheme which involves coding couples' behavior with the use of objective trained raters and sophisticated computer coding programs and then following couples up over a period of time to relate specific behaviors to relationship success or failure. Of the seventeen studies that explored relationship adjustment, eleven are authored by Gottman and colleagues and six other studies used independent trained raters with adequate interclass correlation coefficients to triangulate their findings. These seventeen studies make a strong contribution to the theoretical underpinnings of the ROSES.

Another quality indicator in the forty-two studies reviewed was manifested by various sampling procedures. Fortunately, sixteen studies used high quality sampling procedures – either truly random sampling or sampling based on matching participants with the demographic profile of a large area. For example, Carrere & Gottman (1999) selectively solicited participants that fit the demographics of the greater Seattle area. Several studies, fourteen in total, used convenient samples of restricted pools of

participants (e.g. soliciting undergraduates who would receive research credit for participation). Of course, using a convenient sample is not always a problem, depending on the aims of one's study. For example, a psychologist studying sensory perception in young adults would find an ideal sample in any college setting. Moreover, use of college samples may not present a problem when one's aim is to explore the psychometric characteristics of a new measure (e.g. the current study) as variables of interest such as test-retest reliability should ostensibly be captured within any normative population, given adequate statistical power.

Unfortunately, twelve studies did not report their method for obtaining a sample. Even if these researchers used rigorous standards to secure a truly random sample, the reader would not be able to discern this fact. Failing to report this sort of information impedes the ability of future researchers and meta-analysts to build upon the results obtained by preceding studies. For this reason, it is very important that researchers report the methods they employed and the results they obtained in sufficient detail.

However, aside from this critical exploration of the sampling procedures used in the articles under scrutiny, the samples used ultimately did not affect the decision to incorporate or exclude any study based on this rationale. Since the aim of the present study was to find links between specific behaviors and relationship adjustment or satisfaction, it seemed logical that any sample would contain people with varying levels of skill of executing the behaviors under study. Even the studies that used a cut-off of only one month (Metts & Cupach, 1990; Siavelis & Lamke, 1992) would probably be filled out with several couples beyond the "honeymoon stage" making the results of these studies potentially informative.

Measuring Relationship Satisfaction and Adjustment

A third source of variation that emerged in the review was a wide range of quality in terms of the actual measures used to capture relationship satisfaction or adjustment (see Table 1). I am not referring to use of self-report only, but rather to the use of measures with poor validity and reliability or no history of being empirically validated. In terms of self-report scales, it seems that there are a handful of benchmark measures: the Dyadic Adjustment Scale (DAS; Spanier, 1976), the Locke-Wallace Marital Adjustment Test (MAT; Locke & Wallace, 1959), the Quality Marriage Index (QMI; Norton, 1983), Hendrick's Relationship Assessment Scale (1988), and an extraction of items taken from the Rusbult Relationship Satisfaction Scale (1983).

Table 1: Methods for Measuring Relationship Satisfaction and Adjustment

	Poor Studies	Better Studies	Total
<u>Relationship Satisfaction Measures</u>			
Locke-Wallace MAT	3	8	11
Dyadic Adjustment Scale	6	1	7
Hendrick's Relationship Assessment Scale	5	0	5
Quality Marital Index	3	0	3
Rusbult (3-item extraction)	3	0	3
Other	3	4	7
Homegrown	4	2	6
<u>Relationship Adjustment Measures</u>			
SPAFF	0	9	9
Trained Raters	0	11	11
RCISS (subset of trained raters)	0	5	5
Video Recall	0	2	2

Relationship Satisfaction Measures**Locke-Wallace Marital Adjustment Test (MAT)**

The MAT (Locke & Wallace, 1959), the most widely used measure (Carrere & Gottman, 1999; Carstensen, Gottman, & Levenson, 1995; Gottman, 1993a; Gottman, 1993b; Gottman, Coan, Carrere, & Swanson, 1998; Gottman & Krokoff, 1989; Gottman & Levenson, 1991; Gottman & Levenson, 2000; Gottman & Porterfield, 1981; Levenson & Gottman, 1985; Markman, 1979), was developed in 1959 as a 15-item self-report scale

and has been used by longitudinal researchers because of its high sensitivity to changes in a couple's relationship over time. In 1959, the MAT obtained an alpha of .90. A frequent criticism of the MAT is that its items seem dated. For example, one item asks, "How long did you 'keep company' with your mate before marriage?" It is doubtful whether people today would understand the meaning of "keeping company." Although "MAT" stands for Marital *Adjustment* Scale, this measure is actually a self-report of satisfaction with one's romantic relationship.

Dyadic Adjustment Scale (DAS)

The Dyadic Adjustment Scale (DAS; Spanier, 1976) is a factor-analytically derived 32-item self-report inventory designed for use in survey research on marital and non-marital dyadic relationships. The DAS contains four sub-scales assessing dyadic consensus, satisfaction, cohesion, and affectional expression; scores on these subscales are often summed into a total adjustment score. Subscale reliability coefficients (Cronbach alpha) range from .73 to .94, and the total scale reliability is .96 (Spanier, 1976). In the seven studies in which it was employed (Assh & Byers, 1990; Kobak & Hazan, 1991; Lopez & Lent, 1991; Lussier, Sabourin, & Turgeon, 1997; Pistole, 1989; Ptacek & Dodge, 1995; Wieselquist, Rusbult, Foster, & Agnew, 1999), the DAS obtained alphas no lower than .86. Although "DAS" stands for Dyadic *Adjustment* Scale, this measure is actually a self-report of satisfaction with one's relationship.

Hendrick's Relationship Assessment Scale

The relationship assessment scale (RAS; Hendrick, 1988) is a seven-item likert-type relationship satisfaction scale with high reliability coefficients. The RAS is a brief measure designed for use with both dating and married couples. In the five relationship

satisfaction studies discussed in the present paper (Cramer, 2000; Lamke et. al., 1994; Meeks et. al., 1998; Metts & Cupach, 1990; Siavelis & Lamke, 1992) the RAS had reliability alphas ranging from .82-.88. The RAS has shown convergent validity in that it correlates .80 with the Dyadic Adjustment Scale (DAS; Spanier, 1976), a widely-used relationship satisfaction measure. Thus, the RAS scale does not sacrifice much reliability in exchange for its brevity.

Norton's Quality Marriage Index (QMI)

The six-item Quality Marriage Index (Norton, 1983) was developed along the same lines as Hendrick's scale. In the three studies in which it was used (Feeney, 1994; Noller et. al., 1994; Noller & Feeney, 1994), the QMI had alphas ranging from .75-.96.

Rusbult's Relationship Satisfaction Scale

Three of the studies (Keelan, Dion, & Dion, 1998; Metts & Cupach, 1990; Makoul & Roloff, 1998) extracted items from the longer Rusbult Relationship Satisfaction Scale and still managed to achieve adequate reliability coefficients (.85-.88).

Other Self-report Measures of Relationship Satisfaction

Other self-report measures of various names were used in seven of the total of forty-two scales. These scales, although not as commonly seen in the literature contained good reliability coefficients and some evidence of construct validity. For example, the Partnership Questionnaire (Bodenmann, Kaiser, Hahlweg, & Fehm-Wolfsdorf, 1998), a 30-item measure developed by Swedish psychologist, Hahlweg (1996), correlates .85 with Spanier's DAS. Finally, and most troublesome, six of the forty-two studies reviewed (Acitelli, Douvan, & Veroff, 1993; Barnes, Schumm, Jurich, & Bollman, 1984; Prager, 1989; Johnson & Roloff, 2000; Scharfe & Bartholomew, 1995; Sillars & Parry, 1982)

employed homegrown items with no validity and reliability estimates provided. These studies were the weakest in terms of relationship satisfaction measures and have not been given equal weight in terms of their informative capabilities as such.

Relationship Adjustment Measures

Relationship adjustment was measured with a variety of novel approaches, including the use of the video recall method, blind objective raters, and a computer program capable of recording minute facial tics. Each of the 17 studies that avoided the mono-method self-report only problem used at least one of these other methods of data gathering to substantiate their findings. Furthermore, eight of these 17 studies used a longitudinal design while the other nine featured a cross-sectional design (see Table 2.)

Video Recall

In the total pool of adjustment studies, the video recall method was applied in two studies in which participants acted as their own raters. In these studies, videotapes were used as memory prompts in the video recall procedure. Couples would watch an earlier interaction and stop the tape whenever they were aware of having certain emotions or using certain strategies in an interaction. For example, in Gottman and Levenson's (1985) study, participants were instructed to view videotape recordings of an interaction and use an affect-rating dial to provide a continuous report of their emotions during the interaction.

**Table 2: Designs Featured in Adjustment Studies
(Organized chronologically by category)**

Longitudinal Designs

<u>Study</u>	<u>Year</u>	<u>Follow-up Interval</u>	<u>Measures Used</u>
Levenson & Gottman	1985	3 years	Physiological Measures
Gottman & Krokoff	1989	3 years	SPAFF, RCISS
Gottman	1993	4 years	SPAFF, RCISS
Gottman	1993	3-6 years	SPAFF, RCISS
Gottman, et al.	1998	6 years	SPAFF, RCISS
Carrere & Gottman	1999	6 years	SPAFF
Gottman & Levenson	1999	4 years	SPAFF
Gottman & Levenson	2000	7 years	SPAFF, RCISS

Cross-Sectional (Coded by participants) Year

Gottman & Porterfield	1981
Gottman & Levenson	1985

Cross-sectional (Coded by trained raters)

Sillars & Parry	1982
Spitzberg & Hecht	1984
Prager	1989
Kobak & Hazan	1991
Carstensen, et al.	1995
Vangelisti, et al.	1999
Collins & Feeney	2000

Trained raters

Most commonly, however (in twelve of seventeen total studies), trained raters were used to code both written data samples and videotaped interactions. Codes were

based on written descriptions of a “typical interaction” in two studies. Responses were based on open-ended queries (e.g. “Please describe the last time you fought”). However, like subjectively-rated “relationship satisfaction,” these written responses may have been biased by positive illusions which may have fostered selective memories of participants’ behavior in “a typical fight.”

Coding

Typically, coding schemes were applied to videotaped interactions. For example, one study (Collins & Feeney, 2000) employed a very elaborate coding scheme developed in 1995 by Barbee and Cunningham. This scheme includes a variety of detailed codes to be applied to both disclosers and listeners. For disclosers, “Ask” (Inter-class correlation coefficient (ICC) = .87) is defined as “a direct verbal strategy that includes behaviors such as asking directly for help and giving details of the problem,” “Pout-cry” (ICC = .83) is a “direct nonverbal strategy that involves conveying one’s need for help through expressions of distress and crying and pouting, “Hint-complain” (ICC = .82) is an “indirect verbal strategy that involves complaining about a situation or hinting that a problem exists without directly requesting aid or making it clear that help is desired,” and “Sulk-fidget” (ICC = .79) is an “indirect nonverbal strategy that involves subtly showing negative affect in the form of sulking, sighing, or fidgeting.”

Listeners were also coded according to a specific, carefully defined protocol. “Solve” (ICC = .77) was defined as “approaching the problem and offering instrumental aid,” “Solace” (ICC = .90) was “attempting to deal directly with the emotional aspects of the stressful situation by providing such things as reassurance and empathic remarks,” “Dismiss” (ICC = .83) was “minimizing the importance of the problem or avoiding it by

changing the topic” and “Escape” (ICC = .81) was “avoiding the emotional aspects of the stressful situation by acting distracted or ignoring the support seeker’s emotional displays.” As shown above, the inter-class correlation coefficients indicating raters’ agreement was high, with a range of .77 (“Solve”) to .90 (“Solace”).

Gottman and colleagues (1993a) also developed a coding protocol for viewing couple interactions, called the “Rapid Couples Interaction Scoring System (RCIIS).” RCISS is a checklist of thirteen behaviors scored for the speaker and nine behaviors scored for the listener. For the speaker there are five positive codes (neutral or positive problem description, task-oriented relationship information, assent, humor-laugh, other positive) and eight negative codes (complain, criticize, negative relationship issue talk, yes-but, defensive, put-down, escalating negative affect, other negative. Summary codes may be calculated with RCISS by creating functions of various sub-scales. Gottman (1993a) attained a total reliability coefficient of .72 for all sub-scales.

Computer Assisted Coding

Finally, the combined powers of person and machine were used to code couple interactions in nine studies. Ekman and Friesen’s (1978) Facial Action Coding System (FACS), a highly advanced computer program capable of recognizing slight movements in facial muscles, inspired the development of Gottman’s (1993a) Specific Affect Coding System (SPAFF). Like Ekman’s FACS, SPAFF breaks down the affect of couples in an interaction into atomistic components, where they are then analyzed by coders. SPAFF has, for speakers, positive codes of interest, affection, humor, validation (acknowledgement of partner’s feelings), and joy, and negative affect codes of anger, contempt, disgust, belligerence, domineering, defensiveness, fear/tension/worry, sadness,

and whining plus a neutral code. For listeners, the codes are positive, negative, and neutral with an additional code for stonewalling. Coders classified each coding segment as either affectively neutral, as one of the negative affects, or as one of the positive affects. After intensive training, lasting more than 200 hours in total, trained raters obtained a kappa coefficient for reliability for chance agreements of .75 (Gottman & Levenson, 2000). In another study involving SPAFF, raters obtained an average alpha of .90 after coding 130 tapes (Carrere & Gottman, 1999).

When all of these measures are considered together, a range of quality emerges. Using trained raters to code written descriptions would sit on the low end of the range since written descriptions may include positive illusion self-serving biases. In the middle of the spectrum would be studies that used trained raters to code videotaped interactions. Finally, on the high end of the spectrum would be studies that combined the capacities of human raters and sophisticated technology (e.g. SPAFF; Carrere & Gottman, 1999) to obtain the most objective measure of relationship adjustment.

The independent variables of interest, which included conflict resolution behaviors, communication styles, and affective responses, were also measured in diverse, qualitatively different ways. In reviewing the studies, there was a pretty clear line separating studies whose methodology in measuring any of the variables of interest included the use of multiple assessment techniques and objective raters. Furthermore, the studies that invested the time to devise multiple ways of assessing variables or training raters were virtually always same studies that used these methods to measure relationship adjustment. So, the measurement of relationship adjustment acts an ideal prototype for illustrating the quality of assessment associated with the selected pool of studies.

Review of the Impact of Specific Behaviors on Relationships

A primary aim of this study was to operationalize a theoretically grounded method for developing a relationship self-efficacy scale. The previously mentioned literature review revealed that several measures in the relationship literature appear to be using items that appear to lack a solid theoretical foundation. For this reason, considerable time was spent exploring the findings of studies that link various behaviors to relationship adjustment and satisfaction.

After the completion of the literature search, and an exploration of the relative strengths and weaknesses of the studies located, the next step was to begin to organize the results of various research findings. As mentioned in the introduction, relationship research is an extensive domain represented by research in a variety of traditions. Thus, the language used to formulate and describe constructs involved in this body of research was far from uniform. However, it seemed that many constructs were fundamentally similar in nature. For example, what Noller, Feeney, Bonnell, and Callan (1994) refer to as “destructive process” (woman demands, man withdraws, man pressures, woman resists) is referred to in other studies simply as “demand-withdraw” (e.g. Gottman, 1998). When Gottman identifies “criticism” as one of the most poisonous behaviors in a relationship (Gottman, 1993b; Gottman, 1998; Gottman & Levenson, 2000), Meeks, Hendrick and Hendrick (1998) picked up on this theme under the name of “distributive tactics” (destructive statements that involve criticism, showing anger, and sarcasm) and Assh and Byers (1990) referred to this behavior as “non-facilitative” (partner makes comments to embarrass you or puts you down). In order to use studies from various

research traditions, therefore, it was necessary to arrange results according to conceptually similar findings.

The preliminary conceptual scaffolding on which various findings were placed had the following categories: displays of positive affect, displays of negative affect, non-conflict displays of affection, perspective-taking/understanding, self-disclosure, approaching conflict, avoidance of conflict, self-expression, validating/supporting, de-escalation/repairing of conflict, withdrawal/disengagement, personal criticism, escalation of conflict, problem solving tactics, defensiveness, and stonewalling (see Table 3).

Because it seemed reasonable that each category should be associated with a minimum of four studies showing a relationship to either satisfaction or adjustment, “approaching conflict” was accordingly removed from the set of categories. Each category contains a minimum of three studies’ findings that informs that category. The self-disclosure/self-expression category held the most relevant research findings (eighteen studies), followed by displaying positive and negative affect (nine studies). Approaching problems contained the least amount of relevant research findings (one study).

These categories can further be divided into relationship-promoting behaviors and relationship harming behaviors. Relationship promoting behaviors would include displaying positive affect, displaying affection, taking partner’s perspective/understanding, self-disclosing/self expressing, approaching conflict, validating/supporting, de-escalating/repairing conflict, and healthy problem solving tactics (e.g. focusing on the issue instead of blaming the partner). On the other hand, behaviors theorized to harm relationship functioning would include displaying negative affect, avoiding conflict, withdrawing/disengaging, criticizing, escalating conflict, being

defensive, and unhealthy problem solving tactics (e.g. blaming the person rather than focusing on the issue to be solved). When charted on a table, nearly all of these positive and negative behaviors (with the arguable exception of perspective taking/understanding and defensiveness) appear to have an equal and opposite counterpart:

Table 3: Number of Studies that have Investigated Relationship Behaviors

<u>Relationship Promoting Behaviors</u>	<u>Relationship Harming Behaviors</u>
Displaying positive affect (9)*	Displaying negative affect (9) (Displaying anger (5))
Self-expression/Self-disclosure (18)	Withdrawal/Disengagement (8)
Perspective taking/Understanding (4)	Defensiveness (5)
Approaching Conflict (1)	Avoiding Conflict (6)
Validating/Supporting Partner (4)	Criticizing Partner (5)
De-escalating/Repairing Conflict (4)	Escalating Conflict (6)
Healthy Problem Solving (3)	Unhealthy Problem Solving (2)

* number of studies that investigated this variable

After separating the study results into these categories and linking them to the number of studies that had investigated them, there were three problematic categories to be dealt with. First of all, the healthy vs. unhealthy problem-solving categories posed two problems: a notable lack of theoretical similarity in the constructs studied and a general lack of studies investigating these constructs. The strategy of combining conceptually similar constructs proved to be difficult in this category due to the diverse ideas subsumed under these general categories. As discussed earlier, it appears reasonable to collapse Noller and colleagues' (1994) "destructive process" (woman demands, man

withdraws, man pressures, woman resists) with Gottman's "demand-withdraw" (1998) and Gottman's "criticism" (Gottman & Levenson, 2000) with Meeks and colleagues' (1998) "distributive tactics" (destructive statements that involve criticism, showing anger, and sarcasm) and Assh and Byers' (1990) "non-facilitative behavior" (partner makes comments to embarrass you or puts you down).

However, in terms of problem solving behavior, there were a wide variety of theoretically distinct constructs. For example, "healthy" problem-solving behavior included task-oriented coping, negotiation, and compromise and "unhealthy" problem solving included husband's use of reason, wives' compliance, partner blaming, use of physical aggression, threat, and sarcasm. It would have been possible to force these concepts into some structure but such a structure would not be as logically or theoretically consistent as the nomological nets binding other constructs together. Perhaps a future researcher can create a conceptual structure for these constructs in the domain of problem-solving behavior, but doing a "thesis within a thesis," was outside the scope of the current study. Furthermore, there were relatively few studies that explicitly explored the relationship between particular problem-solving tactics and relationship satisfaction. The current literature search located only five such studies for healthy and unhealthy problem-solving behaviors combined. For these reasons, the category of problem solving was excluded, to be reserved for further exploration by future research.

Secondly, the category of approaching proved to be difficult to distinguish from self-disclosure and self-expression. The approach/avoid dimension has often been formulated as a binary response when one first becomes aware of a conflict. In this way, approach/avoid informs researchers of people's tendency to *initiate* or *refuse to initiate*

conflict. Strategies used in the midst of a conflict such as disengagement are not seen as “avoidant” because the conflict has already been initiated. However, the strategies of self-disclosure and self-expression are not as easy to parcel out. In a fight, if a person chooses to disclose or express their feelings, this inherently means that they are choosing to approach the conflict rather than avoid it. Thus, these two categories are fundamentally confounded. Of the total pool of articles reviewed, only one article specifically addressed participants’ willingness to initiate a conflict while several articles investigated self-disclosure and self-expression as potentially useful strategies. Because of the overlap between these two constructs, and the paucity of research exploring “approach” as distinguished from self-disclosure and self-expression, the category of approach was ultimately excluded from the conceptual scaffolding.

Finally, a noteworthy problem surfaced in the category of “escalating conflict.” Specifically, “escalating conflict” seems to be too broad a term and this category was less theoretically internally consistent than any of the other categories. The category of escalating conflict highlighted several non-parallel behaviors: negative start-up, negative continuance (negative affect by one spouse followed by negative affect from the other spouse), contempt, refusing to accept influence from one’s partner, aggressive behavior, and showing disgust. Future research ought to conceptually or empirically test and divide this swollen category into a series of smaller, tighter, more internally consistent groupings, but doing this at present was beyond the scope of this study. For the present, “escalating conflict” was retained as a category, but the reader should be aware that this categorically seemed more theoretically diffuse than the other categories.

Findings in each Relationship Behavior Category

Displaying Positive and Negative Affect

Fifteen of the 42 articles reviewed focused on the connection between displays of positive and negative affect and relationship satisfaction or adjustment. Nine of these fifteen studies (Carrere & Gottman, 1999; Carstensen, Gottman & Levenson, 1995; Gottman, 1993a; Gottman, 1993b; Gottman, Coan, Carrere, & Swanson, 1998; Gottman & Krokoff, 1989; Gottman & Levenson, 1999; Gottman & Levenson, 2000; Levenson & Gottman, 1985) were empirical articles that measured relationship adjustment with the use of trained raters (e.g. RCISS; Barbee & Cunningham's coding scheme) and computer assisted coding protocols (e.g. SPAFF) and one of these studies (Noller, et.al., 1994) measured relationship satisfaction with the six-item Quality Marriage Index (Norton, 1983), a self-report scale.

Within the nine relationship adjustment studies, all of which employed objective measures of relationship functioning, seven studies used a longitudinal design where adjustment was measured by the eventual success or failure of the relationship, while the remaining two adjustment studies featured a cross-sectional design. Within each of these articles, the consistent finding was that couples in successful marriages expressed much less negative affect than positive affect ($r_s = .38$ to $.46$, $p < .01$) (Carrere & Gottman, 1999; Carstensen et. al., 1995; Gottman, 1993a; Gottman, 1993b; Gottman et. al., 1998; Gottman & Krokoff, 1989; Gottman & Levenson, 2000; Gottman & Levenson, 1995; Levenson & Gottman, 1985).

Some interesting specific findings also emerged from the adjustment studies. Three of the longitudinal adjustment studies showed that a 5:1 ratio of positive affect to

negative affect in stable marriages predicted relationship stability upon follow-up (Gottman, 1993a; Gottman, 1993b; Gottman, et. al., 1998). This 5:1 ratio has been used to support the “balance model,” which posits that couples either maintain a set point of positive affect to negative affect that is functional if it is high and dysfunctional if it is low (Gottman, et. al., 1998).

Second, affect measures were important predictors of future success or failure. In one study, the frequency of the wife’s facial expressions of disgust correlated .51 ($p < .001$) with the number of months the couples was to separate in the next four years (Gottman, 1993a). In another study, levels of husbands’ and wives’ negative affect alone allowed researchers to predict with 84% correct classification who would later divorce and who would stay married (Gottman & Levenson, 2000). A provocative caveat in one of these studies was that positive affect does not always predict adjustment; in marriages in which wives were positive and compliant, relationship stability deteriorates over time (Gottman & Krokoff, 1989). By and large, though, in these well-designed tests of relationship adjustment, expressing positive affect appears to be highly correlated with relationship success.

In the one research article (Noller et. al., 1994) that focused on relationship satisfaction using the self-report QMI, the husband and wife displaying relatively more negative affect was found to be inversely related to concurrent satisfaction at two-year follow-up (husbands: -.41; wives: -.48, $p < .05$). The reports in the five review articles of marital literature generally echo this finding; four of the five reviews state that there is more negative affect in dissatisfied couples than in satisfied couples (Gottman, 1982; Gottman & Levenson, 1986; Dyer & Halford, 1998; Gottman, 1998). In the fifth review,

authored by Bradbury, Fincham, and Beach (2000), the authors assert that “definitive statements about the role of affect in eroding or supporting marital satisfaction await refinements in the conceptual underpinnings of affect-related constructs and in the methods used to observe emotional expressions and to discern their effects on marriage over time.” This assertion seems to contradict a number of previously mentioned well-designed studies that have used objective trained raters and sophisticated computer facial coding systems to establish a clear link between positive affect expression and marital adjustment.

Expressing Anger

An additional interesting finding within the category of affect expression was the relationship between expression of anger and relationship adjustment. Two studies found a positive correlation between less anger expression and adjustment (Gottman, 1993a; Gottman & Levenson, 1999). Two other studies showed opposite results (Gottman, 1993b; Gottman, et. al., 1998); anger expression was actually predictive of greater long-term adjustment. These findings are further supported in Venable & Martin’s study (1997) in which argumentativeness was not significantly correlated with relationship satisfaction ($r = .04$, $p < .05$). A plausible rationale for these conflicting findings is that anger is not always predictive of divorce for all couples (Gottman, et. al., 1998). In fact, Gottman and colleagues identified three types of stable couples: “validators,” “avoiders,” and “volatiles.” Volatile couples may tend to express more anger. However, like validators and avoiders, stable volatile couples maintain a positive to negative affect ratio of 5:1 (Gottman, et. al., 1998). So, volatile couples may be expressing more anger, but

they are also expressing more positive affect when outside the heat of frequent impassioned exchanges.

Based on the previous review, it seems that expressing more positive and less negative affect relates positively to marital adjustment. Clearly, the expression of positive affect, as rated by trained coders, is predictive of relationship stability over time. However, translating these findings into items on a self-efficacy measure is problematic. Firstly, there is a “chicken and egg” aspect to this issue; do high levels of positive affect cause better relationship adjustment or does better relationship adjustment cause higher levels of positive affect? Furthermore, while expressing positive or negative affect does clearly qualify as a specific behavior, it does not seem to qualify as a readily learnable “skill.” Ostensibly, successful marital therapy intervention should increase the ratio of positive to negative affect displayed. Yet, it would seem odd for a marital therapist to encourage members of a couple to practice displaying more positive affect as an end in and of itself.

Rather, it seems that the utility of exploring expression of affect lies in its diagnostic capability. A salient question, then, is whether affect displays actually correlate with self-report of emotions. Gottman (1993a; 1993b) and colleagues have established that affect displays rated by trained coders with the use of a computer facial analysis system are highly predicted of relationship stability in longitudinal research (Gottman, 1993a; Gottman, 1993b; Gottman, et. al., 1998). On the other hand, Gottman & Levenson (1985) showed that participants’ ratings of their own affect using a video recall method procedure in which participants viewed videotapes of their interaction and used an affect rating dial held consistent with observers’ coding of the couples’ affect.

These findings suggest that husbands and wives may be able to reliably classify their own expressions of affect. This calls into question whether positive illusions are in fact influencing these ratings since married partners can code themselves in a manner consistent with observer's codes. However, recall that Gottman used a video recall procedure. Therefore, couples were prompted with a specific display of emotion to code. Perhaps, if participants had been asked to report their emotions without seeing themselves in an actual interaction, positive illusions might have biased their response. Several studies have linked various relationship promoting behaviors to higher levels of expressed positive affect and lower levels of expressed negative affect (e.g. Carrere & Gottman, 1999; Carstensen et. al., 1999; Gottman, 1993a; Gottman, 1993b; Gottman et. al., 1998; Gottman & Krokoff, 1989; Gottman & Levenson, 2000; Gottman & Levenson, 1995; Levenson & Gottman, 1985). Asking whether subjective ratings of emotions without a videotaped interaction prompt are predictive of relationship functioning as much as ratings based on a videotaped interaction is an interesting theoretical question. Ultimately, the category of displaying positive and negative affect seems too global. Displaying more specific emotions will be featured in another one of the categories, as displaying disgust with one's partner clearly escalates conflict. However, constructing items to reflect such a global notion of displaying of a variety of positive and negative emotions did not seem consistent with Bandura's assertion that self-efficacy beliefs are held in relation to decisions to execute specific actions (1982).

Self-expression/Self-disclosure

Although self-expression and self-disclosure may sound like the same thing, there is an important distinction to be made between them. Self-disclosure is always self-

expression, but self-expression does not always entail self-disclosure. Self-expression refers to any attempt to overtly express one's thoughts or feelings while self-disclosure refers to exposing to view things that were previously concealed. In the psychological literature, self-disclosure has been defined as "any voluntarily disclosed, self-relevant information that is considered personal" (Antill & Cotton, 1987). When someone self-discloses, they do so to allow another person a more intimate look at a thought, feeling, or experience that was previously unknown. Self-expression implies that someone freely offers their thoughts, feelings and opinions on a certain matter, but this does not necessarily mean bringing to light something that was previously unknown. However, both self-disclosure and self-expression involve a willingness to be open, or some would say, psychologically available, to another.

Five studies investigated the association between self-expression and relationship satisfaction (Hendrick, 1981; Keelan, Dion, & Dion, 1998; Meeks, Hendrick, and Hendrick, 1998; Rubin, 1974; Rubin, Hill, Peplau, & Dunkel-Schetter, 1980) and thirteen studies explored the link between self-disclosure and relationship satisfaction (Antill & Cotton, 1988; Baucom & Aiken, 1984; Collins & Feeney, 2000; Davidson & Sollie, 1987; Fletcher, Thomas, & Durrant, 1999; Kurdek & Schmitt, 1986; Lamke, 1989; Lamke, Sollie, Durbin, & Fitzpatrick, 1994; Metts & Cupach, 1990; Murstein & Williams, 1983; Siavelis & Lamke, 1992; Rusbult, 1991; Scharfe & Bartholomew, 1995). All of these studies used self-report only to measure satisfaction.

Both self-expression and self-disclosure were found to positively correlate with relationship satisfaction. Keelan and colleagues (1998) report that Rubin and colleagues (Rubin, 1974; Rubin, et. al., 1980) and Hendrick (1981) found a positive relationship

between self-disclosure and relationship satisfaction. In recent research, Keelan and colleagues' (1998) findings and Meeks and colleagues' (1998) findings echoed those of Rubin (1974) and Rubin and colleagues (1980) and Hendrick (1981) ($r = .32$ $p < .05$).

Additionally, in a recent conceptual piece, Harvey & Omarzu (1997) laid out a series of skills, including self-disclosure, thought to be essential to keeping relationships healthy.

Self-expression, a second manifestation of a sharing perspective, also shows a consistent positive relationship to satisfaction. Siavelis and Lamke report that a number of studies (Antill & Cotton, 1988; Baucom & Aiken, 1984; Davidson & Sollie, 1987; Kurdek & Schmitt, 1986; Lamke, 1990; Murstein & Williams, 1984) conducted between 1983 and 1987 have established this link. Across these six studies, "a high level of marital satisfaction is associated with high levels of expressiveness for both husbands and wives" (Siavelis & Lamke, 1992). Seven recent tests of this hypothesis (Collins & Read, 2000; Fletcher, et. al., 1999; Lamke, et. al., 1994; Metts & Cupach, 1990; Rusbult, Verette, Whitney, & Slovik, 1991; Scharfe & Bartholomew, 1995; Siavelis & Lamke, 1992) have obtained similar results ($r = .15 - .41$, $p < .01$). In three of these seven recent studies (Metts & Cupach, 1990; Rusbult, 1991; Scharfe & Bartholomew, 1995), a similar construct to self-expression, "voice," which is defined as "active constructive behavior of discussing the problem or partner's behavior" (Scharfe & Bartholomew, 1995), has been found to inversely relate to relationship satisfaction ($r_s = -.35$ to $-.60$, $p < .01$). To summarize, then, both self-expression and self-disclosure bear a positive relationship to satisfaction in all of the studies reviewed. Therefore, a portion of the items on the ROSES will attempt to tap into this relationship promoting behavior.

Withdrawal/Disengagement

Eight articles were located that investigated the relationship of withdrawal-disengagement to relationship adjustment (four studies), or relationship satisfaction (four studies). The relationship adjustment studies (Gottman, 1993a; Gottman, et. al, 1998; Gottman & Krokoff, 1989; Gottman & Levenson, 2000) used a longitudinal design to correlate withdrawal/disengagement to relationship success or failure upon 3-6 year follow-up. Withdrawal/disengagement in these articles is characterized by stonewalling, defined as “listener withdrawal from an interaction” (Gottman, 1993a). Stonewalling was consistently shown to have a negative relationship to adjustment in each of these studies (Gottman, 1993a; Gottman, et. al, 1998; Gottman & Krokoff, 1989; Gottman & Levenson, 2000). There was a strong sex effect for stonewalling behavior; males tended to stonewall more often and stonewalling on the part of husbands was associated with more precipitous declines in future adjustment than stonewalling on the part of wives (Gottman, 1993a; Gottman & Levenson, 2000).

In the four articles that involved relationship satisfaction measures, there were a variety of constructs whose essence appeared to reflect withdrawal/disengagement. Two of these studies (Metts & Cupach, 1990; Scharfe & Bartholomew, 1995) used a behavioral typology developed by Rusbult in 1987 in which “neglect” encompasses “general withdrawal” and “avoiding discussion of problems” and found “neglect” to be negatively related to relationship satisfaction ($r_s = -.35$ to $-.60$, $p < .01$). Similarly, Noller and colleagues (1994) found a negative correlation between disengagement and later satisfaction ($r = -.46$, $p < .01$). Finally, Ptacek and Dodge (1995) related “less useful” coping, which included “venting emotions, behavioral disengagement, mental

disengagement, and alcohol-drug disengagement” to concurrent relationship satisfaction ($r_s = -.32$, $p < .01$ to $-.63$, $p < .01$). These consistent results suggest that the ROSES should contain items featuring withdrawal/disengagement as a relationship harming behavior.

Perspective-Taking/Understanding

Like the concepts of self-expression and self-disclosure, perspective taking and understanding are similar but not identical constructs. Understanding refers to one partner’s ability to accurately decipher the intent of their partner’s message. Perspective taking involves a higher-level skill, perhaps a type of empathy, in which one partner is able to understand the viewpoint of the other. Thus, all instances of perspective-taking manifest understanding, but not all instances of understanding involve perspective taking. Four studies in total investigated the relationship of these constructs to either adjustment (Gottman & Porterfield, 1981) or satisfaction (Acitelli, Douvan, & Veroff, 1993; Barnes, Schumm, Jurich, & Bollman, 1984; Meeks, et. al., 1998). Gottman and Porterfield (1981) discovered that strangers appear to be better able to understand wives of distressed husbands than the husbands are, indicating that understanding bears a positive relationship to adjustment. In a study conducted by Barnes and colleagues (1984), understanding, referred to as “congruence,” positively correlates with satisfaction ($r_s = .27$, $p < .05$ to $.69$, $p < .001$). In two studies, perspective taking, the deeper-level skill requiring understanding, also related positively to satisfaction (Acitelli et. al., 1993; Meeks et. al., 1998) ($r_s = .14$, $p < .10$ to $.51$, $p < .001$). Thus, engaging in understanding and perspective taking were considered important behaviors to be included on the ROSES.

Acting Defensive

Acting defensive also proved to be a consistent relationship harming behavior. Five separate longitudinal studies using defensiveness to predict relationship stability upon 3-7 year follow-up showed a significant negative correlation between acting defensive and subsequent marital adjustment (Carrere & Gottman, 1999; Gottman, 1993a; Gottman, et. al., 1998; Gottman & Krokoff, 1989; Gottman and Levenson, 2000). Ultimately, acting defensive operates as part of a cycle in which lower intensity negativity (e.g. anger, which is not, in and of itself, predictive of divorce) is met with more harmful escalated negative such as acting defensive (Gottman, et. al., 1998).

Criticizing Partner

Another type of high intensity negative behavior that has shown clear associations with lower relationship adjustment and satisfaction is criticizing one's partner. In addition to defensiveness, criticism is another member of what Gottman and colleagues describe in ominous terms as the "Four Horsemen of the Apocalypse." In other words, defensiveness and criticizing, in addition to stonewalling (e.g. withdrawal) and contempt (which will be placed under the category of conflict escalation), predict the eventual dissolution of relationships in a consistent fashion according to three longitudinal adjustment studies (Gottman, 1993b; Gottman, et. al., 1998; Gottman & Levenson, 2000).

Criticism has also been closely linked to lower relationship satisfaction in three separate studies using self-report measures. According to one study, the use of "distributive tactics," characterized by a tendency to respond in a critical, belittling, demanding, and presumptuous manner (Meeks et. al., 1998), is inversely associated with satisfaction ratings ($r = -.28$, $p < .001$). In another study, those who practiced "non-

facilitative” communication, an elaborate euphemism for “making comments intended to embarrass [one’s partner] by putting them down” (Assh & Byers, 1990), reported less satisfaction with their relationships ($r = -.60$, $p < .001$). Finally, and not surprisingly, another study (Venable & Martin, 1997) found that attacking the self-concept of one’s partner was negatively related to relationship satisfaction ($rs = -.41$ to $-.52$, $p < .01$). Overall, the constellation of these results suggests that verbally attacking one’s partner relates to less relationship adjustment and satisfaction. As such, items in the ROSES will include criticism as a well-established relationship harming behavior.

Validating Partner

In stark contrast to criticism of one’s partner is validation. Validation encompasses behaviors such as providing emotional support and listening actively and attentively. Three relationship adjustment studies, one review, and one relationship satisfaction study look at the connection between validating and relationship success. One adjustment study and the report from the review highlighted positive correlations between validation and relationship stability (Collins & Feeney, 2000; Gottman, 1998). In the relationship satisfaction study (Davis & Oathout, 1987), more trait-like aspects of validation, partner warmth and empathic concern, were related to satisfaction ($r = .20$, $p < .05$ to $.25$, $p < .05$). However, two well-designed adjustment-focused studies found no relationship between validation behaviors and relationship success. In one of these studies, “positive continuance,” that is, positive affect by one spouse followed by positive affect from the other spouse, had a non-significant correlation to stability of long-term marriages. In the other study, a specific component of validation, active listening, bore no relationship to adjustment. Overall, the findings in terms of a theorized connection

between validation and relationship success appear to have mixed results. Additionally, recall that Gottman (1993a) discovered that there is not just one type of stable union; “validators” are only one of three stable unions. Each of the three types of stable couples, validators, avoiders, and volatiles, display a 5:1 ratio of positive to negative affect (Gottman, 1993a). In developing the ROSES, the aim of the current search was to pinpoint behaviors shown to promote healthy relationships *across various types of relationships*. As such, specific validation behaviors will not be included in the ROSES items.

Giving Affection

Perhaps it would seem that giving affection is a logical sub-set of validating one’s partner. Theoretically, this makes sense. However, while validating one’s partner is not a proven relationship promoting behavior across couple types, giving affection is. Three longitudinal adjustment studies (Carrere & Gottman, 1999; Gottman, 1993a; Gottman & Levenson, 1999) suggested the importance of giving affection; in all of these studies, giving affection consistently characterized stable relationships at 3-4 year follow-up. In the one satisfaction study (Assh & Byers, 1990), “facilitative communication,” in which one partner speaks to the other with affection, (Assh & Byers, 1990) was related to higher levels of self-reported satisfaction ($r = -.60$, $p < .001$). The only important exception to this general trend was that among a portion of couples that later divorced, there was a high level of wife affection (Gottman & Levenson, 1999). The authors suggest that in these dysfunctional relationships, higher levels of wife affection need to be seen in the context of concurrently higher levels of husband contempt and disgust. So, affection given in this context may represent these wives compliance to being derogated by their

husbands, a pattern which also emerges in samples of battered women (Gottman & Levenson, 1999).

Avoiding Conflict

If self-expression is positively related to healthy functioning (e.g. Fletcher, Thomas, & Durrant, 1999), then it seems logical that an opposite construct, avoiding conflict, would be detrimental. Before proceeding further, it is important to distinguish between two constructs that may seem similar at first, avoiding from withdrawal. Both constructs involve a decision to avoid further conflict. However, “avoiding” is a strategy used to prevent conflict from surfacing in the first place, whereas “withdrawal” characterizes a response of pulling back from engagement because further conflict is seen as intolerable. Furthermore, the literature review revealed that groups of studies deal with each of these two constructs as separate and distinct behaviors.

A total of six studies explored the connection between avoidance behaviors and self-reported satisfaction. Meeks and colleagues (1998) found that avoidance tactics, defined as “topic shifting, denial of conflict, and semantic focus (focusing on how something was said, not on what was said),” were negatively correlated with satisfaction ($r_s = -.14$, $p < .05$ to $-.19$, $p < .01$). Another study showed that avoidance strategies strengthened the negative relationship between anxious/ambivalent attachment style and marital satisfaction (Lussier, Sabourin, & Turgeon, 1997) ($r_s = .10$, $p < .05$ to $.28$, $p < .05$). According to Johnson and Roloff (2000), “adopting a resigned impotent stance with regard to relational problems and abrogating any responsibility for dealing with them” was positively correlated with “perceived relationship harm” ($r = .27$, $p < .007$). Finally,

Noller & White (1990) found that those in distressed marriages reported more mutual avoidance and less use of conflict behaviors such as mutual expression and negotiation.

The findings of two satisfaction studies of the total of six studies in this area were particularly interesting. These two studies (Metts & Cupach, 1990; Scharfe & Bartholomew, 1995) used a behavioral typology outlined by Rusbult and colleagues (1991) in which “neglect” meant “passive destructive behavior of ignoring the problem or partner’s behavior” and “loyalty” was defined as “passive constructive behavior of waiting for an improvement in the partner’s behavior.” In this scheme, both neglect and loyalty may be seen as types of avoidant strategies. Objectively speaking, coders who witness these types of behaviors would be hard pressed to distinguish between “neglect” avoidance and “loyalty” avoidance. However, in both of these studies, only neglect showed a negative relationship with satisfaction ($r_s = -.35$ to $-.60$, $p < .01$). The results for loyalty did not reach statistical significance. How can this be explained? Gottman’s (1993a) finding that “avoiders” constitute one of the three types of stable unions given a 5:1 ratio of positive to negative affect is particularly salient. Perhaps the difference between harmful avoiding and benign avoiding lies in whether avoiding causes a build-up of resentment over issues not fully resolved. It is possible that Gottman’s “avoiders” employed a more healthy type avoiding, as summarized in the philosophy of “agreeing to disagree” in which mutual respect is maintained. As such, in creating items for the ROSES, then, items will aim to reflect the more harmful type of avoiding characterized by “neglect” (e.g. “Actively denying that my partner and I have a problem to work out when I really know that we do”).

Escalating Conflict

As mentioned previously, “escalating conflict” is a swollen, internally inconsistent category. Future research should attempt to differentiate sub-sets of various escalating behaviors. As this endeavor is outside the scope of the current research, the category of escalating conflict includes the following behaviors: negative continuance, sulking, showing contempt, reciprocating negative affect with more of the same, negative start-up, refusing to accept influence from one’s partner, and displaying disgust with one’s partner. Not surprisingly, research supports the connection between escalating behaviors and lower relationship adjustment and satisfaction. In six separate longitudinal adjustment studies, displaying contempt towards one another was particularly predictive of eventual relationship failure upon follow-up for both husbands (Carrere & Gottman, 1999; Gottman, 1993b; Gottman, 1998; Gottman, et. al., 1998; Gottman & Levenson, 1999; Gottman & Levenson, 2000) and wives (Gottman, 1993b; Gottman, 1998; Gottman, et. al., 1998; Gottman & Levenson, 2000). Similarly, displaying disgust was shown to be particularly predictive of relationship maladjustment for both husbands and wives (Gottman, 1993b; Gottman & Levenson, 1999). In the 1993 study, wives’ displaying disgust was predictive of subsequent relationship failure; the frequency of the wives’ facial expressions with disgust correlated .51 ($p < .001$) with the number of months the couple was to separate in the next four years. Based on these findings, beyond the fact that the Bible describes only four horsemen of the apocalypse in the book of Revelations, it is not clear why disgust did not make the cut to become a legitimate “horse of the apocalypse.” So, displays of contempt and disgust are empirically associated with relationship failure and will be reflected in ROSES items.

A number of other specific behaviors were investigated within the category of escalating conflict. Negative start-up, operationally defined as “the escalation of conflict from one partner’s neutral affect to the other partner’s negative affect” (Gottman, et. al., 1998), had a negative correlation with relationship adjustment (Gottman, 1998). Negative reciprocity and negative continuance, in which negative affect by one spouse is met with negative affect by the other, was shown to be correlated with poor adjustment (Carstensen, et. al., 1995; Gottman, 1998; Gottman, et. al., 1998; Levenson & Gottman, 1985). Refusing to accept influence from one’s spouse was also correlated with poor adjustment (Gottman, et. al., 1998). As such, all of these specific behaviors will be reflected in “escalation of conflict” items on the ROSES.

De-escalating/Repairing Conflict

Like escalating conflict, de-escalating encompasses a wide variety of behaviors. Overall, though, de-escalating behaviors are those which move a couple from either low-intensity negative affect to neutral affect or from high-intensity negative affect to neutral affect (Gottman, et. al., 1998). Members in a couple can call upon a number of specific strategies such as humor, meta-communication, social comparison, distracting, and even gossip to soothe themselves or each other while in the heat of conflict. A perfect example of de-escalating conflict that the author once heard of was when a wife who suddenly stuck her tongue out at her husband in the midst of a tense situation. Both partners immediately began laughing and their levels of unhealthy physiological arousal dropped precipitously. In fact, happy couples do tend to employ de-escalating strategies more often than unhappy couples (Gottman, 1998). According to Fletcher and colleagues

(Fletcher et. al., 1999), couples who give more diplomatic answers to negative behavior report being more satisfied. ($r = .35, p < .05$)

There are some interesting sex-specific affects for de-escalating behaviors. Soothing wives, which relates to better adjustment, seems to be best accomplished with the use of humor, validation, and affection (Gottman, et. al., 1998). For males in particular, however, soothing seems to be important in creating stable relationships. Obrist (1981) has theorized that there is a biological basis for males' tendencies to reach a much higher level of physiological arousal than females. Specifically, there is some evidence to suggest that males are more reactive to stress than females, particularly in the adrenergic parts of the cardiovascular system and in the stress-related endocrine responses that accompany active coping. Other theorists (e.g. Sagrestano, Heavey, & Christensen, 1998) contend that different types of socialization cause this discrepancy; because females have much more practice than males with social negotiation, they do not perceive periodic conflicts to be as threatening to the relationship as males do.

Gottman and colleagues (1993b) have found a clear link between husbands' tendency to "flood" with a high level of unpleasant arousal emotions and stonewalling behavior. Recall that stonewalling behavior did make the cut to be one of "four horsemen of the apocalypse" that foreshadow probable relationship failure (Gottman, 1993b). Because soothing of males is so clearly linked to preventing stonewalling behavior, wives' ability to soothe their husbands is seen as very important. Research confirms the importance of this ability; using a discriminant function model to determine the strength of various predictor variables in determining which couples who stay married and which would divorce in the following six years, soothing of the male was the

statistically significant finding that emerged (Gottman, et. al., 1998). Based on the results outlined above, a variety of de-escalating behaviors will be incorporated in the ROSES.

Sexual Behavior

The author was unable to locate studies that investigated the connection between sexual behavior and relationship adjustment or satisfaction. Clearly, sexual behavior is an important part of most romantic relationships. Future research should explore more fully the connection between expressions of sexuality and relationship satisfaction and adjustment. For the present, this endeavor is beyond the scope of the current study.

Summary of Findings for each Category

To summarize, the categories investigated were displaying positive and negative affect, displaying anger, self-disclosure, self-expression, withdrawal/disengagement, perspective taking/understanding, defensiveness, criticizing partner, validating partner, giving affection, avoiding conflict, escalating conflict, and de-escalating/repairing conflict.

The beneficial effect of displaying relatively more positive affect than negative affect was established in eight adjustment studies, one satisfaction study, and four out of five reviews. However, the category of displays of positive and negative affect was ultimately seen as too broad to be included in the ROSES items.

Displaying anger was investigated as a sub-set of the “display of affect” category. Provocatively, two adjustment studies support the link between displaying anger and less relationship stability, while two other adjustment studies and one satisfaction study refute the existence of this connection between anger and relationship vitality. Because these

findings were mixed, displaying anger was not seen as either a proven relationship promoting or harming behavior to be included in the ROSES items.

Self-disclosure, which entails sharing personal information about oneself, was established as relationship promoting behavior in a total of four satisfaction studies and one conceptual piece. The more general notion of self-expression, which involves expressing one's thoughts and feelings, received strong support as a relationship promoting behavior in thirteen separate satisfaction studies. As such, both self-disclosure and self-expression items will be included in the ROSES.

Withdrawal/disengagement also was shown to be a clearly negative behavior to engage in. A total of four adjustment studies and four satisfaction studies drew a connection between withdrawal from conflict and lower relationship functioning. An interesting sex-specific effect emerged in this category; stonewalling, defined as "listener withdrawal from an interaction" (Gottman, 1993b), seemed to characterize male behavior more often than female behavior. Furthermore, males' stonewalling was shown to be particularly predictive of later relationship decline. As such, withdrawal/ disengagement behaviors will appear on the ROSES as relationship harming behaviors.

Perspective taking and understanding were collapsed into one larger category for all intents and purposes. Even though perspective taking seems to be a higher-level skill than understanding, both perspective taking and understanding involve putting oneself "in the shoes of another." In the present review, one adjustment study and three satisfaction studies established perspective taking and understanding to be beneficial to the health of romantic relationships. So, perspective-taking and understanding items will be included on the ROSES.

Acting defensive clearly seemed to portend future relationship failure. All five adjustment studies that looked at defensiveness made a link between this behavior and future relationship demise. Thus, acting defensive will be included in the ROSES as a proven relationship-harming behavior.

Likewise, criticizing one's partner was also clearly linked to poor relationship functioning. Three separate adjustment studies and two satisfaction studies established this link, prompting the inclusion of criticism to ROSES items.

Interestingly, however, validating one's partner, which may seem to be the opposite of criticizing one's partner, received inconsistent results as a potential relationship helping behavior. One review, one adjustment study, and one satisfaction study showed a positive correlation between validating one's partner and improved relationship functioning. Yet, on the other hand, two adjustment studies found no significant relationship between validating behavior and higher levels of adjustment. These mixed results were further supported by Gottman's finding (1993a) that "validators," couples that engage in high levels of mutual supportiveness, were only one of three types of stable relationships. In sum, then, validating was not proven to be a relationship helping behavior across couple types and was, therefore, excluded from items created for the ROSES.

Giving affection, which may seem to be a method of validating one's partner, did receive support as a relationship promoting behavior across couple types. Three adjustment studies and one satisfaction study established the importance of engaging in physical affection. However, an important caveat should be made; in some relationships, those characterized by high levels of husband contempt and disgust, wives giving

affection actually predicted later divorce. In the context of these relationships, giving affection was theorized to represent wives' unhealthy compliance with being derogated by their husbands (Gottman & Levenson, 1999). Overall, though, giving affection seems to characterize the behavior of happier couples and was included in items on the ROSES.

Avoiding conflict, as distinguished from withdrawal/disengagement in that the former involves a strategy of preventing conflict at any cost while the latter refers to a decision to pull back from conflict that is intensely unpleasant (e.g. the stonewalling-withdrawal tendency established as predominantly male behavior in Gottman's research), was associated with poorer relationship functioning in six satisfaction studies. An interesting finding surfaced in two studies in which a construct called "neglect" defined as the "passive destructive behavior of ignoring the problem or the partner's behavior" (Rusbult, et. al., 1991) was positively correlated with lower satisfaction while "loyalty" defined as the "passive constructive behavior of waiting for an improvement in the partner's behavior" was not correlated with satisfaction (e.g. Metts & Cupach, 1990; Scharfe & Bartholomew). The plausible reason for these results is that avoidance may be functional in some relationships in which couples "agree to disagree" while being dysfunctional in other relationships in which resentment builds because of unresolved conflict and hurt feelings. This rationale is further supported in Gottman's (1993a) finding that "avoiders" are one type of stable union given a 5:1 ratio of positive to negative affect. As such, items designed to capture avoidant strategies will focus more on behaviors shown to be detrimental across various relationships (e.g. changing the subject in order to avoid fighting but feeling resentful later on as a result).

The category of “escalating conflict” contained many specific behaviors shown to be predictive of lower adjustment. Six separate studies linked both husbands and wives displaying contempt to later relationship demise. Two adjustment studies showed a positive correlation between displaying disgust and lower adjustment. This effect was particularly strong for wives displaying disgust; in one study, frequency of wives displaying disgust correlated with the number of months the couple was to separate in the following four years at the $p < .001$ level (Gottman, 1993b). Negative startup, defined as “the escalation of conflict from one partner’s neutral affect to the other partner’s negative affect” (Gottman et. al., 1998), was associated with lower adjustment in one study. Negative reciprocity, and negative continuance, in which negative affect by one spouse is met with negative affect by the other, was shown to be correlated with poor adjustment in four separate studies. Finally, refusing to accept influence from one’s partner was associated with poor adjustment in one study. Therefore, a variety of escalating conflict behaviors will be featured on the ROSES as relationship-harming behaviors.

The final category investigated, de-escalating/repairing conflict, also contained a number of different specific behaviors such as humor, meta-communication, social comparison, and gossip. Two adjustment studies, one satisfaction study, and one study in a review reported that happier couples show an increased ability to successful repair conflicts, using various strategies to move from negative affect to neutral affect. In particular, wives soothing of their husbands, which prevents husbands from stonewalling and subsequently withdrawing from conflict altogether, seemed particularly important for maintaining a healthy relationship. Based on these results, a variety of de-escalating behaviors will be incorporated in the ROSES scale.

Finally, the author notes that there is a paucity of studies that have explored the connection between sexual behaviors and relationship satisfaction or adjustment. Future researchers are encouraged to investigate this connection as sexual behavior is considered to be an important aspect of most romantic relationships.

Chapter 3: Method

Participants

Participants ($N = 1051$) were solicited from two large undergraduate psychology courses from a large Midwest university. Fifty-seven participants were dropped immediately from the original data set due to several missing responses across various questionnaires given during the testing session. It is possible that these participants may not have been sufficiently motivated to respond, or, alternatively, inadequate reading ability may have accounted for these missing data. Thus, 994 complete data sets were received for the ROSES scale. Before conducting factor analyses, it was deemed important to eliminate participants from populations outside the scope of the present study. Because the present study asked participants to reflect on their behavior in romantic relationships, a minimum of six months experience in a romantic relationship was required. Therefore, those participants who had never been in a romantic relationship of at least six months duration ($n = 190$) were also removed from the pool of participants to be analyzed. Finally, to eliminate outliers, the four participants that identified themselves as having been separated or divorced from a spouse were also removed. Thus, the final sample of participants to be analyzed consisted of exactly 800 data sets. These 800 data sets were then split by sex, into 435 complete data sets for females and 365 complete data sets for males.

Table 4: Demographic Characteristics of ROSES Sample

	Females		Males		Total		t
	\bar{X}	SD	\bar{X}	SD	\bar{X}	SD	
Age	20.37	5.53	20.06	4.62	20.18	5.14	2.34*
Number of relationships longer than 6 months	1.86	.95	1.82	1.02	1.85	.98	.48
Number of relationships thought likely to end in marriage	1.23	.60	1.16	.50	1.20	.56	1.66
Relationship Adjustment Scale score	28.23	5.33	27.31	5.56	27.81	5.45	1.40
Current Relationship Status		%	% %		%		
Single		31		42		36	
Dating exclusively for <six months		22		19		21	
Dating exclusively for >six months		44		36		40	
Married		3		3		3	

* p<.05

The overall ages of the participants ranged from 18-54 years with a mean age of 20.18 years and a standard deviation of 5.14. The females were slightly older than the males in the sample with a statistical significance level of $p<.05$. Unfortunately, ethnic background data was not available for the current sample. However, based on prior similar samples, we would expect the following approximate ethnic groups to be represented: Caucasian=90%, African-American=3%, Hispanic=2%, other=2%, Asian American=2%, Native American=1%.

The age range of the female sample was 18 to 54 years with a mean age of 20.37 and a standard deviation of 5.53 years. In response to the question, "Over your lifetime, how many relationships of longer than six months have you had?" females responded with an average of 1.86 relationships. Females also reported having had an average of 1.23 relationships they felt "were likely to end in marriage." At the time of the data collection, of the 435 females, 134 were single, 96 were dating exclusively for less than six months, 191 were dating exclusively for more than six months, and 14 were married.

Out of 35 possible points on the Relationship Adjustment Scale, the female participants had a mean of 28.23 and a standard deviation of 5.33.

The males ranged in age from 18 to 40 with a mean of 20.06 and a standard deviation of 4.62. In response to the question, "Over your lifetime, how many relationships of longer than six months have you had?" males responded with an average of 1.82 relationships. Males reported having had an average of 1.16 relationships they felt "were likely to end in marriage" in comparison to the average of 1.23 relationships for females. When the data was collected, out of the 365 males sampled, 153 were single, 68 were dating exclusively for less than six months, 133 were dating exclusively longer than six months, and 11 were married. Out of 35 possible points on the Relationship Adjustment Scale, the male participants had a mean of 27.31 and a standard deviation of 5.56. See Table 4 for a display of the demographic characteristics of the sample.

Instruments

Informed Consent (see Appendix I). A modified informed consent approved by the Human Research Participants Committee was used in the study.

Romantic Self-efficacy Scale (ROSES) (see Appendix II). The ROSES is a 90-item scale designed to measure participants' confidence in their ability to successfully employ specific skills shown to relate to relationship adjustment and satisfaction. Ten items were written for each of the nine categories that were supported by positive findings in the literature. These 90 items were then reviewed by four Iowa State University faculty members, who suggested content validity improvements. The ROSES contains items involving self-disclosure, self-expression, perspective taking/understanding, giving affection, and de-escalating/repairing conflict as empirically

supported relationship-promoting behaviors and items involving withdrawal/disengagement, defensiveness, criticizing, avoiding conflict, and escalating conflict as empirically supported relationship-harming behaviors. The ROSES is intended for use with both people who are currently in relationships and those who are not. Directions ask participants to either consider future interactions in their current relationship or future interactions in their next relationship to respond to the stimulus, "To what degree do you expect to do the following in your future romantic interactions?" Following the stimulus is a list of specific behaviors associated with each of the relationship promoting and harming categories. For example, an item designed to reflect the relationship promoting behavior of de-escalation/repairing conflict would be "use humor to calm down a tense conflict" and an item designed to reflect the relationship harming behavior of criticizing one's partner would be "to personally criticize my partner in the heat of conflict." In the format provided to research participants, ROSES items were randomly scrambled. Since the ROSES includes items that show both desirable and undesirable relationship behaviors, some items will be reverse-scored in order to obtain overall romantic self-efficacy scores. Reliability and validity figures are reported below.

Relationship Assessment Scale (RAS). (see Appendix III). The relationship assessment scale (RAS; Hendrick, 1988) is a seven-item Likert-type relationship satisfaction scale with high reliability coefficients. The RAS is a brief measure designed for use with both dating and married couples. In the five relationship satisfaction studies discussed in the present paper (Cramer, 2000; Lamke et. al., 1994; Meeks et. al., 1998; Metts & Cupach, 1990; Siavelis & Lamke, 1992) the RAS had reliability alphas ranging from .82-.88. In the current study, the RAS had reliabilities of .89 for females and .88 for

males. The RAS has shown convergent validity in that it correlates .80 with the Dyadic Adjustment Scale (DAS; Spanier, 1976), a widely used relationship satisfaction measure.

Procedure

Participants were solicited from two large introductory psychology undergraduate courses to participate in a bi-annual scale validation testing session. Scale validation is an optional session wherein students volunteered to complete the newly developed measures of several investigators, including the demographic information, the ROSES, and the RAS, for extra credit.

Directions provided to the participants were as follows:

The purpose of completing these questions is to obtain information about how college students think and feel about their romantic relationship interactions. It will take less than one hour to complete the items. You will receive one extra credit point for your participation. There are no identifiable risks other than those associated with reflecting upon one's future relationship interactions, which may alternatively be seen as a potential benefit of participation. We are not interested in how you as an individual respond, but rather how the group responds. Your responses will be anonymous and no identifying information will be collected. Your participation is voluntary. You can choose not to complete the measure at any time during the testing session without any negative consequences. There is an alternative to research participation for gaining extra credit point. The alternative is listed in your syllabus. Moreover, your responses are confidential and will not be shared with your instructor nor will your responses to the questions affect your performance in the class in any way. The data will be kept confidential. If you have any inquiries concerning the procedures of this testing session, you may contact the research coordinator, Shauna Springer, either by email at ----- by phone at -----.

Research Questions

- 1.) What are the underlying dimensions of the ROSES?
- 2.) Are these factors and the sum scores internally consistent as indicated by the Cronbach alphas obtained?

3.) Convergent Validity:

- a.) Will the ROSES show convergent validity by being moderately positively correlated with relationship satisfaction scores as measured by the Relationship Assessment Scale (RAS; Hendrick, 1988)?

Rationale

In terms of research question 3a, a wealth of relationship research has established a positive correlation between various relationship behaviors and levels of self-reported satisfaction and objectively rated adjustment (e.g. Gottman, 1993a; Gottman, et. al., 1998; Metts & Cupach, 1990; Meeks, et. al., 1998; Noller, et. al., 1994; Ptacek & Dodge, 1995; Siavelis & Lamke, 1992). Since the ROSES items were created on the basis of empirically-supported relationship promoting and harming behaviors, higher scores on the ROSES should moderately positively correlate with self-reported satisfaction, as measured by the RAS.

Chapter 4: Results

Scale development

Prior to all analyses, negatively worded items were reverse coded, so higher scores indicated a higher estimate of romantic self-efficacy for all items. Furthermore, all items were investigated using several criteria, which resulted in the ultimate elimination of several problematic items. The original ROSES was developed as a 90-item scale with 10 items in each of 9 empirically supported relationship helping or harming categories. In the development of the ROSES, part of the aim of the current study was to empirically evaluate these 90 newly created items. The data obtained from the 800 respondents showed wide variation in the nature of responses to several items. Particular items on the ROSES were dropped in three stages.

Stage 1. Of the total of 90 items, 7 items missing more than 10% of possible ROSES item responses were eliminated. Upon viewing these items, it seemed plausible that they may have been awkwardly worded or may have contained more than one perceived stimulus. The worse case example was ROSE 77, which read, “Finding another way to explain my thoughts and feelings so that [my partner] will understand when [my partner] does not understand what I am saying.” Another problem with some of these items related to vague wording or the use of large vocabulary. For example, ROSE 26 is worded “refraining from acting contemptuous towards my partner.” In retrospect, it does not appear likely that most undergraduates are familiar with the term “contemptuous.”

Stage 2. Preliminary factor analyses were then conducted using principal axis factoring, specifying PROMAX rotation iterated 100 times with no pre-determined

number of factors. 61% percent of the data was accounted for by 20 factors. At this point, two additional items were dropped due to non-loading or negative loading across all 20 factors. Like the previous items that were removed, these items appeared to be unsatisfactory for similar reasons. ROSE 28 contained a vague stimulus (“Remaining distant from my partner to avoid conflict”) and ROSE 57 was awkwardly worded and confusing (“Realizing I need a break from conflict because my emotions feel out of control but continuing to fight with my partner anyway.”)

Stage 3. Oblique factor analyses were then completed for males and females separately. One of the biggest challenges at this point related to the differences in the loadings for items in the females’ vs. the males’ data. Based on examination of the scree plots, the percentage of variance accounted for and the number of factors with eigenvalues above one, 4, 5, 6, 7, 8, and 9 factors were specified. Items that loaded across three factors above .4 were eliminated. Also, items that did not load on any factor were eliminated. Finally, items that loaded above .40 on two factors across multiple factor solutions were also eliminated. (See Table 5 for a list of items removed and rationales for removal). After this process of elimination, 38 items remained that adequately loaded and discriminated across factor solutions for females and males. These items formed the basis of the following factor analyses.

Table 5: Eliminated Items

Item	Missing <21 responses	Confusing wording/non-loading	Multiple loadings
1. Accurately figuring out whether my partner is happy, upset, angry, or depressed		X	
2. Keeping a lot of secrets about my past from my partner		X	
3. Distracting my partner from her/his negative feelings in order to calm her/him down		X	
4. Avoiding fighting at all costs		X	
5. "Keeping the romance alive" by finding new ways to continually surprise my partner in nice ways		X	
6. Soliciting my partner's point of view on different topics		X	
7. Comparing our relationship favorably to that of other couples in order to remind myself that other couples fight too in order to calm myself down		X	
8. Presenting my feelings during a fight in a calm manner		X	
9. Allowing my emotions to control how I act towards my partner in a fight		X	
14. Withdrawing from an interaction because I know it will frustrate or hurt my partner		X	
16. Showing my partner that I am disgusted with her/him		X	
17. Working to prevent my partner from finding out about the "real me"			X
20. Understanding any difficulties my partner has in terms of relating to her/his family of origin		X	

Item	Missing <21 responses	Confusing wording/non-loading	Multiple loadings
21. Communicating how my partner has hurt me in a way that my partner will be able to understand what I am feeling			X
26. Refraining from acting contemptuous towards my partner	X		
28. Remaining distant from my partner in order to avoid conflict		X	
30. Being patient with my partner's flaws			X
31. Making it clear that I value my partner on his or her birthday or during other special occasions (e.g. anniversary, Christmas, etc.)			X
34. Assuming a non-blaming stance towards relationship problems		X	
35. Expressing my hopes and dreams for the future			X
36. Personally criticizing my partner in the heat of conflict			X
38. Withholding love as a means to get my partner to change something			X
39. Listening calmly and thoughtfully while my partner shares a concern with our relationship			X
40. Tuning my partner out in a fight to show that I am not interested in what she/he has to say anymore			X
43. Telling my partner that I love her or him			X
44. Changing the topic when my partner says "we need to talk" (about difficult things)			X
48. Fulfilling my partner's physical need for affection			X

Item	Missing <21 responses	Confusing wording/non-loading	Multiple Loadings
49. Openly discussing past mistakes I have made			X
50. Admitting when I am wrong and my partner is right			X
51. Really listening to my partner when she/he talks to me			X
56. Using humor to calm down a tense conflict		X	
57. Realizing that I need a break from conflict because my emotions feel out of control angry but continuing to fight with my partner anyway		X	
60. Openly expressing my emotional needs			X
61. Fighting with my partner without feeling like it will end the relationship		X	
62. Acting on my partner's suggestions			X
63. Showing understanding when my partner says he or she does not feel like discussing something		X	
66. Telling my partner about the qualities I like about her/him			X
67. Actively denying that my partner and I have a problem to work out when I really know that we do	X		
68. Apologizing sincerely to my partner for things that I have done to hurt her/him	X		
72. Ignoring my partner when she/he relates a concern with the relationship			X
73. Being flexible when my partner wants to change the subject while we are fighting		X	

Item	Missing <21 responses	Confusing wording/non-loading	Multiple loadings
76. Seeking to understand my partner's way of seeing the world			X
77. Finding another way to explain my thoughts and feelings so that he/she will understand when my partner does not understand what I am saying	X		
78. Appreciating my own contribution to problems	X		
79. Maintaining a respectful attitude towards my partner at all times			X
80. Maintaining my composure in a fight			X
83. Showing contempt towards my partner during conflict		X	
84. Refraining from calling my partner names at all times		X	
86. Blaming my partner when things go wrong			X
87. Continuing to show respect to her/him even during a bad fight	X		
88. Showing my partner that I love him or her by doing nice things	X		

Factor Analyses

With the data split by sex, two separate exploratory factor analyses (EFAs) were conducted on the 38 items of the ROSES using SPSS for Windows Version 9.0 (SPSS, Inc., 1999). Principal-axis analyses were performed. Squared multiple correlations were used in the initial communality estimates, and the communality estimates were iterated 100 times. Promax and varimax rotations were performed on all factors satisfying Kaiser's criterion. After examining the inter-factor correlations, it was determined that

the vast majority of factors correlated well above .2, requiring an oblique rotation.

Examination of the eigenvalue scree plots, in conjunction with significant changes in the variance accounted for by factors, were analyzed to determine the optimal number of factors in the factor solution. Items that loaded $\geq .40$ were retained on each respective factor.

Females. A principle-factors extraction with promax rotation yielded nine factors with eigenvalues greater than 1.00 that accounted for 55% of the cumulative variance. The eigenvalue for the first factor was substantial (eigenvalue = 8.17, percentage of variance = 21.5%). Furthermore, the retained items for this factor ($n = 12$) loading above .40 were internally consistent (alpha = .84). These results suggest a general underlying romantic relationship self-efficacy factor and support the use of a total ROSES score that is the sum of the items.

Using Cattell's (1966) scree test to identify only the major conceptual factors, solutions of 4-9 factors were examined conceptually. The 4-factor solution appeared to be the optimal solution, best approximating simple structure. The four factors consisted of 12, 7, 7, and 7, items respectively.

Using the criteria that only items loading above .40 would be retained for the interpretation of a factor, four items did not load on any factor for females. A summary of the structure matrix, item-total correlations, the item means and standard deviations, and the items that did not load on any factor are presented in Table 6. Items are ordered by size of loading to facilitate interpretation.

Table 6: Structure Matrix, Item-total Correlations, and Descriptive Statistics for Females

(n = 435)

ROSES factor/item	Anticipated Behavioral Category	I	II	III	IV	Item-total r	<u>M</u>	<u>SD</u>
I. Conflict Strategies								
71. *Screaming critical things at my partner during fighting	Escalating conflict	.71	.28	.33	.23	.58	3.41	.78
53. *Reaching a point where I just can't communicate anymore in a fight and blowing up at my partner	Withdrawal/Disengagement	.68	.24	.40	.25	.58	3.40	.76
33. *Saying things to hurt my partner that I regret later	Criticizing	.68	.18	.40	.18	.55	3.41	.79
22. *Starting fights by accusing or criticizing my partner	Escalating Conflict	.66	.27	.36	.19	.56	3.46	.73
37. *Immediately responding negatively when my partner says something negative	Escalating Conflict	.64	.25	.60	.34	.65	3.04	.83
52. *Expressing that my partner is usually more at fault when we have problems than I am	Defensiveness	.55	.28	.37	.19	.52	3.24	.76
19. *Inciting my partner to more and more anger in a fight	Escalating Conflict	.52	.22	.22	---	.42	3.59	.72
64. *Allowing fights to get personal	Criticizing	.49	---	.23	.13	.39	2.81	.88
75. Keeping myself from saying really mean things when I am hurt or angry	Criticizing	.44	.19	.12	.42	.45	3.05	.87
54. Appreciating my partner's point of view even when I am not feeling the same way	Perspective-taking-Understanding	.43	.34	.35	.38	.53	3.34	.67
13. *Refusing to take my partner's suggestions even though they are wise just to spite him/her or show my independence	Escalating conflict	.43	.36	.33	.17	.48	3.51	.69
74. Staying focused on the issues that are at hand in a fight rather than letting it "get personal"	De-escalating conflict	.42	.29	.24	.42	.50	3.05	.81

ROSES factor/item	Anticipated Behavioral Category	I	II	III	IV	Item-total r	M	SD
II. Caring/Empathy								
90. Actively thinking of ways to make my partner feel special	Affection	.30	<u>.63</u>	.25	.28	.48	3.75	.55
55. Demonstrating my feelings by showing physical affection	Affection	.13	<u>.58</u>	.26	.21	.38	3.67	.60
85. Affirming my partner by giving her/him compliments	Affection	.27	<u>.55</u>	.14	.19	.39	3.67	.61
23. Empathizing with my partner when she/he has a bad day at work	Perspective taking-Understanding	.18	<u>.55</u>	.14	.23	.37	3.59	.68
65. Even when I am angry, asking my partner for clarification on what he/she is feeling	De-escalating conflict	.22	<u>.47</u>	.21	.35	.42	3.43	.64
47. Seeing that problems are both our fault	Defensiveness	.25	<u>.43</u>	.21	.37	.43	3.35	.71
45. Expressing my sexual needs and desires	Self-expression	---	<u>.41</u>	.38	.25	.36	3.41	.76
III. Avoidance/Defensiveness								
*46. Hiding my emotions when I am upset with my partner	Self-expression	.34	.39	<u>.68</u>	.27	.56	3.14	.85
*32. Going to bed angry to avoid telling my partner what I am angry about	Avoidance	.46	.24	<u>.61</u>	.19	.54	3.39	.81
*59. Saying things under my breath to others about my partner when I am mad at her/him	Criticizing	.48	.13	<u>.58</u>	.28	.54	3.10	.90
*24. Brushing problems “under the rug” because I don’t want to fight	Avoidance	.32	.25	<u>.57</u>	---	.44	2.97	.88
*82. Acting defensive when my partner relates a concern with our relationship	Defensiveness	.51	.19	<u>.56</u>	.26	.56	2.94	.80
*10. Ignoring or shutting my partner out when I am really angry at her/him	Withdrawal/Disengagement	.41	---	<u>.52</u>	.21	.46	3.15	.83

ROSES factor/item	Anticipated Behavioral Category	I	II	III	IV	Item-total r	M	SD
*58. Defending myself when my partner has a problem with me before hearing the full extent of her/his concern	Defensiveness	.43	---	.51	.17	.44	2.61	.90
IV. De-escalating Conflict/Soothing								
81. Withdrawing from conflict temporarily to “cool off” but making sure the issue is re-addressed after a cool-off time	Withdrawal/Disengagement	.24	.32	.22	.60	.47	3.11	.81
15. Suggesting that we take a break from a conflict so that my partner can calm down	De-escalating Conflict	---	.16	.15	.50	.30	2.97	.77
27. During a conflict, telling my partner that I need to take a break to cool off	De-escalating Conflict	---	.13	.13	.50	.27	2.83	.85
29. Looking at meta-communication issues (<i>how</i> we are communicating instead of <i>what</i> is being said in a fight) in order to calm things down	De-escalating Conflict	.18	---	.12	.49	.33	2.80	.82
41. Identifying things we agree on during fighting	De-escalating Conflict	.37	.46	.31	.49	.55	3.29	.75
69. Initiating relationship-related problem solving discussions with my partner	Avoidance	.18	.42	.29	.46	.45	3.36	.73
18. Being able to shift my own mood for the better in a fight	De-escalating Conflict	.19	.34	.12	.44	.39	2.93	.83
Non-loading items								
*25. Drinking alcohol or using drugs to avoid feeling badly	Avoidance	.38	.38	.32	---	.43	3.61	.74
89. Refraining from criticizing my partner behind her/his back	Criticizing	.25	.34	.18	.33	.41	3.28	.97
12. Sharing things I am ashamed about	Self-expression	---	.25	.34	.21	.30	2.99	.81

ROSES factor/item	Anticipated Behavioral Category	I	II	III	IV	Item-total r	M	SD
*42. Preventing myself from feeling so angry that I might say things I would regret later	Withdrawal/Disengagement	.38	.23	---	.39	.41	3.12	.90
11. Being able to change my partner's mood for the better in a fight	De-escalating Conflict	---	.30	---	.38	.29	2.95	.76
Total Eigenvalue		8.17	2.98	1.95	1.86	---	---	---
% of total variance		21.5	7.84	5.14	4.89	---	---	---

* Items were reverse-coded before analysis

The first 12-item factor, labeled “conflict strategies,” had factor loadings ranging from .42 to .71. This factor seems to represent ways of dealing with conflict. Most strategies, described by nine items in total, represented relationship-harming behaviors (e.g. “Screaming critical things at my partner during fighting”) but three items contained relationship-promoting behaviors (e.g. “Keeping myself from saying really mean things when I am hurt or angry”).

The second factor, which consisted of seven items, was labeled “caring/empathy” and has factor loadings ranging from .41 to .63. This factor seems to represent a variety of caring or empathic behaviors that have been theorized to promote healthy relationships. An example item is “Actively thinking of ways to make my partner feel special.”

The third factor, also containing seven items, was labeled “avoidance-defensiveness” and has factor loadings ranging from .51 to .68. These items appear to represent negatively avoidant behaviors (e.g. “Hiding my emotions when I am upset with my partner”) and defensive behaviors (e.g. “Acting defensive when my partner relates a concern about our relationship.”)

Finally, factor four, which also contains seven items, shows loadings ranging between .44 and .60. This factor was labeled “de-escalating conflict/soothing” and contains items related to strategies for controlling negative emotions during conflict (e.g. “withdrawing from conflict temporarily to “cool off” but making sure the issue is re-addressed after a cool-off time”).

Males. A principle-factors extraction with promax rotation yielded eight factors with eigenvalues greater than 1.00 that accounted for 53% of the cumulative variance. As in the female sample, the eigenvalue for the first factor was substantial (eigenvalue = 9.29, percentage of variance = 21.5%). Furthermore, the retained items for this factor ($n = 12$) loading above .40 were internally consistent for factor one ($\alpha = .88$). These results suggest a general underlying romantic relationship self-efficacy factor for males as well as females and support the use of a total ROSES score that is the sum of the items.

Using Cattell’s (1966) scree test to identify only the major conceptual factors, solutions of 4-9 factors were examined conceptually. Again, the 4-factor solution also appeared to be the optimal solution, best approximating simple structure. However, unlike the results for females, items were not distributed evenly across factors. Most of the items loaded on the first two factors, which consisted of 15 and 14 items respectively, while factors three and four contained only four and three items respectively. Using the criteria that only items loading above .40 would be retained for the interpretation of a factor, 2 items did not load on any factor for males. A summary of the structure matrix, item-total correlations, the item means and standard deviations, and the items that did not

load on any factor are presented in Table 7. Items are ordered by size of loading to facilitate interpretation.

Table 7: Structure Matrix, Item-total Correlations and Descriptive Statistics for Males
(n = 365)

ROSES factor/item	Anticipated Behavioral Category	I	II	III	IV	Item-total <i>r</i>	<u>M</u>	<u>SD</u>
I. Escalating Conflict								
22. *Starting fights by accusing or criticizing my partner	Escalating Conflict	.68	.47	.12	.17	.63	3.34	.77
53. *Reaching a point where I just can't communicate anymore in a fight and blowing up at my partner	Withdrawal/Dis-Engagement	.67	.44	.13	.19	.62	3.30	.84
71. *Screaming critical things at my partner during fighting	Criticizing	.63	.46	---	---	.58	3.31	.77
19. *Inciting my partner to more and more anger in a fight	Escalating Conflict	.59	.46	.14	.15	.59	3.38	.78
37. *Immediately responding negatively when my partner says something negative	Escalating Conflict	.59	.34	.23	.18	.55	2.99	.81
33. *Saying things to hurt my partner that I regret later	Criticizing	.58	.39	.13	.21	.55	3.12	.88
10. *Ignoring or shutting my partner out when I am really angry at her/him	Withdrawal/Dis-engagement	.56	.36	.14	.33	.55	3.15	.84
13. *Refusing to take my partner's suggestions even though they are wise just to spite him/her or show my independence	Escalating Conflict	.56	.34	---	.20	.51	3.38	.77
64. *Allowing fights to get personal	Criticizing	.55	.29	.11	.13	.49	2.98	.82
82. *Acting defensive when my partner relates a concern with our relationship	Defensiveness	.55	.31	.21	.27	.53	2.82	.80
59. *Saying things under my breath to others about my partner when I am mad at her/him	Criticizing	.55	.33	.11	.17	.51	3.16	.82

ROSES factor/item	Anticipated Behavioral Category	I	II	III	IV	Item-total <i>r</i>	M	SD
32. *Going to bed angry to avoid telling my partner what I am angry about	Avoidance	.54	.33	.29	.37	.55	3.15	.82
52. *Expressing that my partner is usually more at fault when we have problems than I am	Defensiveness	.54	.42	---	.21	.54	3.04	.75
25. *Drinking alcohol or using drugs to avoid feeling badly	Avoidance	.48	.33	.13	.28	.50	3.32	.87
58. *Defending myself when my partner has a problem with me before hearing the full extent of her/his concern	Defensiveness	.47	---	.21	---	.37	2.60	.87
II. Caring/Respect								
85. Affirming my partner by giving her/him compliments	Affection	.43	.67	.11	.21	.60	3.45	.75
55. Demonstrating my feelings by showing physical affection	Affection	.27	.65	---	.20	.49	3.43	.74
90. Actively thinking of ways to make my partner feel special	Affection	.38	.63	.15	.19	.56	3.47	.78
75. Keeping myself from saying really mean things when I am hurt or angry	Criticizing	.40	.57	.18	.11	.54	3.08	.77
54. Appreciating my partner's point of view even when I am not feeling the same way	Perspective-taking/Understanding	.42	.56	.19	.21	.55	3.22	.70
23. Empathizing with my partner when she/he has a bad day at work	Perspective-taking/Understanding	.36	.56	.15	.14	.52	3.39	.75
65. Even when I am angry, asking my partner for clarification on what he/she is feeling	De-escalating Conflict	.30	.56	.32	.18	.51	3.12	.73
74. Staying focused on the issues that are at hand in a fight rather than letting it "get personal"	De-escalating Conflict	.43	.53	.18	---	.54	3.08	.72

ROSES factor/item	Anticipated Behavioral Category	I	II	III	IV	Item-total <u>r</u>	M	SD
41. Identifying things we agree on during fighting	De-escalating Conflict	.30	<u>.53</u>	.30	.28	.51	<u>3.14</u>	<u>.69</u>
47. Seeing that problems are both our fault	Defensiveness	.28	<u>.52</u>	.13	.14	.45	3.06	.78
69. Initiating relationship-related problem solving discussions with my partner	Avoidance	.33	<u>.47</u>	.30	.39	.51	3.06	.80
42. Preventing myself from feeling so angry that I might say things I would regret later	Withdrawal-Disengagement	.33	<u>.46</u>	.264	.140	.47	3.02	.86
89. Refraining from criticizing my partner behind her/his back	Criticizing	.25	<u>.42</u>	.17	---	.40	3.12	.96
18. Being able to shift my own mood for the better in a fight	De-escalating Conflict	.38	<u>.41</u>	.37	---	.48	2.93	.79
III. De-escalating Conflict								
27. During a conflict, telling my partner that I need to take a break to cool off	De-escalating Conflict	---	.11	<u>.72</u>	.13	.24	2.70	.75
15. Suggesting that we take a break from a conflict so that my partner can calm down	De-escalating Conflict	---	.14	<u>.55</u>	---	.22	2.81	.78
81. Withdrawing from conflict temporarily to "cool off" but making sure the issue is re-addressed after a cool-off time	De-escalating Conflict	.22	.40	<u>.41</u>	.18	.43	2.88	.82
29. Looking at meta-communication issues (<i>how</i> we are communicating instead of <i>what</i> is being said in a fight) in order to calm things down	De-escalating Conflict	.19	.25	<u>.40</u>	.23	.34	2.64	.80
IV. Mixed Factor								
45. Expressing my sexual needs and desires	Self-expression	.15	.47	---	<u>.52</u>	.39	3.23	.80
*46. Hiding my emotions when I am upset with my partner	Self-expression	.48	.25	.18	<u>.50</u>	.48	2.98	.78

ROSES factor/item	Anticipated Behavioral Category	I	II	III	IV	Item-total <i>r</i>	<u>M</u>	<u>SD</u>
*24. Brushing problems “under the rug” because I don’t want to fight	Avoidance	.31	---	---	.50	.31	2.75	.85
V. Non-loading items								
12. Sharing things I am ashamed about	Self-expression	.28	.33	.22	.29	.33	2.92	.79
11. Being able to change my partner’s mood for the better in a fight	De-escalating Conflict	.23	.31	.23	---	.41	2.99	.73
Total Eigenvalue		9.28	2.55	1.87	1.5			
% total variance		24.42	6.7	4.9	3.9			

* Items were reverse coded before analysis.

The first 15-item factor, labeled “escalating conflict,” had factor loadings ranging from .47 to .68. Nine items were shared between factor 1 for females and factor 1 for males. In contrast to factor 1 for females, labeled “conflict strategies,” factor 1 for males contained items that represented exclusively negative conflict behaviors while factor 1 for females also included three relationship-promoting behaviors. Factor one for males also contained five out of seven items of factor three for females.

The second factor, which consisted of 14 items, was labeled “caring/respect” and had factor loadings ranging from .41 to .67. Six items were shared between factor 2 for females and factor 2 for males, all items related to “caring” behaviors (e.g. “Demonstrating my feelings by showing physical affection”). Moreover, this factor also contained three items for factors 1 and 4 of the females. This factor seems to generally

represent a variety of positive behaviors that have been theorized to promote healthy relationships. These positive behaviors may be further organized by three themes: caring behaviors (e.g. “Affirming my partner by giving her/him compliments”), empathic behaviors (e.g. “Appreciating my partner’s point of view even when I am not feeling the same way”) and respectful behaviors (e.g. “Even when I am angry, asking my partner for clarification on what he/she is feeling”).

The third factor, which contains 4 items, was labeled “de-escalating conflict” and had factor loadings ranging from .40 to .71. A majority of the items in this factor, three in total, represent a particular conflict strategy wherein a relationship partner withdraws from conflict in order to soothe the negative emotions of one or both parties. An example item is “During a conflict, telling my partner that I need to take a break to cool off.” All four items in factor 3 were subsumed within the seven-item factor 4 for females, labeled “de-escalating conflict/soothing.”

Finally, factor four, which contains only 3 items, showed loadings ranging between .50 and .52. This factor lacks conceptual consistency; two of these items represent self-expression behaviors while the other item represent an avoidant behavior. With respect to factors for females, two of the three total items in this factor for males loaded on factor 3 for females, labeled “avoidance/defensiveness” and the other item loaded on factor 2 for females, labeled “caring/empathy.”

Internal Consistency.

For each factor and for the sum score, a Cronbach’s alpha was computed for both the male and female samples separately. For the females, alphas were acceptably high across all four factors. Reliability alphas were as follows: factor 1 alpha =.84; factor 2

alpha = .70; factor 3 alpha = .79; factor 4 alpha = .70. For males, however, the reliabilities were less consistent across factors. Factors 1 and 2 showed good reliability (alphas = .88 and .85, respectively). For factors 3 and 4 for males, reliability alphas were .57 and .52, respectively. These results suggest a need for continued revision of these factors, possibly requiring the development of new items to fill out the breadth of factors 3 and 4 for males.

Convergent Validity.

A Pearson Product Moment correlation was computed, correlating factor and sum scores on the ROSES with sum scores on the RAS. As predicted, scores on the ROSES and the RAS were moderately positively correlated for both females and males (females: $r = .30, p < .01$; males: $r = .31, p < .01$). These correlations, which illustrate a moderate positive correlation between self-reported relationship satisfaction and self-perceived romantic relationship self-efficacy, support the convergent validity of the ROSES. See Table 8 for the correlation of each factor for females and males with the RAS.

Table 8: Correlation of ROSES Factors with RAS
RAS

Females

Factor 1: Conflict Strategies	.22***
Factor 2: Caring/Empathy	.27***
Factor 3: Avoidance/Defensiveness	.23*
Factor 4: De-escalating Conflict/Soothing	.12*
Overall	.30**

Males

Factor 1: Escalating Conflict	.28***
Factor 2: Caring/respect	.30***
Factor 3: De-escalating Conflict	.01
Factor 4: (Conceptually Mixed)	.21***
Overall	.31**

* p < .05

** p < .01

*** p < .001

Item-total Correlations.

Females.

The first 12-item factor, labeled “conflict strategies,” had item-total correlations ranging from .42 to .65. The second factor, which consisted of seven items, was labeled “caring/empathy” and had item-total correlations ranging from .36 to .48. The third factor, also containing seven items, was labeled “avoidance-defensiveness” and had item-total correlations ranging from .44 to .56. Finally, factor four, “de-escalating/soothing,” which also contained seven items, had item-total correlations ranging from .27 to .55.

(See Table 6 for item-total correlations for each individual item.)

Males.

The first 15-item factor, labeled “escalating conflict,” had item-total correlations ranging from .37 to .63. The second factor, which consists of 14 items, was labeled

“caring/respect” and had item-total correlations ranging from .40 to .60. The third factor, which contains 4 items, was labeled “de-escalating conflict” and had item-total correlations .22 to .43. Finally, factor four, which contains only 3 items, had item-total correlations ranging from .30 to .48. (See Table 7 for item-total correlations for each individual item.)

Chapter 5: Discussion

The purpose of this study was to develop a measure of romantic relationship self-efficacy based on the response data of 1051 undergraduates. In the development of the ROSES, it was first necessary to exclude 251 participants from the pool due to non-response to several items across measures in the scale validation session ($n = 57$), a lack of relationship experience (e.g., not having been in at least one exclusive romantic relationship for six months or longer) ($n = 190$), and status as a separated or divorced individual ($n = 4$). Data was split by sex and exploratory factor analyses were run.

An initial factor analysis was conducted without specifying a number of factors. Because resulting factors were correlated with r_s above .2, oblique factor analyses were performed in subsequent analyses specifying 4-9 factors. Structure matrices were analyzed in order to locate items which loaded .40 or above on any factor. Based on these factor analyses, it was necessary to reduce the number of items significantly from the original 90 items due to confusing wording, loadings below .40, or loadings on multiple factors. Again, structure matrices were analyzed in order to locate items which loaded .40 or above on any factor.

Repeatedly, results for males and females appeared divergent. For males, most of the items spread across the first two factors in a solution, while for females, items spread across 4 or 5 factors more uniformly. This resulted in weak reliabilities for males in factors beyond the first two factors across all possible item solutions. Thus, regardless of which item-solution was chosen, it was clear that more work would need to be done to capture variance and broaden the scope for males.

Overall, the 38-item solution was the strongest for females, with items spread relatively evenly across factors with acceptable reliabilities. As such, 38 items formed the pool for subsequent analyses. Using the pool of 38 items, oblique factor analyses were re-run, once again specifying 4-9 factors. Results of these factor analyses indicate that a 4-factor solution captures enough variance (40% for males and females) while best approximating simple structure. The first factor for both females and males predominantly contained escalating conflict behaviors. The female's factor 1 also contained three healthy coping strategies that are part of factor 2 for males. Factor 1 for the males also contained items from factor 3 for the females.

The second factor for males is predominantly overlapping with the second factor for females but it also includes items from two other factors, namely, factors 1 and 4 from the female sample. All of these items describe positive, relationship-promoting behaviors. The third factor for females is split between factors 1 and 2 for the males. The fourth factor of the females and the third factor for the males are mostly identical containing behaviors designed to de-escalate conflict.

Reliability alphas for females were adequate across factor solutions ($\alpha = .84, .70, .79$, and $.70$, respectively). For males, Factors 1 and 2 had strong reliability ($\alpha = .88$ and $.85$). However, as previously mentioned, reliabilities for males in Factors 3 and 4 were inadequately low ($\alpha = .57$ and $.52$, respectively.) It is likely that these reliability coefficients were low due to the small number of items which loaded $.40$ or above for these factors. More work would need to be done in order to develop a measure of romantic self-efficacy sensitive to this sex difference in responses.

Emergence of Anticipated Relationship Behaviors

Given that the ROSES was based on 9 categories of either relationship-promoting or relationship-harming behaviors, it is interesting to note which behaviors were represented in the factors that emerged. As an adjunct to the following discussion, the reader is referred to Tables 6 and 7, which list items demonstrating various behaviors represented in the loadings of factors for each sex.

For both females and males, items related to “de-escalating conflict” emerged more than any other theme. Like the broad category of “escalating conflict,” this category features a number of strategies employed in conflict situations. In this case, however, the behaviors are used to move partners in a conflict from negative emotional states to neutral or even positive states. These strategies, which vary widely, from using humor, to suggesting “cool off” breaks, to staying focused on the issues at hand, have been shown to have a strong association with relationship success and failure (e.g. Gottman, 1993b; Gottman, et al, 1998; Fletcher, et al., 1999). For females, out of 33 total items that loaded above .40, there were eight items pertaining to de-escalating conflict. For males, out of 36 total items, six items pertained to de-escalating conflict. For females, six of these items loaded on Factor 4, labeled “de-escalating conflict/soothing,” one of these items loaded on Factor 1, “conflict strategies,” and one item loaded on Factor 2, “caring/empathy.” For males, four de-escalating items loaded on Factor 2, “caring/respect,” while the other four items loaded on Factor 3, “de-escalating conflict.”

Overall, it is not surprising that de-escalating behaviors loaded across several different factors given that de-escalation strategies are represented by a diverse set of

behaviors. An interesting sex difference also surfaces in these factor loadings. For males, Factor 3 appears to mostly represent a discrete set of items referring to the particular strategy of respectfully withdrawing from conflict in order to calm down. One such face-valid item would be “withdrawing from conflict temporarily to “cool off” but making sure the issue is re-addressed after a cool-off time.” In contrast, for females, items related to healthy withdrawal loaded with other de-escalation behaviors, including “looking at meta-communication issues...in order to calm down” and “identifying things we agree on during fighting,” and “being able to shift my own mood for the better in a fight.” This pattern suggests that healthy withdrawal may be especially important for males, and that females may call upon a wider array of de-escalation strategies.

This notion is supported by Gottman and colleagues identification of a particularly strong sex effect of a type of withdrawal called “stonewalling.” Gottman (1999) reports that in a large majority of marriages, an estimated 85%, the stonewaller is the husband. Gottman reasons that biological differences cause this phenomena; because “the male cardiovascular system remains more reactive than the female and slower is recover from stress...[and] marital confrontation ...takes a greater physical toll on the male, it’s no surprise that men are more likely than women to attempt to avoid it.”

Items related to criticizing one’s partner also emerged often for both females and males, with five items loading for females and five for males. For females, most of these items (four out of five) loaded on Factor 1, “conflict strategies.” One criticism-related item loaded on Factor 3, “avoidance/defensiveness.” Similarly, for males, five criticism-related items loaded on Factor 1, “escalating conflict” while two reverse-coded items

expressing non-criticism (e.g. “keeping myself from saying really mean things when I am hurt or angry”) loaded in the “caring/respect” labeled Factor 2. The emergence of “criticizing one’s partner” as a salient theme in the factor loadings for both sexes is not surprising given past research. Intuitively, it makes sense that criticizing one’s partner will lead to relationship dissatisfaction. Empirically, three separate longitudinal studies (e.g. Gottman, 1993b; Gottman, et al, 1998; Gottman & Levenson, 2000) and three relationship satisfaction studies (e.g. Meeks, et. al, 1998; Assh & Byers, 1990; Venable & Martin, 1997) have found robust associations between criticizing behavior and relationship adjustment of satisfaction. In fact, criticism is so predictive of ultimate relationship dissolution that this theme earns the title of one of Gottman’s “Four Horsemen of the Apocalypse,” a set of particularly poisonous behavior patterns leading to divorce.

Further, the emergence of reverse-coded criticism items in the “caring/respect” factor for males may help explain the inter-correlation between overall factors. Although items were created to represent thematic categories of relationship behaviors, overlap between categories is inevitable given that the opposite of an unhealthy behavior is a healthy behavior. For example, to personally criticize one’s partner during conflict is an unhealthy behavior and loaded as expected with other items on the “escalating conflict” dimension. However, preventing oneself from criticizing one’s partner expresses both caring and respect for one’s partner and loaded with other items on the “caring/respect” dimension.

Similarly, items related to defensiveness appeared often in the loadings for both females and males. Two out of four total defensiveness items for females loaded on Factor 3, labeled “avoidance/defensiveness.” One additional defensive item loaded on with the “conflict strategies” items in Factor 1 and one reverse-coded item representing non-defensiveness loaded on Factor 2, “caring/empathy.” For males, three of the four total defensiveness items loaded on the “escalating conflict” factor. As with females, the same reverse-coded item portraying a non-defensive behavior, “seeing that problems are both our fault” loaded on the “caring/respect” factor. Overall, the emergence of several items representing critical and defensive behaviors is understandable given that both show robust associations with the likelihood of future relationship failure. Five separate longitudinal studies (e.g. Carrere & Gottman, 1999; Gottman, 1993a; Gottman, et al., 1998; Gottman & Krokoff, 1989; Gottman & Levenson, 2000) have shown that acting defensive in a couples’ interaction protocol reliably predicts relationship dissolution at 3-7 year follow-up. In fact, “defensiveness” joins “criticism” as another of the four destructive behaviors called “horses of the apocalypse” by Gottman and colleagues.

Items related to “escalating conflict” also seemed to be a central theme in the items that loaded for both females and males. All four escalating conflict items loaded on Factor 1 for females, “the conflict strategies” factor that contained mostly relationship-harming behaviors. Similarly, all three escalating conflict items loaded on Factor 1 for males and loaded so highly (ranging from .52 to .66) that this factor was given the general label “escalating conflict.” It is salient that “escalating conflict” items loaded uniformly on Factor 1 for both females and males. Although these items described a collection of various negative behaviors, they loaded together, demonstrating a core

theme of maladaptive conflict strategies. This theme is echoed by Gottman's life work, numerous well-designed studies (e.g. Carrere & Gottman, 1999; Gottman, 1993b; Gottman, et al., 1998; Gottman & Levenson, 1999; Gottman & Levenson, 2000, Levenson & Gottman, 1985) that show how negative conflict behaviors consistently predict relationship dissolution.

Items expressing avoidant behaviors emerged fairly often for both females and males. For females, two of three total avoidance items loaded on the "avoidance-defensiveness" factor while one reverse-coded item describing non-avoidance (e.g. "initiating relationship-related problem solving discussions with my partner") loaded on Factor 4, "de-escalating conflict/soothing." For males, three of the four total avoidance items expressed relationship-harming avoidant behaviors. Two of these three items loaded on Factor 1, "escalating conflict," while one item loaded on Factor 4, which was conceptually mixed. The additional reverse-coded avoidance item, the same item that emerged for females, loaded on Factor 2, "caring/respect" for males.

In the earlier literature review, several studies (e.g. Meeks et al, 1998; Johnson & Roloff, 2000; Noller & White, 1990) found a positive correlation between avoidant behaviors and relationship dissatisfaction. However, two studies (Metts & Cupach, 1990; Scharfe & Bartholomew, 1995) found that only "neglectful" avoidance was associated with relationship dissatisfaction. Another type of avoidance, called "loyalty," referred to "passive constructive behavior of waiting for improvement in the partner's behavior" (Rusbult, et al, 1991) and was deemed to be a healthy strategy in some relationships. As such, items constructed for the ROSES attempted to describe only neglectful avoidance.

Items related to avoidance did in fact emerge as expected, but loaded across five separate factors for males and females. This may be explained by the fact that there are several ways to avoid conflict, some of which have conceptual overlap with other categories. For example, “drinking alcohol or using drugs to avoid feeling badly,” a negative conflict strategy may have loaded on the “escalating conflict” factor for males because drinking and using drugs are highly associated with aggressive behavior. On the other hand, a more passive avoidance item, “brushing problems under the rug because I don’t want to fight,” which loaded with “emotional openness” items for males, would not likely lead to an mutual escalation of negative feelings.

Items related to the expression of affection appeared somewhat less often for both males and females. For both females and males, a total of three items loaded highly in Factor 2, “caring/empathy/respect.” Although positive, relationship-promoting behaviors have not been studied with the same frequency as behaviors thought to be destructive to relationships, giving affection has emerged as a significant correlate of both relationship adjustment and satisfaction in four separate studies (Assh & Byers, 1990; Carrere & Gottman, 1999; Gottman, 1993a; Gottman & Levenson, 1999). Some researchers have opted to focus on negative behaviors because they reason that couples under stress are most likely to show their true patterns. However, in recent years, a call has been issued for more research in “positive” psychology, the psychology of identifying healthy behaviors and people’s natural strengths. To this end, it is encouraging that items related to giving affection emerged consistently in factor loadings for both females and males.

Withdrawal/disengagement also loaded with relative infrequency compared to other categories. Only two items emerged for females while three items emerged for males. For females, one unhealthy withdrawal/disengagement item loaded on Factor 1, labeled “conflict strategies” and one reverse-coded (non) withdrawal item loaded on Factor 4, “de-escalating conflict/soothing.” For males, two withdrawal-disengagement items, both describing negative behaviors, loaded on Factor 1, “escalating conflict,” while one reverse-coded withdrawal/disengagement item reflecting engagement loaded on Factors 2, “caring/empathy/respect.” Past research has established a robust association between disrespectful withdrawal from conflict interaction and relationship dissatisfaction (e.g. Gottman, 1993a; Gottman, et al., 1998; Gottman & Krokoff, 1989; Gottman & Levenson, 2000). Conceptually similar constructs, such as Rusbult’s “neglect” which encompasses “general withdrawal” as well as “avoiding discussion of problems” have been found to relate to relationship dis-satisfaction as well. Given these findings, the relative non-emergence of withdrawal-disengagement items was surprising.

Finally, items related to either perspective-taking/understanding or self-expression were not well-represented in the loadings for either females or males. For females, one perspective-taking item loaded in Factor 1, “conflict strategies” while one additional item loaded on Factor 2, “caring/empathy.” For males, a total of two items describing perspective-taking or understanding behaviors loaded on Factor 2, “caring/respect.” The relative non-emergence of perspective-taking/understanding items is understandable given past research findings. Specifically, relative to other behaviors, strong support for an association between perspective-taking and relationship satisfaction or adjustment has not been established across many studies. Thus, it is possible that while perspective

taking may be a critically important behavior in some relationships, it may not be necessary for all relationships. For example, a couple may not be able to “stand in each other shoes” very well, but still may continue to engage in a host of relationship-promoting behaviors such as de-escalating conflict or giving affection.

Likewise, items related to self-expression emerged with relative infrequency for both females and males. One self-expression item, “expressing my sexual needs and desires” loaded on Factor 2, “caring/empathy” for females, while one additional reverse-coded item describing non self-expression loaded on Factor 3, “avoidance-defensiveness.” For males, a total of two self-expression items, including the item “expressing my sexual needs and desires” loaded on Factor 4, which was conceptually mixed. It is somewhat surprising that self-expression did not emerge as a significant theme in the factor loadings. A review of relationship research demonstrates a strong association between self-expression and relationship satisfaction. For example, Siavelis & Lamke (1992) reviewed six studies looking at the effect of self-expression on the course of relationships and concluded, “a high level of marital satisfaction is associated with high level of expressiveness for both husbands and wives.” One possible explanation for the non-emergence of self-expression items is that the category is very broad. Unlike a narrower category such as “criticizing one’s partner,” items related to self-expression ranged from sharing “details of the day,” to sharing “negative feelings,” and, on the other end of the spectrum to expressing “sexual needs and desires.” Although correlations might be expected between these types of self-expression, these items do not appear as internally consistent as items pertaining to ways of criticizing one’s partner.

Future studies may need to explore various dimensions of self-expression as potentially more discrete.

In general, when summarizing which behaviors emerged in factors across sexes, one is required to make somewhat arbitrary distinctions. Overall, items related to various categories emerged with the following frequency: de-escalating conflict (16), criticizing (10), defensiveness (8), escalating conflict (7), avoiding conflict (7 times), giving affection (6), withdrawal/disengagement (5), perspective-taking/understanding (4), and self-expression (4). As demonstrated, all nine anticipated categories were represented to some degree in the factor loadings, de-escalating conflict and criticizing represented the most frequently, and perspective taking/understanding and self-expression represented with the lowest frequency.

To test convergent validity, correlation analyses were computed to compare scores on the ROSES with scores on the RAS. Since the ROSES items were created on the basis of empirically supported relationship promoting and harming behaviors, it was predicted that higher scores on the ROSES should moderately positively correlate with self-reported satisfaction, as measured by the RAS. As predicted, for both males and females, the RAS was moderately positively correlated with the ROSES' overall total scores ($r_s = .31$ and $.30$; $p < .001$) and several of the factor scores (See Table 8). An important caveat to be made is that self-efficacy percepts are not the same as actual relationship skills. It is possible that someone may feel self-efficacious in her or his conflict behavior. For example, a person may report feeling confidence in their ability to "keep [themselves] from saying really mean things when [they] are hurt or angry."

However, an individual's actual behavior in conflict situations may not accurately match their self-perceived ability to control their tongue. It seems logical that actual behaviors, rather than self-assessed abilities, create the actual dynamics, healthy or unhealthy, upon which a person bases her or his relationship satisfaction assessment. However, since we would expect at least a small positive correlation between self-perceived abilities and actual behavior, this may explain why the RAS and the ROSES are only moderately positively correlated.

Overall, noting the discrepant distribution of items in the factor loadings for males and females, and the low reliabilities of Factors 3 and 4 for males, researchers are also compelled to confront the larger issue of whether we should assume that self-report measures should uniformly apply to both males and females. At present, most romantic relationship scales (e.g. DAS, RAS, Locke-Wallace Marital Inventory) have been developed with the assumption that items will apply equally to the experience of males and females. However, research in the past two decades shows clear sex differences in a discrete set of relationship behaviors. For example, Cohn and Strassberg (1983) found that women self-disclose more than men do. Further, recall Gottman's (1999) finding that "stonewalling" appears to be a particularly male phenomenon. Researchers have also begun to explore *patterns* of behavior in relationships that appear to have a basis in sex differences. For example, Vogel, Wester, and Heesacker (1999) found evidence of a predominantly female "demand" and male "withdraw" pattern in dating couples.

Yet, even more remarkable than these sex differences is an abundance of studies that have not found significant differences in relationship behaviors across sexes. A

recent study of 70 couples found no sex differences for all subscales of the Dyadic Adjustment Scale (DAS; Spanier, 1976) – dyadic satisfaction, dyadic consensus, dyadic cohesion and dyadic affectional expression (Prouty, Markowski, Edward, & Barnes, 2000). Researchers often discover a lack of sex differences even in behaviors expected to differ for females and males. For example, studies exploring accounts of intimacy (e.g. Helgeson, Shaver, & Dyer, 1987) show that males report sexual satisfaction as more important than females do. However, in Karney and Bradbury's (1995) longitudinal study of married couples, sexual satisfaction emerged as a positive predictor of marital satisfaction for both males and females with little difference in the magnitude of the prediction. Findings such as these beg the question of whether the most salient sex differences are not related to actual behaviors or preferences but, rather, may be due to self-presentation tendencies. In support of this possibility, Shaw and Edwards (1998) reported that 44 male and 56 female undergraduates displayed similar self-concepts while describing themselves with a checklist. However, "different, more sex-typed selves" emerged when describing themselves with a narrative. For these reasons, when developing self-report measures, future researchers are urged to wrestle with the question of whether measures can be created to equally apply across sexes.

Limitations and Directions for Future Research

The primary limitation of the present study was the use of a convenient undergraduate sample. In a study of romantic relationship self-efficacy, it would have been preferable to recruit participants with relatively more relationship experience. The cut-off criteria used in the present study, that participants must have had at least six

months of experience in an exclusive romantic relationship, may have meant that a large proportion of the sample was relatively inexperienced in relationships. A second problem with the use of undergraduates in the current study is that the ROSES was developed based on relationship promoting and harming behaviors identified in a much older, more experienced sample. So, essentially, the present study attempted to validate the ROSES on a sample different from that upon which its creation was based. Further, the current sample is primarily Caucasian. As such, caution is urged in terms of generalizing results to other groups.

Despite these limitations, the present study identified a four-factor solution with adequate reliability and some evidence of convergent validity for females and, to a lesser extent, for males as well. Such a scale may have important diagnostic applications for therapy. For example, the ROSES could be used to pinpoint high and low areas of relational self-efficacy along dimensions shown to predict relationship success and failure. Directions for future research may include testing the ROSES in an older, married sample and designing studies to address the question of whether self-report scales should be developed with the assumption that they will, or should, apply equally to both males and females.

Appendix I

Modified Informed Consent

Introductory Script to be read to Participants

The purpose of completing these questions is to obtain information about how college students think and feel about their romantic relationship interactions. It will take less than one hour to complete the items. You will receive one extra credit point for your participation. There are no identifiable risks other than those associated with reflecting upon one's future relationship interactions, which may alternatively be seen as a potential benefit of participation. We are not interested in how you as an individual respond, but rather how the group responds. Your responses will be anonymous and no identifying information will be collected. Your participation is voluntary. You can choose not to complete the measure at any time during the testing session without any negative consequences. There is an alternative to research participation for gaining extra credit point. The alternative is listed in your syllabus. Moreover, your responses are confidential and will not be shared with your instructor nor will your responses to the questions affect your performance in the class in any way. The data will be kept confidential. If you have any inquiries concerning the procedures of this testing session, you may contact the research coordinator, Shauna Springer, either by email at ----- or by phone at -----.

Debriefing script

Thank you for your participation in this testing session. We appreciate your time and effort in completing these questionnaires. Your responses will be helpful to us in better understanding how undergraduate university students, as a group, respond to these items. Your responses to these questionnaires may have led you to reflect on your attitudes and feelings in new and different ways. If you felt any discomfort from responding to these questions, you may want to contact Shauna Springer.

Appendix II

Romantic Self-efficacy Scale (ROSES)**Directions:**

This is not a test. There are no right or wrong answers. Rather – it is an inventory that attempts to measure how you feel you will behave in future romantic interactions. Please respond to the items as honestly as you can so as to most accurately portray how you think you will behave in these situations. Do not respond with how you wish you could perform each item - rather, answer in a way that reflects your actual estimate of how you will behave in the future.

If you are currently in a romantic relationship, consider how you will behave in that relationship in the near future. If you are not currently in a romantic relationship, evaluate how you will behave in your next romantic relationship in the near future.

“To what degree do you expect to do the following in your future romantic interactions?”

Please use a 1-6 rating with the following meanings to respond:

1 = I definitely do NOT expect to do this in my future interactions

6 = I definitely expect this to characterize my behavior in future interactions

Self-expression/Self-disclosure

- 1) Communicating why I am hurt in a way that my partner will be able to understand what I am feeling
- 2) Sharing my negative feelings in an honest way
- 3) Sharing things I am ashamed about
- 4) Sharing the details about my day
- 5) Expressing my sexual needs and desires
- 6) Openly expressing my physical affection needs
- 7) Openly expressing my emotional needs
- 8) Hiding my emotions when I am upset with my partner
- 9) Openly discussing past mistakes I have made with my partner
- 10) When my partner does not understand what I am saying, finding another way to explain myself so that he/she will understand

Withdrawal/Disengagement

- 1) Tuning my partner out in a fight to show that I am not interested in what she/he has to say anymore
- 2) Staying engaged in a heated discussion even when I feel hurt or angry
- 3) Preventing myself from feeling so angry that I might say things I would regret later
- 4) Withdrawing from conflict temporarily to “cool off” but making sure the issue is re-addressed after a cool-off time
- 5) Ignoring or shutting my partner out when I am really angry at her/him
- 6) In a conflict, feeling flooded with negative emotions that seem to come from out of the blue
- 7) Disengaging from conflict because I get too angry to stay involved
- 8) Sticking it out in conflict in order to work things through
- 9) Reaching a point where I just can’t communicate anymore in a fight and blowing up at my partner
- 10) Walking out on my partner in anger when we are fighting even though my partner wants to work through the conflict

Perspective Taking/Understanding

- 1) Being aware of my partner’s feelings whether she or he is happy, upset, angry, or depressed
- 2) Being attuned to when my partner does not feel like discussing something
- 3) Appreciating my partner’s point of view even when I am not feeling the same way
- 4) Being patient with my partner’s flaws
- 5) Really listening to my partner when she/he talks to me
- 6) Really focusing on what my partner is saying during a conversation
- 7) Empathizing with my partner when she/he has a bad day at work
- 8) Understanding any difficulties my partner has in terms of relating to her/his family of origin
- 9) Seeking to understand my partner’s way of seeing the world
- 10) Soliciting my partner’s point of view on different topics

Acting Defensive

- 1) Blaming my partner when things go wrong
- 2) Appreciating my own contribution to our problems
- 3) Seeing that problems are both our fault
- 4) Acting defensive when my partner relates a concern with our relationship
- 5) Listening calmly and thoughtfully while my partner states a concern with our relationship
- 6) Being willing to admit that I hurt my partner
- 7) Being able to apologize sincerely to my partner for things that I have done to hurt her/him
- 8) Defending myself when my partner has a problem with me before hearing the full extent of her/his concern
- 9) Assuming a non-blaming stance towards relationship problems
- 10) Expressing that my partner is usually more at fault when we have problems than I am

Criticizing Partner

- 1) Personally criticizing my partner in the heat of conflict
- 2) Keeping myself from saying really mean things when I am hurt or angry
- 3) Continuing to show respect to her/him even during a bad fight
- 4) Refraining from calling my partner names
- 5) Raising my voice or screaming critical things at my partner during fighting
- 6) Saying things under my breath to others about my partner when I am mad at her/him
- 7) Saying things to hurt my partner that I regret later
- 8) Starting fights by accusing or criticizing my partner
- 9) Refraining from criticizing my partner behind her/his back
- 10) Allowing fights to get personal

Giving Affection

- 1) Demonstrating my feelings by showing physical affection

- 2) Fulfilling my partner's physical need for affection
- 3) Affirming my partner with loving touches
- 4) Affirming my partner by giving her/him compliments
- 5) Telling my partner about the qualities I like about her/him
- 6) Telling my partner that I love her or him
- 7) Showing my partner that I love him or her by doing nice things
- 8) Making it clear that I value my partner
- 9) Actively thinking of ways to make my partner feel special
- 10) "Keeping the romance alive" by finding new ways to continually court my partner

Avoiding Conflict

- 1) Brushing problems "under the rug" because I don't want to fight
- 2) Avoiding fighting at all costs
- 3) Being able to have a fight with my partner without feeling like it will end the relationship
- 4) Drinking alcohol or use drugs to avoid feeling badly
- 5) Actively denying that my partner and I have a problem to work out when I really know that we do
- 6) Remaining distant from my partner in order to avoid conflict
- 7) Ignoring my partner when she/he relates a concern with the relationship
- 8) Going to bed angry to avoid telling my partner what I am angry about
- 9) Changing the topic when my partner says "we need to talk" (about difficult things)
- 10) Initiating relationship-related problem solving discussions with my partner

Escalating Conflict

- 1) Inciting my partner to more and more anger in a fight
- 2) Screaming critical things at my partner during fighting
- 3) Immediately responding negatively when my partner says something negative
- 4) Accepting influence from my partner
- 5) Admitting when I am wrong and my partner is right

- 6) Acting on my partner's suggestions
- 7) Refusing to take my partner's suggestions even though they are wise just to spite her/him or show my independence
- 8) Starting fights by accusing or criticizing my partner
- 9) Presenting my arguments in a cool and calm manner
- 10) Refraining from acting contemptuous towards my partner

De-escalating/Repairing Conflict

- 1) Staying focused on the issues that are at hand in a fight rather than letting it "get personal"
- 2) Being able to shift my own mood for the better in a fight
- 3) Being able to change my partner's mood for the better in a fight
- 4) Identifying things we agree on during fighting
- 5) Looking at meta-communication issues (*how* we are communicating instead of *what* is being said in a fight) in order to calm things down
- 6) Using humor to calm down a tense conflict
- 7) Even when I am angry, asking my partner for clarification on what he/she is feeling
- 8) Withdrawing from conflict temporarily to "cool off" but making sure the issue is re-addressed after a cool-off time
- 9) Suggesting that we take a break from a conflict so that my partner can calm down
- 10) During a conflict, telling my partner that I need to take a break to cool off

Appendix III

Relationship Assessment Scale

Directions: Please respond to the following items according to the following scale:

1 = not at all

5 = very much

Please
Indicate
Your
Response:

- 1.) How well does your partner meet your needs? _____
- 2.) In general, how satisfied are you with your relationship? _____
- 3.) How good is your relationship compared to most? _____
- 4.) How often do you wish you hadn't gotten into this relationship? _____
- 5.) To what extent has your relationship met your original expectations? _____
- 6.) How much do you love your partner? _____
- 7.) How many problems are there in your relationship? _____

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