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Love in Heterosexual Relationships: An Exploration

by

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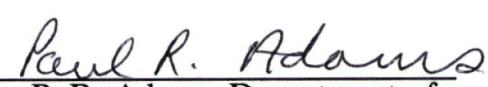
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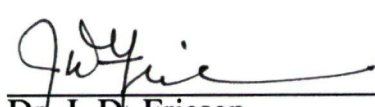
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ABSTRACT

The primary purpose of this research has been to examine Robert Sternberg's (1987a) Triangular Love Scale, a new and virtually untested measure of love. Sternberg's measure, an operationalization of the Triangular Theory of Love (Sternberg, 1986), has been studied from different points of view in an attempt to gain more knowledge about the scale and the theory. Sternberg's theory has been chosen over others because it is new, and because it appears to be clear, concise, comprehensive, and consistent with related theories.

Two hundred and ninety-eight adults, currently involved in a close heterosexual relationship, volunteered to participate in a study to define love. Volunteers, attracted largely by newspaper advertisements, completed a 13-page questionnaire package consisting of a demographic information page and six scales from the related psychological literature. The most important of these scales were the Triangular Love Scale, the Dyadic Trust Scale (Larzelere & Huston, 1980), and the Dyadic Adjustment Scale (Spanier, 1976).

Factor analytic results of the Sternberg measure indicated a three-factor solution (consistent with theory), though the order of factors extracted (commitment, passion, and intimacy) was inconsistent with theory. Further, 8 of 36 items were left out of the preferred oblique solution, suggesting a need for further scale revision. Internal analyses of the Triangular Love Scale were only partially supportive of the scale's construct validity.

When the Triangular Love Scale was juxtaposed with related scales, Pearson correlations showed expected patterns of correlations – a confirmation of the scale and the theory. When factor analytic solutions were pursued, again results were generally supportive; however, no factor that could be labelled intimacy (Sternberg's hypothesized core component) emerged. Of theoretical importance is that Sternberg's love components appeared to break clearly from the related constructs of trust, sexual intimacy, and dyadic cohesion. Factor analytic results are understood in the context of the factors, themselves, being correlated.

Finally, when the Triangular Love Scale was employed to predict group membership, the scale performed moderately well and according to theoretical expectations, to the extent that theory currently exists. Of theoretical importance is that the demographic grouping variables, relationship status, time together, and age, though correlated, seemed to share considerable variance with the Sternberg love components. Results are additive to existing theory.

In sum, evidence has been presented to both support and question the construct validity of Sternberg's new scale and theory (a simultaneous process [Cronbach, 1984; Sternberg, 1987a]). Limitations of this study have been advanced, as have recommendations for future research.

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CHAPTER ONE

INTRODUCTION

General Statement of the Problem

In a general sense, the problem for this research is reflected in Trotter's

(1986) statement: love is "an understudied topic that is extremely important to

people's lives" (p. 46). Within this statement lie two themes that provide a

rationale for this research: (a) that the construct of love is understudied, and (b)

that love is important to people's lives. A third and related theme not mentioned

by Trotter is that love is ill-defined and ambiguous. For the purpose of this

study, love, as defined by Sternberg (1986, 1987a), is delimited to interpersonal,

heterosexual love as it is experienced in Western societies, particularly North

America.

Love is Understudied

To say that love is understudied is not entirely accurate in that Western

poets, philosophers, and novelists have been concerning themselves with the

phenomenon at least as far back as the Greek poet, Sappho in the 6th Century,

B.C. (de Rougemont, 1956; Mellon, 1981; Shaver, Hazan, & Bradshaw, 1988).

What is more accurate is to say that the scientific study of love is limited and that

psychologists in this century have, by and large, either overlooked or avoided the

topic until very recently. Even though Freud (1962), Maslow (1954), and Fromm

(1956) wrote on their clinical insights into the nature of love, empirical research

on love did not begin until Rubin (1970), and his was an isolated case. In the

last decade or so, there has been some activity with empirically based publications (e.g., Hatfield & Sprecher, 1986; Hendrick & Hendrick, 1986; Lasswell & Lobsenz, 1980; Levinger, Rands, & Talabar, 1977; and Sternberg, 1987a); however, systematic empirical research has been in short supply. Accordingly, Rubin (1988) has observed that "the science of love is still in its infancy" (p. viii).

The lack of scientific inquiry into the nature of love is probably rooted in two themes. First, the topic is difficult and complex, and does not lend itself particularly well to systematic observation or scientific analysis. Sternberg (1987a) has proposed that "few psychological constructs are more elusive than the construct of love" (p. 3). Second, the subject of love has been considered a frivolous one by the psychological community, unworthy of serious, scientific pursuit (Berscheid, 1988; Rubin, 1988). Though this disposition undoubtedly still prevails, observers (e.g., Berscheid, 1988; Murstein, 1988; Rubin, 1988) have noted that opinion is changing, and that the field is gaining a new legitimacy. I argue here that opinion is changing, in part, because of Sternberg's recent involvement in the study of love and his systematic and comprehensive approach to the phenomenon (Sternberg, 1986, 1987a, 1987b, 1988, in press; Sternberg & Barnes, 1985, 1988a, 1988b; Sternberg & Grajek, 1984; Sternberg & Wright, 1987).

Love is Important

That love is important is widely accepted (Berscheid, 1984, 1988). Love, in general, is something that most people experience, and love, specifically heterosexual love, serves as the foundation for happy and stable heterosexual

relationships, married and not married (Berscheid, 1988; Rubin, 1988). Hatfield
(1988) has observed that "for most people, love is the sine qua non of an
intimate relationship" (p. 191). With respect to marriage, marriage in this society
is the preferred lifestyle for adults (Brehm, 1985; Coleman, 1984), and love has
been called the "centerpiece of marriage" (Beach & Tesser, 1988, p. 226).
People in North America marry primarily for reasons of love, and stay married,
or not, primarily for reasons of love (Beach & Tesser, 1988; Berscheid, 1988;
Rubin, 1988; Simpson, Campbell, & Berscheid, 1986). Further, it is recognized
that satisfying and lasting marriages serve as the bases for happy and stable
families (Argyle & Henderson, 1985; Minuchin & Fishman, 1981), the
cornerstones of this society (Brehm, 1985; Coleman, 1984). In turn, knowledge of
love's nature and process, through research, has important implications for the
well-being of individuals (Dion & Dion, 1988; Murstein, 1988; Rubin, 1988)
marriages, families, and perhaps this society at large (Berscheid, 1988; Cox, 1978).

Love is Ambiguous

Perhaps the major problem with the study of love is the definitional one:
there is no consensus in Western society and very little agreement on the part of
social scientists on what the term means (Beach & Tesser, 1988; Rubin, 1988).
Murstein (1988), for instance, has observed that "the word love is bandied about
more promiscuously than almost any other word in the English language" (p. 13);
and Berscheid (1988), noting the current relevancy of the words of Sir Henry
Finck, a 19th Century behavioral scientist, has quoted, "love is such a tissue of
paradoxes, and exists in such a variety of forms and shades, that you can say

almost anything about it that you please, and it is likely to be correct" (p. 361). As an example of its different and varied general usage, one only needs to look to Bartlett's Familiar Quotations where Levinger (1988) has observed that love has more entries than any other word except man.

For social scientists, the predicament is not much better. Rubin (1988) has argued that "love researchers are saddled with the problem that love means different things to different people" (p. viii). There is little common conceptual vocabulary (Beach & Tesser, 1988; Rubin, 1988), and often there is outright disagreement on how terms are defined and viewed: e.g., Branden's (1988) idealized view of romantic love is opposed to Peele's (1988) view that sees romantic love as a form of addiction bordering on pathology. Further, there are a plethora of specialized terms: passionate love (Hatfield, 1988; Hatfield & Walster, 1978); companionate love (Hatfield & Walster, 1978; Sternberg, 1986); conjugal love (Burgess & Locke, 1953; Murstein, 1988); pragmatic love (Kelley, 1983); altruistic love (Kelley, 1983); romantic love (Branden, 1988; Rubin, 1970, 1973; Sternberg, 1986); partnering love (Lee, 1988); limerence (Tennov, 1979); infatuated, empty, fatuous, and consummate love (Sternberg, 1986, 1988); and finally eros, ludis, storge, mania, agape, and pragma (Hendrick & Hendrick, 1986; Lee, 1973, 1977, 1988). What is at issue here is the absolute volume of terms, and the fact that there are no ready rules for translation from one term to the next, or from one model to the next (Rubin, 1988). Even if researchers use the same term (e.g., passionate love or romantic love), they usually are not using the term in the same way: each puts his or her own twist on the definition. When it

comes to operationalizing a certain type of love, or love in a more generic sense, something like intelligence, love is what the scale measures (Berscheid, 1988; Shaver, Hazan, & Bradshaw, 1988). For instance, Rubin's (1970) 13-item Love Scale looks quite different than Lasswell and Lobsenz's (1980) 50-item Love Scale Questionnaire, and different again than Sternberg's (1987a) Triangular Love Scale. Each is based on a different theoretical premise.

Apart from sorting out and agreeing on types of love, there is little accord on the makeup of constructs that might be associated with love (e.g., passion, intimacy, and commitment to use Sternberg's 1986, 1987a model, the core of this research). Where Brehm (1988) has emphasized the non-sexual aspect of passionate love, the passionate love that Christian mystics have felt for God, Sternberg (1986, 1988) has seen passion (what must be a key component in passionate love) as a primarily drive-based, psycho-physiological phenomenon that leads to "romance, physical attraction, and sexual consummation" (Sternberg, 1988, p. 120). With reference to intimacy, this term has been defined and operationalized differently by different researchers: e.g., Schaefer and Olson (1981); Sternberg (1986, 1987a); Tolstedt and Stokes (1983); and Waring (1984). For commitment, Kelley (1983) and Lund (1985) have viewed this construct as distinct from love, whereas Sternberg (1986, 1987a) has seen it as an essential and integral component. The end result is that the field is in something of a muddle, prompting Berscheid (1988), above, to cite Sir Henry Finck, and Murstein (1988) to conclude "love is what one decides it is" (p. 33).

Specific Statement of the Problem

The specific problem for this study arises out of the general problem: that love is understudied, important, and ambiguous. The research at hand attempts to remedy this general problem by working specifically with Sternberg's Triangular Theory of Love (Sternberg, 1986, 1988) and the Triangular Love Scale (Sternberg, 1987a), an operationalization of this theory. Work with the scale and theory holds the promise of adding knowledge to an important, understudied, and ambiguous area. Further, empirical analysis of the scale, which is new and virtually untested, should advance simultaneously an understanding of the scale and the Triangular Theory (Sternberg, 1987a). Different experimental manipulations with Sternberg's measure may also serve, ultimately, to modify the scale and broaden the theory.

The researcher has also chosen to work with Sternberg's (1986, 1987a) model because of its completeness and its heuristic value. On the first count, Sternberg (1986, 1987a) has argued that the Triangular Theory of Love may be more complete than Rubin's (1970) theory of romantic love, Tennov's (1979) construct of limerence, or Hatfield and Walster's (1978) two-component model of passionate and companionate love. If Sternberg's theory is found to be construct valid, it may also have the potential to unite a somewhat ambiguous and disparate field. With respect to heuristic properties, the Triangular Theory is judged to be clear, communicable, logical, modifiable and falsifiable, and fairly

consistent with related theories. As such, it holds most of the tenets of a good scientific theory (Gale, 1979; Maslow, 1966).

<p style="text-align: center">Definition of Terms</p>

Rather than attempting to define all terms pertinent to heterosexual love (perhaps an impossible task), the goal here is to provide a set of narrowed definitions that complement the focus of this research. Accordingly, those terms explicated will be ones relating to Sternberg's model and scale, and ones relating to the five other measures employed. Even within this focus, terms outlined here will not be defined to their fullest: fuller definitions can be found in subsequent chapters and in source articles and texts.

<p style="text-align: center"><u>Love</u></p>

According to Sternberg's Triangular Theory of Love (Sternberg, 1986, 1987a, 1987b, 1988), interpersonal love, whatever its focus, consists of three interacting components: passion, intimacy, and decision/commitment. Where the passion component can be thought of as the motivational element, intimacy and decision/commitment are seen as the affective and cognitive elements, respectively. As such, love is defined as a "set of affects, cognitions, and motivations that when sampled together, yield a composite experience that people label as love" (Sternberg, 1987b, p. 338). Although Sternberg, for conceptual ease, often speaks of these components separately, he has recognized that, in practice, they are quite difficult to separate. Noting the multivariate nature of this model and its components, Sternberg has explained that the components can

both "feed off each other" and "contribute to either the diminution or the increment of each other" (Sternberg, 1987b, p. 340).

In applying this model, Sternberg has proposed that "the amount of love one experiences depends on the absolute strength of these components, and the kind of love one experiences depends on their strengths relative to each other" (Sternberg, 1986, p. 119). Further, the components of love and their interactions can give rise to eight possible kinds of: non-love (the absence of all three components); liking (intimacy alone); infatuated love (passion alone); empty love (decision/commitment alone); romantic love (intimacy and passion, without decision/commitment); companionate love (intimacy and decision/commitment, without passion); fatuous love (passion and decision/commitment, without intimacy); and consummate love (a full combination of passion, intimacy, and decision/commitment). Sternberg's Triangular Theory of Love is operationalized by his 36-item Triangular Love Scale (Sternberg, 1987a): see Appendix A, pages 153, 154, 155.

Passion

For Sternberg (1986, 1987a, 1988); "the passion component refers to the drives that lead to romance, physical attraction, sexual consummation, and related phenomena in loving relationships" (Sternberg, 1986, p. 119). Sternberg allows that "although sexual needs may form the main part of passion in many relationships, other needs − such as those for self-esteem, affiliation with others, dominance over others, submission to others, and self-actualization − may also contribute to the experience of passion" (Sternberg, 1988, p. 121). Sternberg's

passion component is operationalized by 12 passion items found in his Triangular Love Scale (Sternberg, 1987a): see items coded P in Appendix A, pages 153, 154, 155.

Intimacy

For Sternberg (1986, 1987a, 1988), "the intimacy component refers to feelings of closeness, connectedness, and bondedness in loving relationships" (Sternberg, 1986, p. 119). Further, within its province, are those feelings that give rise to the experience of warmth in a loving relationships (Sternberg, 1986, 1988). Sternberg and Grajek (1984) cluster-analyzed data from Rubin's (1970) Loving and Liking Scales; and Levinger, Rands, and Talabar's (1977) Close-Relationships Scales to discover ten clusters of intimacy: desire to promote the welfare of the loved one; experienced happiness with the loved one; high regard for the loved one; being able to count on the loved one in times of need; mutual understanding with the loved one; sharing of one's self and one's possessions with the loved one; receipt of emotional support from the loved one; giving of emotional support to the loved one; intimate communication with the loved one; and valuing the loved one in one's life. These ten themes are further reflected in Sternberg's Triangular Love Scale (Sternberg, 1987a): see items coded I in Appendix A, pages 153, 154, 155.

Intimacy for Schaefer and Olson (1981) is a slightly different matter. For these authors, intimacy within a close heterosexual relationship can be thought of as a composite of five types: emotional intimacy, social intimacy, sexual intimacy, intellectual intimacy, and recreational intimacy. These five types are

operationalized in the Pair Inventory (Schaefer & Olson, 1981): see Appendix A, pages 150, 151, 152. Codes (e.g., SOI for social intimacy) are present to help the reader sort out items according to their appropriate subscales.

Decision/Commitment

For Sternberg (1986, 1987a, 1988), "the decision/commitment component refers to, in the short term, the decision that one loves someone else, and in the long term, the commitment to maintain that love" (Sternberg, 1986, p. 119). Sternberg (1987a, 1988) has noted that these two aspects of the decision/commitment component do not necessarily go together: one can decide to love someone without being committed to the love in the long term, and one can be committed to a relationship without having made a short-term decision that one loves another. Most often, however, decision will precede commitment (Sternberg, 1986). Sternberg's decision/commitment component is operationalized in his Triangular Love Scale (Sternberg, 1987a): see items coded C in Appendix A, pages 153, 154, 155.

Somewhat different than Sternberg, Rusbult (1983) has defined commitment as behaviourial intent and psychological attachment. Intent commitment is reflected in the items: how likely is it that you will end your relationship in the near future; for what length of time would you like your relationship to last; and how attractive an alternative would you require before adopting it and ending your relationship? Attachment commitment, on the other hand, is operationalized by the items: to what extent are you attached to your partner; and to what extent are you committed to your relationship: see Appendix A,

page 156 for the format of Rusbult's (1983) scale. Rusbult, within her investment model, has also conceived commitment as being related to satisfaction, attractiveness of alternatives, and investment in the relationship such that "an individual's commitment to maintain a relationship should increase to the extent that he or she is satisfied with that involvement, has no acceptable alternative and has invested in it heavily" (Rusbult, 1983, p. 103). As well, Rusbult (1980, 1983) has made an important distinction between commitment to a relationship and commitment to a person, a distinction also made by Kelley (1983), and Swenson and Trahaug (1985).

Trust

For Larzelere and Huston (1980), dyadic trust "exists to the extent that a person believes another person (or persons) to be benevolent and honest" (p. 596). Such a definition is reflected in their eight-item Dyadic Trust Scale: see Appendix A, page 148.

Satisfaction

Rusbult (1983) has defined satisfaction as "positivity of affect or attraction to one's relationship" (p. 102). Interesting again is that Rusbult has made the distinction between being satisfied with a person, and being satisfied with a relationship. See Appendix A, page 149 for the Rusbult (1983) satisfaction items.

Dyadic Adjustment

Spanier (1976) and Spanier and Filsinger (1983) have defined dyadic adjustment as a composite of four interrelated components: "Dyadic Consensus (the degree to which the couple agrees on matters of importance to the

relationship); Dyadic Cohesion (the degree to which the couple engages in activities together); Dyadic Satisfaction (the degree to which the couple is satisfied with the present state of the relationship and is committed to its continuance); and Affectional Expression (the degree to which the couple is satisfied with the expression of affection and sex in the relationship)" (Spanier & Filsinger, 1983, p. 157). Items representing these components are found in Spanier's (1976) Dyadic Adjustment Scale: see Appendix A, pages 157, 158, 159, 160.

CHAPTER TWO

REVIEW OF THE RELATED LITERATURE

Consistent with the stated problem for this research (a need to work with a new scale and theory), this review of the literature will address the following themes: (a) Sternberg's model of love; (b) love and related constructs (e.g., trust and dyadic adjustment); and (c) love and demographics (e.g., time together, age, and relationship status). All literature will be critically evaluated, and strengths and limitations will be highlighted. Implicit in limitations are invitations to do further research (Borg & Gall, 1979).

Sternberg's Model of Love

Rather than repeating the information that the reader already has about Sternberg's model of love and the components involved (see Definition of Terms, Chapter One), the goal here is to enlarge upon these definitions, mainly by citing Sternberg's work. What follows is meant to be background material to the Triangular Theory of Love and a summary of the model: in no way does it attempt to handle Sternberg's theory in all its complexity. Readers who wish a full account of the theory and the components are urged to read two papers: Sternberg (1986) and Sternberg (1987b), particularly the first. Sections in this portion of the literature will be labelled: the Triangle of Love, Multiple Triangles of Love, and Kinds of Love, all Sternberg terms. Other theories of love will be offered in comparison with Sternberg's, as will critiques of the Triangular Theory of Love.

The Triangle of Love

According to Sternberg (1986), "the triangular theory of love holds that love can be understood in terms of three components that together can be viewed as forming the vertices of a triangle" (p. 119). Intimacy is arbitrarily placed at the top vertex of the triangle; passion is placed at the left-hand vertex of the triangle; and decision/commitment is situated at the right-hand vertex of the triangle. Sternberg (1986, 1987b) has noted that the triangle can alter in both size and shape, wherein a larger triangle would suggest more love (see Figure 1), and a scalene triangle would suggest an emphasis of one component over the others (see Figure 2). In the case of the bottom right-hand triangle in Figure 2, for instance, the decision/commitment component appears to predominate over intimacy and passion. According to Sternberg (1986), this triangle may represent a relationship in which intimacy and physical attraction have waned, or in which those components were hardly present in the first place. In sum, by changing both the size and the shape of the triangle, it is possible to represent a variety of different types of relationships (Sternberg, 1986).

Even recognizing that the model is probably not complete in this form (Sternberg, 1986, 1987a), Sternberg has proposed that the triangle can still serve as a useful metaphor for visualizing and reflecting upon these three components and how they may be related. Murstein (1988), who has called Sternberg's theory an "impressive start" (p. 33), suspects that Sternberg's triangle may eventually have to become a pentagon or even a hexagon if it is to encompass all the phenomena of love. Such a position is not necessarily at odds with Sternberg:

Intimacy

Passion

Decision/
Commitment

Less Love

More Love
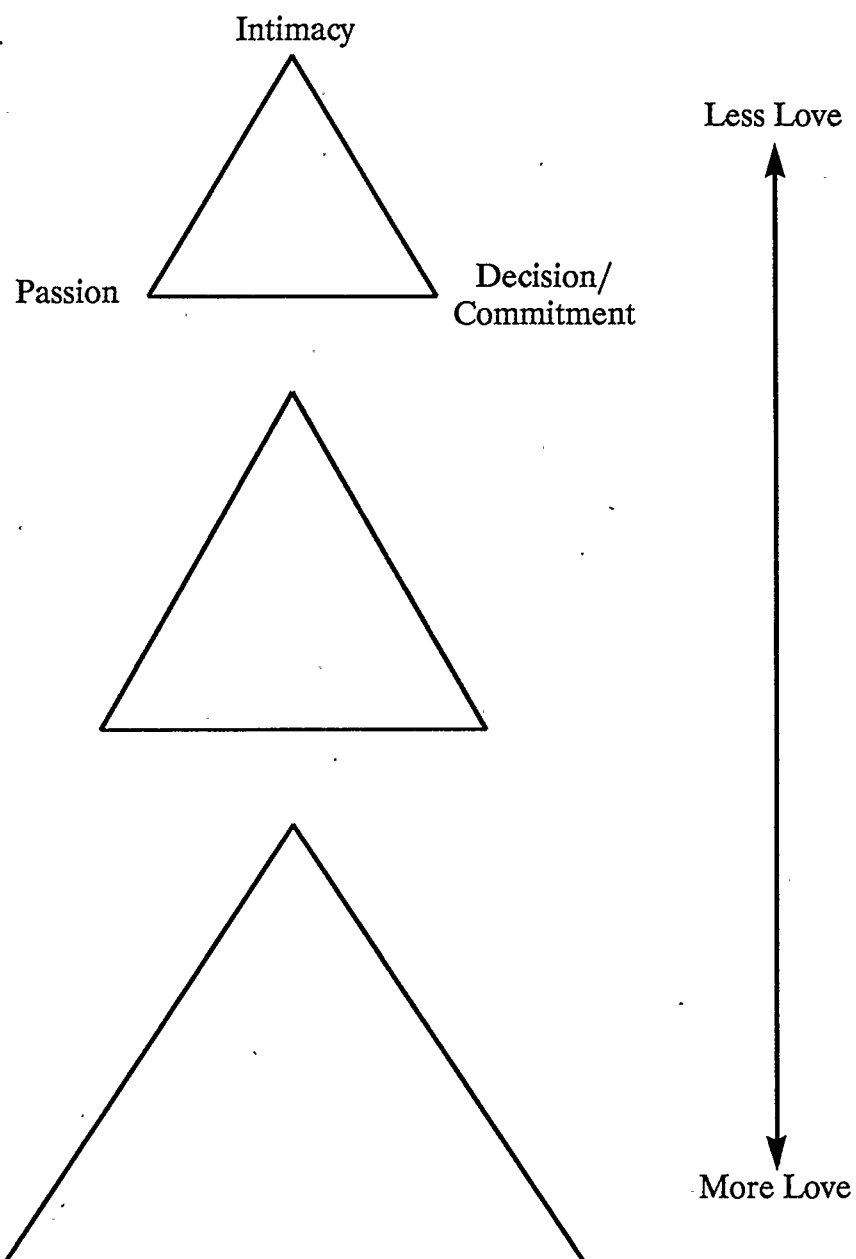
Figure 1. Area of triangle as an index of amount of love
(adapted from Sternberg, 1986, p. 128).

BALANCED TRIANGLE

UNBALANCED TRIANGLES

Intimacy

Passion

Decision/
Commitment
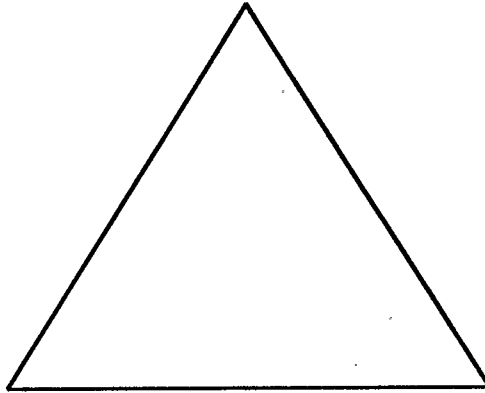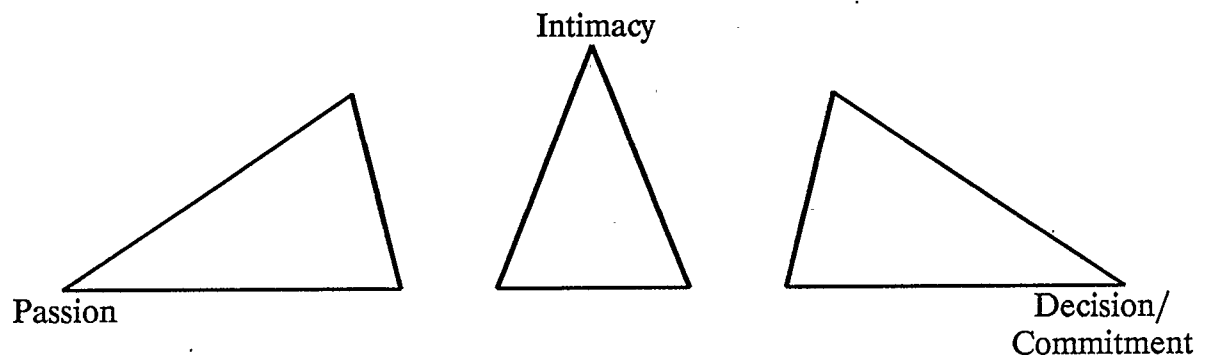
Figure 2. Shape of triangle as a function of kind of love
(adapted from Sternberg, 1986, p. 128).

Sternberg has said that ultimately his theory will need to be combined with other theories of love to fully account for love's complexity (Sternberg, 1987a). Of particular interest to Sternberg (1987a) is Shaver, Hazan, and Bradshaw's (1988) attachment theory. To integrate other theories beyond the extent to which they are presently integrated would necessitate changing the components as they are defined, or adding to them and creating a different and less parsimonious geometric model: perhaps a square or a pentagon. To my knowledge, Sternberg has not yet made any theoretical additions of the magnitude that would force him to either change his theory, or the triangular metaphor by which it is represented.

<div align="center">Multiple Triangles of Love</div>

Sternberg (1986, 1987b) has noted that love not only involves the triangle presented, but also subsumes a number of triangles of theoretical and practical interest: real versus ideal triangles, self versus other triangles, self-perceived versus other-perceived triangles, and feelings versus action triangles.

Real Versus Ideal Triangles

In the case of real versus ideal triangles, involved individuals carry with them an assessment of what their love is like (real triangle), and also an expectation of what an ideal love would look like (ideal triangle). To the extent to which real and ideal triangles are matched in both size and shape, one would experience satisfaction in a close relationship (Sternberg & Barnes, 1985). To the extent that they are mismatched (real does not equal ideal), one would experience dissatisfaction in a close relationship.

Self Versus Other Triangles

Sternberg (1986, 1987b) has also noted that there are always at least two people involved in a love relationship, and each of them experiences a triangle of love. Critical here is the degree of match or mismatch between the triangles of the involved partners. As theory has it, greater match in size and shape between the triangles tends to be associated with greater satisfaction, and greater mismatch tends to be associated with greater dissatisfaction.

Self-Perceived Versus Other-Perceived Triangles

Sternberg (1986, 1987b) has also suggested that it is possible to distinguish between self-perceived and other-perceived triangles, and there can be discrepancies between an individual's triangle as perceived by self, and as experienced by the other. In other words, A's feelings of love for B may or may not correspond to how B perceives A to feel. Though Sternberg has not said it, mismatch between self-perceived and other-perceived triangles may also be expected to lead to individual and couple dissatisfaction.

Feelings Versus Action Triangles

Sternberg (1986, 1988) has proposed that it is one thing to feel a certain way, but another to express these feelings, and expression of feelings is critical for love to last. Actions that convey intimacy may include close communication or some action in support of the other; actions that convey passion may include hugging or making love; and actions that convey commitment may include fidelity or the exchange of rings (Sternberg, 1988). In a circular fashion, feelings of love may lead to love actions, just as love actions can lead to greater feelings of love.

Presumably, the combination of actions and feelings can have either an incremental or detrimental affect on each other.

Finally, Sternberg (in press) has said that it is critical to recognize that the triangles mentioned above are not independent of each other, but are interactive. Elements that effect one can effect another (e.g., perception), and the triangles themselves can affect each other. Sternberg (in press) has proposed that although one can understand love in terms of its components, and the triangles they generate, one should also be sensitive to the interactions among the components and among the triangles. This multivariate nature of components and triangles is what makes Sternberg's model of love as complex as it is.

Kinds of Love

As outlined in the Definition of Terms in the previous chapter, Sternberg (1986, 1987b) has said that the three components of love, in different combinations, can give rise to eight kinds of love: nonlove, liking, infatuated love, empty love, romantic love, companionate love, fatuous love, and consummate love. At the same time, however, Sternberg (1988) has recognized that these eight types are extremes, and it is unlikely that one would observe a pure case of any one of these.[1] Nevertheless, consideration of Sternberg's eight types of love has merit: it is an economical way to continue with Sternberg's theory, and at the same time integrate related theories.

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[1] I argue here that there are probably an infinite number of expressions of love, as triangles can change in graduations in both size and shape simultaneously. For practical purposes, however, it is probably better to limit the discussion to just eight types.

Nonlove

Sternberg (1986, in press) has argued that nonlove simply refers to the absence of all three components of love. Nonlove is characteristic of most of our personal relationships in which none of the components are particularly evident.

Liking

For Sternberg (1986, 1988) liking results when one experiences the intimacy component without the passion or decision/commitment components. Liking is probably what is evident in the case of friendship: in friendship one feels closeness and warmth toward another without the elements of passion and long-term commitment. When passion and commitment enter into friendship, it is probably better classified as something else.

From a critical point of view, Sternberg's sense of liking is consistent with the views of Rubin (1970) and Davis (1985). Rubin's (1970) Liking Scale measures attributes akin to friendship, and Davis (1985) has seen liking as underlying both friendship and love. For Davis, love is made up of a friendship cluster similar to Sternberg's sense of liking, along with the added components of passion and caring.

Infatuated Love

Sternberg (1986, 1987b) has proposed that infatuated love is the same as "love at first sight." Infatuation, which is characterized by a high degree of psychophysiological arousal, would be the result of experiencing passionate arousal in the absence of either intimacy or commitment. Sternberg (1986) has suggested that infatuated love may be similar to Tennov's (1979) construct of

limerence (the experience of being in love). Further parallels may be made between Lee's (1973, 1977) sense of eros, Peele's (1988) view of addictive love, and Hatfield and Walster's (1978) sense of passionate love. Hatfield (1988) has defined passionate love as "a state of intense longing for union with another" (p. 193).

<u>Empty Love</u>

Sternberg (1986, 1987b) has described empty love as the kind of love found in stagnant relationships that have conscious commitment present, but little or no passion or intimacy. Such love may be similar to Cuber and Harroff's (1965) description of <u>devitalized marriages</u>. Sternberg (1986, 1988) has also noted that in some societies, where arranged marriages are the norm, empty love may precede other types of love.

<u>Romantic Love</u>

For Sternberg (1986, 1987b) romantic love derives from a combination of intimacy and passion without commitment: that is, liking with the added element of arousal brought on by physical attraction. Classic examples cited by Sternberg to illustrate romantic love include <u>Romeo and Juliet</u> and <u>Tristan and Isolde</u>. Sternberg's sense of romantic love is slightly different than Rubin's (1970) view which saw passion deemphasized relative to intimacy. For Rubin (1970, 1973), the conception of romantic love was included in three components: affiliative and dependent need, a predisposition to help, and an orientation of exclusiveness and absorption.

Companionate Love

Sternberg (1986, 1988) has said that companionate love often describes long-term romantic relationships in which intimacy and commitment are present, without the ingredient of passion. Described as essentially a long-term committed friendship, Sternberg's sense of companionate love is consistent with Lee's (1973, 1977) sense of storge, Burgess and Locke's (1953) conjugal love, and Hatfield and Walster's (1978) companionate love. Hatfield (1988) has defined companionate love as "the affection we feel for those with whom our lives are deeply entwined" (p. 205).

Fatuous Love

Perhaps more obscure than the others, fatuous love results from the combination of passion and commitment in the absence of intimacy (Sternberg, 1986, 1988). Sternberg has said that it is the kind of love that we sometimes associate with Hollywood or whirlwind courtships where a couple meets one day, gets engaged the next, and is married shortly thereafter. This usually happens before intimacy has had a chance to grow, and as a result, fatuous love is seen to be highly unstable. There are no equivalents to fatuous love in the related literature.

Consummate Love

Finally, consummate love, or complete love results from a combination of all three components (Sternberg, 1986, 1988). For Sternberg, it is the kind of love or ideal toward which many couples strive. Not only is it difficult to attain (and unattainable for some), it is also very difficult to maintain over time.

Consummate love may find its equivalent in Maslow's (1962) B-love or Being-love, though there does not seem to be any other parallel construct in the related literature.

To conclude, Sternberg's Triangular Theory of Love appears valid in that it holds up fairly well in the light of the related literature. The triangular metaphor is plausible, and Sternberg's eight kinds of love are fairly consistent with the views of others. Murstein (1988) has called Sternberg's (1986) theory an "impressive start," and Beach and Tesser (1988) have said that Sternberg has done an "admirable job" in attempting to define love (p. 331). Finally, data from Maxwell (1985) has suggested that Sternberg's definition of love is consistent with modern usage: couples are more likely to use love to describe their relationships if they are committed, if closeness (intimacy) is involved, and if there is a sexual component present. No critiques have yet surfaced with respect to Sternberg's Triangular Love Scale.

Love and Related Constructs

As a foundation for Research Question 2 – specific research questions are found at the end of this chapter – this section of the literature is concerned with Sternberg's construct of love and how it may be related to similar constructs. Of particular interest are trust, satisfaction, and dyadic adjustment. Accordingly, subsections to follow are labelled: Love and Trust, Love and Satisfaction, and Love and Dyadic Adjustment.

Love and Trust

Though Sternberg has made no connection between his construct of love and trust, there is both theoretical and empirical information in the related literature to suggest such an association. Trust has been mentioned in conjunction with love and commitment as the cornerstones of an ideal relationship (Hendrick & Hendrick, 1983), and Brehm (1985) has said that "trust is a vital component of love" (p. 166). Further, when Steck, Levitan, McLane, and Kelley (1982) factor analyzed Rubin's (1970) Love Scale, they interpreted three factors: caring, need, and trust toward another person. For them, "common to most people's conceptions of love are feelings of care for, need for, and trust in one's partner" (Steck et al., 1982, p. 481).

Widespread in the related literature is the link between trust and companionate love rather than trust and romantic love (e.g., Brehm, 1985; Driscoll, Davis, & Lipetz, 1972; Hatfield & Sprecher, 1986). Driscoll et al. (1972) observed that romantic love progresses to a more mature form of conjugal love (similar to companionate love) as trust develops, and Brehm (1985) has argued that interpersonal trust may be the best single defining characteristic of companionate love. As such, one would expect love and trust scores to be more highly correlated for companionate lovers or for those who had been together longer, than would be the case for shorter-term relationships. This indeed was evidenced in Larzelere and Huston's (1980) work: Larzelere and Huston found that trust scores derived from their Dyadic Trust Scale, and love scores generated from Rubin's (1970) Love Scale correlated .67 ($p<.001$) for their longer married

sample, and .23 ($\underline{p}$=n.s.) for their newlyweds. In a slightly different approach, Hatfield and Sprecher (1986) found low correlations between their Passionate Love Scale and the Dyadic Trust Scale ($\underline{r}$=.30, $\underline{p}$<.01 for male students; and $\underline{r}$=.16, $\underline{p}$=n.s. for female students). Hatfield and Sprecher argued that their results were consistent with theory and previous research: that is, trust is a major component of companionate love, not passionate love.

Apart from the connections made between trust and companionate love, conceptual and empirical links have been made between trust and the intimacy associated with self-disclosure. Beach and Tesser (1988) have argued that self-disclosure (often considered a strong measure of intimacy [Tolstedt & Stokes, 1983; Waring & Chelune, 1983]) implies a cognitive component of trust or willingness to take a risk with another person. This position has been echoed by Helgeson, Shaver, and Dyer (1987); Tesch (1985); and Wynne and Wynne (1986). Wynne and Wynne have defined intimacy as "a subjective relational experience in which the core components are trusting self-disclosure to which the response is communicated empathy" (Wynne & Wynne, 1986, p. 384). As such, a researcher may expect a stronger correlation between trust and Sternberg's component of intimacy, than between trust and either passion or commitment.

The upshot of the related literature is that though Sternberg has not considered trust in the development of his theory, it is reasonable to do so. Trust has been recognized as an important component of love (Brehm, 1985; Steck et al., 1982), and even if it is not an integral component, it can, at least, be considered a strong correlate. This would be particularly so in the case of

companionate love (Brehm, 1985; Hatfield & Sprecher, 1986). Further, trust has been tied with the intimacy associated with self-disclosure (Waring & Chelune, 1983; Wynne & Wynne, 1986), and one would expect trust scores to be more highly correlated with Sternberg's intimacy component, than with either passion or commitment.

<u>Love and Satisfaction</u>

That love is significantly correlated with satisfaction is well established in the related literature. Sternberg (1986, 1987b) has proposed that satisfaction is dependent upon the degree of match or mismatch between different love triangles (e.g., real vs. ideal, self vs. other, feelings vs. actions, etc.); and Hendrick, Hendrick and Adler (1988) have seen love, commitment, and satisfaction as essentially interactive. Hendrick et al. (1988) found that scores on their Relationship Assessment Scale (a short measure of relationship satisfaction) correlated significantly with measures of eros (passionate love), ludis (game-playing love), and agape (all-giving, selfless love). Eros, ludis, and agape represent three of six subscales on the Love Attitudes Scale (Hendrick & Hendrick, 1986). The same pattern of significant correlations between love styles and satisfaction was evident in Hendrick (1988).

When considering the subsets of love (passion, intimacy, and commitment), there are both theoretical and empirical reasons to expect strong correlations between relationship satisfaction and all three love components. Hendrick et al. (1988) found significant correlations between eros (their equivalent to passion [Sternberg, 1987b]) and satisfaction when they used the Relationship Assessment

Scale (Hendrick, 1988). For male students, eros correlated with satisfaction at the .49 level (p.<05) and for female students, the correlation was found to be .51 (p<.05). Similar findings were evident in Hendrick (1988).

With respect to the relationship between commitment and satisfaction, the same studies yielded significant findings: Hendrick et al. (1988) found a correlation of .71 (p<.05), and Hendrick (1988) found a correlation of .55 (p<.05) for students overall. Further, Rusbult's work (e.g., Duffy & Rusbult, 1986; Rusbult, 1983; and Rusbult, Johnson, & Morrow, 1986) has indicated an important connection between commitment and satisfaction. In Rusbult et al. (1986), for instance, commitment was found to correlate with satisfaction at the .64 level, (p<.01) for a sample of 209 currently involved adults.

Concerning intimacy, there may be reason to believe that an even stronger relationship exists between intimacy and satisfaction, than between satisfaction and the other two components. Sternberg and Wright (1987) proposed that intimacy is the best predictor of relationship satisfaction, and results from Sternberg (1987a) have upheld this position. Using a self-developed, nine-item, satisfaction scale, and the Triangular Love Scale, Sternberg (1987a) found that intimacy correlated with satisfaction to a significant degree of .86, with correlations for passion and commitment following at .77 and .75, respectively.

Given the above findings, particularly those of Sternberg (1987a), I would expect similar patterns of correlations in the present study. Different than Sternberg, however, the current study has employed two external measures of satisfaction: satisfaction items from Rusbult's (1983) study, and the dyadic

satisfaction subscale from Spanier's (1976) Dyadic Adjustment Scale. Spanier (1976) has considered dyadic satisfaction as being a subset of dyadic adjustment, as have Bahr, Chappell, and Leigh (1983); and Miller (1976).

<u>Love and Dyadic Adjustment</u>

Because Sternberg (1987a) has already made initial enquiries into the relationship between love and satisfaction, the interest in the present study is more with love and how it relates to dyadic adjustment, than with love and relationship satisfaction. The concept of adjustment, rather than satisfaction, is also of interest because marital or dyadic adjustment (parallel terms) is a mature and well-developed construct. Spanier and Filsinger (1983) have observed that the study of marital adjustment has a 60 year history which is rooted in the tradition of family sociology. Spanier and Filsinger have also noted "that marital adjustment has been one of the most widely used and researched concepts in family studies" (Spanier & Filsinger, 1983, p. 155).

To integrate dyadic adjustment, as operationalized by Spanier (1976), with Sternberg's work, was seen to be a way to blend two important, and in my judgment, previously unrelated areas. The only reference that I have found that has linked the two is that of Beach and Tesser (1988) in which the authors have suggested that love might be considered a subset of dyadic adjustment. No empirical enquiries have been conducted to explore the relationship between love and dyadic adjustment in general, or more particularly, between Sternberg's (1987a) construct of love and dyadic adjustment. Just the same, as with relationship satisfaction, one might expect Sternberg's components to be

significantly correlated with most of Spanier's (1976) subscales, and with the total adjustment score. Intimacy may also be expected to correlate more highly than either passion or commitment with dyadic adjustment, though no literature exists to support this hypothesis.

Love and Demographics

Demographic or background variables of interest in the present study include, in order of importance: duration of intimate relationship; relationship status; age of partners involved; and gender of involved partners. Background variables have been selected on the basis of the related love literature (e.g., Coleman, 1984; Hatfield, 1988; and Sternberg, 1986) that has stressed the importance of these variables in both understanding and predicting love. Subsections in this portion of the chapter are labelled: Love and Time, Love and Relationship Status, Love and Age, and Love and Gender.

Love and Time

Widespread in the related literature is a common theme of how love evolves over time. Hatfield and Walster (1978) have argued that love, in this society, often begins as passionate love, and, if one is lucky, evolves to companionate love in successful relationships. Passionate love has been described as a "wildly emotional state" that often accompanies new love; whereas, companionate love is a "lower-key emotion" that is characterized as "friendly affection and deep attachment to someone" (Hatfield and Walster, 1978, p. 2).

Other authors (e.g., Driscoll, Davis, & Lipetz, 1972; Lee, 1988; Murstein, 1988; and Tennov, 1979) have presented similar developmental models, though most have employed slightly different terminology to describe roughly the same thing. Driscoll et al. (1972) have argued that serious relationships evolve over time from romantic to conjugal love, and Tennov (1979) has suggested that the transition is often from limerence (the experience of being in love) to affectional bonding. Maxwell (1985) has proposed a three-stage developmental model as has Murstein (1988): Murstein has suggested that the transition is from passionate, to romantic, to conjugal or companionate love. Finally, Lee (1977, 1988), using his styles of loving model, has proposed that most often "an eros love-style will convert over time into a more relaxed companionship, in a mixture of eros and storge" (Lee, 1988, p. 43). Eros has been translated as passionate love, whereas storge has been interpreted as a form of friendship love (Hendrick & Hendrick, 1986).

What is consistent in the literature is the observation that passionate or romantic love is a "fleeting phenomenon" (Berscheid, 1983, p. 158). Hatfield and Walster (1978) have argued that passionate love is a "fragile essence" (p. 160), and Berscheid has suggested that "the history of a love affair is the drama of its fight against time" —a quote from a 16th Century sage (Berscheid, 1983, p. 158). With respect to time, Harris (1978) has proposed that the passionate, breathless stage of love lasts only 6 to 30 months, and Tennov (1979) has argued that limerence usually lasts somewhere between 18 months and three years. Sager's (1976) time span for short-term bonding (the equivalent of passionate love or

limerence) is similar to what has been proposed by Harris and Tennov: short-term bonding is said to last somewhere between a week and three years (Sager, 1976, 1981).

With respect to the Triangular Theory of Love, Sternberg's (1986) concern has been with the relative importance of the three love components in short- and long-term relationships, and with how the individual love components tend to change over time. On the first count, Sternberg (1986) has argued that the passion component tends to play a large part in short-term involvements, whereas the intimacy and decision/commitment components tend to play only moderate and less than moderate roles, respectively. For long-term relationships, the pattern is altered somewhat: the intimacy and decision/commitment components are said to play important roles, whereas the passion component is said to be only moderately important. Consistent with related literature (e.g., Kovacs, 1983; Lauer & Lauer, 1985; Sternberg & Wright, 1987), Sternberg (1986) has argued that the passion component usually continues to decline in importance as relationships advance.

Concerning the particular love components, Sternberg (1986) has made lengthy theoretical arguments about how each of passion, intimacy, and commitment would be expected to change, one at a time, over time. In their simplest form, Sternberg (1986, 1988) has proposed that passion is quick to develop, but is also quick to habituate; whereas, intimacy, in successful relationships, tends to increase steadily at first, then grow at a slower rate and finally level off. In the case of decision/commitment, this component usually

grows gradually at first, and then may speed up and finally level off if the relationship is to be a long-term one. Consistent with related theory, Sternberg has argued that the passion component is the "quickest to recruit" with the other two components taking more time (Sternberg, 1986, p. 132). Typically, it is the passion component that may draw an individual into a relationship in the first place, but the intimacy and commitment components that usually sustain the relationship (Sternberg, 1986).

The outgrowth of the related literature, particularly Sternberg's contribution, is that research needs to be conducted on how love is said to change over time. Sternberg (1986, 1988) has emphasized, more than any other demographic, the effect of time on love, though no empirical study on this topic has been pursued using Sternberg's model. Accordingly, one of the goals of the present study is to consider the multivariate relationship between the love components and group membership, when groups are organized according to time together. A multivariate approach has been deemed necessary in that components are said to be intercorrelated (Sternberg, 1986, 1987a). Results of such an analysis should contribute to a further understanding of Sternberg's scale and theory.

Love and Relationship Status

Though little research has been conducted to explore the association between love and relationship status,[2] there is readon to believe that a significant

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[2]Relationship status in the present study is conceived, in broad terms, as married and not-married, and, in more specific terms, as dating, engaged (and not cohabiting), engaged (and cohabiting), cohabiting, 1st marriage, and 2nd marriage (or more).

association may exist. Kurdek and Schmitt (1986), for instance, found that love for partner, using Rubin's (1970) Love Scale, was significantly higher for married couples than for heterosexual cohabiting couples; and Lund (1985) found an interesting pattern when love scores were compared across relationship categories for college students. Using Rubin's (1970) Love Scale, Lund discovered that love scores increased, in order, for couples who were casually dating, seriously involved, exclusively involved, married, and engaged. One way analysis of variance results showed that groups differed significantly (p<.001) on love scores (Lund, 1985).

With particular reference to the Triangular Theory of Love, Sternberg (1986) has stated that different relationships ought to show different blends of the three love components, and that the importance of the love components may differ across relationships. Passion, for instance, says Sternberg, "probably plays a major part in love for a lover" (Sternberg, 1986, p. 122). Varying blends of the love components have been hypothesized with respect to kinds of love (see previous section), and the relative importance of the components has been argued with respect to short- and long-term relationships. In the previous section, for instance, it was proposed that the intimacy and decision/commitment components tend to play important roles in long-term relationships, whereas, the passion component is said to be only moderately important (Sternberg, 1986). Long-term relationships, in turn, are more likely to be married relationships rather than dating, engaged, or even cohabiting relationships (Brehm, 1985; Coleman, 1984).

Regarding the individual love components, more is known about the place of commitment and how it relates to relationship status than either passion or intimacy. Sternberg (1986, 1988) has argued that engagement and marriage are acts of commitment as have Buss (1988), Coleman (1984), and Rusbult (1983). Further, Macklin (1983), and Newcomb (1981), in summary papers, have proposed that married couples are significantly more committed than cohabiting couples, and Lund (1985) found that perceived commitment scores increased steadily over couples who were casually dating, seriously involved, exclusively involved, engaged, and married. Lund assessed commitment by using her newly developed Commitment Scale (Lund, 1985).

The derivative of the related literature is that research needs to be conducted to examine the association between love and relationship status. Sternberg (1986) has proposed that the nature of love should vary according to relationship status, though no research has been conducted, using his model, to test this hypothesis. Accordingly, one of the goals of the present study is to consider the multivariate relationship between love components and group membership, when groups are organized according to relationship status. Because of the previous research and theory on commitment, particular attention will be directed at what part this component plays in discriminating between groups organized by relationship status. Results should contribute to a further understanding of Sternberg's scale and theory.

Love and Age

Though Sternberg has made no mention of the possible connection between love and age, there is reason to assume an association in that age is probably correlated with time together and relationship status. Brehm (1985), for instance, has observed that "as people age, they tend to have relationships that have lasted longer" (p. 105), and relationships that have lasted longer are more likely to be marital relationships rather than either dating or cohabiting affiliations (Brehm, 1985; Coleman, 1984; Newcomb, 1981).

With respect to the related literature, a number of theorists have argued that love styles vary according to the age of individuals, but no empirical research is evident to support these contentions. Hatfield and Sprecher (1986), for instance, have proposed that passionate love is felt more intensely in adolescence, and Farber (1980) has suggested that romantic love is essentially an adolescent phenomenon. Using Lee's (1977) styles of loving typology, Hendrick and Hendrick (1986) hypothesized that manic love may not be most characteristic of adolescents, whereas, eros may be the typical style in early adulthood. Eros, they have said, is usually followed by storge, pragma, and perhaps agape during the middle and later years. Manic love has been translated as possessive, dependent love; eros as passionate love; storge as friendship love; pragma as logical love; and agape as all-giving, selfless love (Hendrick & Hendrick, 1986). In perhaps a more concise fashion, Davis (1985) has proposed that "love is the word used to label the sexual excitement of the young, the habituation of the middle-aged, and

the mutual dependence of the old" (p. 27). Davis has acknowledged that the source of this wisdom is the poet, John Ciardi.

The outgrowth of the related literature is the apparent need to consider love as it may be associated with age of individuals. For Sternberg's part, he has not made the association either theoretically or empirically between love and age. Manipulation of love scores according to age groupings has the potential to further the understanding of Sternberg's scale and theory.

Love and Gender

Less theoretically important than time together, relationship status, or age, gender is a consideration in the present study because gender is easy to measure, and because gender is recognized, by some, as an important social/ psychological variable (Barnett, Biener, & Baruch, 1987; Maccoby & Jacklin, 1974; Rossi, 1985). Further, results in the related literature with respect to this issue are ambiguous: Hatfield and Sprecher (1986), Rubin (1970), and Sternberg (1987a) found no significant effect for gender on love scores; however, Hendrick and Hendrick (1986) discovered important distinctions between males and females on reported love styles. According to Hendrick and Hendrick (1986), males were found to be significantly more ludic (game playing) than females; and females were found to be significantly more storgic (friendship oriented), pragmatic (practical), and manic (possessive, dependent) than males. Males and females did not differ on eros (passionate love), or agape (altruistic love). Results from Bailey, Hendrick, and Hendrick (1987); and Hendrick, Hendrick, Foote, and Slapion-Foote (1984) were fairly, though not totally consistent with these findings.

The product of the related literature is such that it seems worthwhile to consider further the relationship between gender and love. Results from the related literature are somewhat ambiguous, and gender is recognized, by some, as an important social/psychological variable. Exploration of scores from the Triangular Love Scale according to gender may further the understanding of Sternberg's scale and theory.

Research Questions

Research questions asked have arisen out of the general problem (that love is understudied, important, and ambiguous); the specific problem (a need to work with a new scale and theory); and the stated limitations in the related literature. Questions have to do with the Triangular Love Scale's reliability, internal consistency, and underlying structure (Research Question 1); the extent to which Sternberg's construct of love is similar or dissimilar to related constructs (Research Question 2); and the extent to which scale scores can predict group membership (Research Question 3) –groups have been organized according to age, time together, relationship status, and so on. All questions are exploratory in nature, and all questions are designed to generate knowledge about Sternberg's scale and theory. Further, all questions speak to the overall process of construct validation of Sternberg's scale and theory (Anastasi, 1982; Cronbach, 1984; Nunnally, 1978), a simultaneous process (Cronbach, 1984; Sternberg, 1987a). The

issue of construct validity (a byproduct of the results) will be handled in the

discussion section of Chapter Five[3].

Research questions are as follows:

Research Question 1

Given the current use of the Triangular Love Scale (Sternberg, 1987a), what

is the factorial nature (underlying structure) of the scale? To what extent is the

scale internally consistent and consistent with the Triangular Theory of Love

(Sternberg, 1986, 1987b)?

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[3]Construct validity of a test reflects the extent to which a test measures the theoretical construct or trait that it purports to measure (Anastasi, 1982; Cronbach, 1984). Construct validity is established through a long-continued interplay between observation, reasoning, and imagination (Cronbach, 1960): a "fluid," "creative," and "ongoing" process (Cronbach, 1984, p. 149). No single type of research is used in construct validity; rather, information or grist for the construct validity mill can be accumulated from a variety of sources (Anastasi, 1982; Cronbach, 1984). Favored methods to explore construct validity of a test include (a) factor analysis to determine factorial validity: this includes internal consistency analysis, and analysis of underlying factor structure (Anastasi, 1982; Nunnally, 1978); (b) correlation with other tests (sometimes called convergent and discriminant validity [Campbell & Fiske, 1959]); (c) factor analysis of the scale in question along with a number of related scales (Anastasi, 1982; Kerlinger, 1973); and (d) experimental interventions to discover the effect of selected variables on test scores (Anastasi, 1982; Kerlinger, 1973). In all cases, to be construct valid, the scale in question should "behave as expected" (Nunnally, 1978, p. 103), and show "sensible patterns of correlations" (Sternberg, 1987a, p. 2).

Broadening the focus from just construct validation of a scale, Sternberg (1987a) and Cronbach (1984) have argued that construct validation of a scale and theory is a back-and-forth, simultaneous process. In Cronbach's words, "validity of a test and validity of a construct are inseparable" (Cronbach, 1984, p. 151). Some have argued that construct validity is a comprehensive concept which subsumes content and criterion-related validity (Anastasi, 1982; Messick, 1980); and criterion-related validity usually consists of concurrent and predictive validity (Anastasi, 1982; Kerlinger, 1973).

Research Question 2

To what extent is Sternberg's (1987a) construct of love empirically similar or dissimilar to the related constructs of trust (Larzelere & Huston, 1980); intimacy (Schaefer & Olson, 1981); satisfaction and commitment (Rusbult, 1983); and dyadic adjustment (Spanier 1976)?

Research Question 3

3.1   Recognizing the multivariate nature of Sternberg's love components (passion, intimacy, and commitment), to what extent can group membership be reliably predicted by these predictor variables? Group membership is organized according to demographic variables: e.g., age, time together, and relationship status.

3.2   Allowing that grouping variables are interrelated and not statistically independent, which grouping variables (dependent variables) can be predicted best?

3.3   As a general question, how can dimensions (discriminant functions) along which groups are separated be interpreted? More specifically, which predictor variables are most important in predicting group membership? How are groups located in space with respect to significant discriminant functions? Given a classification scheme through one or more discriminant functions, to what extent are cases correctly classified?

CHAPTER THREE

METHODOLOGY

Sample

Of the 301 volunteers who originally completed the questionnaire, 298 (131 male and 167 female) were retained in the sample (see Table 1: Description of Sample). Three completed questionnaires were discarded in that the respondents completing them did not meet eligibility requirements: that they be 18 years of age or older, and currently involved in a close, heterosexual relationship. Respondents, for the most part, were residents of Calgary (an urban sample) with only 6 of the 298 (2%) living outside the city limits.

Subjects whose ages ranged from 18 to 75 ($\underline{M}$=34.31 yrs.; $\underline{SD}$=12.44 yrs.) were distributed over the six age groupings, though distributions are probably not exactly representative of the currently-involved, Calgary, adult population. Similarly, distributions within groups organized by gender, time together, relationship status, and marital status, though not ideal, can be considered quite adequate for the purposes of this research. Other groupings that correspond to level of sexual activity, and presence of children (of secondary importance to the above) are reported because of their hypothesized importance in the marital satisfaction literature (Lewis & Spanier, 1979; Spanier & Lewis, 1980). Finally, breakdowns according to couple status, education, income, occupation, racial background, religion, residence, completion status, and how you found out about the study are included for research design purposes, and to help describe and evaluate the quality of the sample at hand.

Table 1

<u>Description of Sample:</u>
<u>Absolute and Relative Frequencies According to Group Status</u>

Group	Absolute Frequency	Relative Frequency (%)
Couple Status		
Couple	244	81.9
Single	54	18.1
Age Grouping in Years		
18–23	46	15.4
24–29	74	24.8
30–35	79	26.5
36–41	38	12.8
42–47	21	7.0
48+	40	13.4
Gender		
Males	131	44.0
Females	167	56.0
Time Together		
0–18mo.	62	20.8
19 mo.–3yrs.	58	19.5
4–9yrs.	89	29.9
10–15yrs.	42	14.1
16–21yrs.	18	6.0
22+ yrs.	29	9.7
Relationship Status		
Dating	48	16.1
Engaged (and not cohab.)	12	4.0
Engaged (and cohab.)	9	3.0
Cohabiting	40	13.4
1st marriage	156	52.3
2nd marriage (or more)	33	11.1
Marital Status		
Married	190	63.8
Not married	108	36.2

Table 1 (Continued)

Group	Absolute Frequency	Relative Frequency (%)
Level of Sexual Activity		
Never	4	1.3
Not within last month	21	7.0
Not within last week	34	11.4
Within last week	239	80.2
Children You Have		
None	120	40.3
One	51	17.1
Two	74	24.8
Three or more	53	17.8
Children Living With You		
None	152	51.0
One	56	18.8
Two	67	22.5
Three or more	23	7.7
Years of Formal Education		
9 yrs. or less	21	7.0
10 – 12yrs.	66	22.1
13 – 17yrs.	155	52.0
18+ yrs.	55	18.5
Missing cases	1	0.3
Personal Income Level in $		
≤10,000	96	32.2
10,001 – 18,000	51	17.1
18,001 – 26,000	42	14.1
26,001 – 34,000	40	13.4
34,001 – 42,000	26	8.7
42,001+	40	13.4
Missing cases	3	1.0
Occupation		
Unemployed	13	4.4
Student	33	11.1
Homemaker	41	13.8
Trades/Services	46	15.4
Clerical/Sales	26	8.7
Professional/Managerial	106	35.6

Table 1 (Continued)

Group	Absolute Frequency	Relative Frequency (%)
Occupation (continued)		
Retired	12	4.0
Combination of two of the above	18	6.0
Missing cases	3	1.0
Racial Background		
Caucasian	285	95.6
Non-Caucasian (e.g., Black, Chinese, Japanese, Metis)	12	4.0
Missing cases	1	0.3
Religion		
Protestant	114	38.3
Roman Catholic	60	20.1
Jewish	3	1.0
No religion practised	104	34.9
Other (e.g., Mormon, Buddhist, Muslim, Taoist)	17	5.7
Where You Live		
N.W.	115	38.6
S.W.	85	28.5
S.E.	39	13.1
N.E.	53	17.8
Other (e.g., Springbank + Beiseker, Alta.)	6	2.0
How You Found Out		
Newspaper ad	220	73.8
Word of mouth	56	18.8
Newspaper article	5	1.7
Radio	10	3.4
Combination of above	7	2.3
Completion Status		
School completion	264	88.6
Home completion	34	11.4

It is proposed that this can be considered a good sample overall, even though sample distributions may only approximate larger adult population distributions. Further, when compared to samples used in similar studies, this sample fares very well. Hatfield and Sprecher (1986), Hendrick and Hendrick (1986), Fehr (1988), and Rubin (1970), for instance, relied only on an undergraduate student sample for their results; and Sternberg (1987a) based his findings on a marginal 84 subjects, less than one-third the size of the current sample. Sternberg's $\underline{N}$ is arguably small given the factor analysis that he has attempted (Comrey, 1973; Nunnally, 1978; Tabachnick & Fidell, 1983).

Research Design and Procedures

Research Design

The overall research design in the present study can be considered either correlational (Harvey, Christensen, & McClintock, 1983) or passive-observational (Cook & Campbell, 1979), in that covariation is observed among a number of different variables. In the case of the first two research questions, the interest is in covariation among different criterion variables (e.g., between particular scale items, or between particular subscale or full scale totals). Factor analytic results from Research Questions 1 and 2, and Pearson correlations from the second question follow this general design.

Research Question 3 addresses itself to correlations among grouping variables and a predictor variable (the Triangular Love Scale) in an ex post facto, quasi-experimental fashion (Cook & Campbell, 1979; Harvey et al., 1983).

Grouping variables (e.g., time together, age, and relationship status) can be considered ex post facto (after the fact) in that assignment to groups has already occurred. Further, assignment to groups has not been done randomly which would assure independence among groups (Kerlinger, 1973). Manipulation of variables is quasi-experimental in that it does not follow true experimental design where much more control is exercised over the sources of variance in the data (Kerlinger, 1973). The problem with the design at hand is particularly related to the lack of control over extraneous variance (Kerlinger, 1973; Pedhazur, 1982) due to the confounding of grouping variables. Grouping variables are confounded (Kirk, 1968) in that groups are not necessarily equal or matched before comparison are made, making it uncertain just what factors are the active ingredients when differences between group means are found (Harvey et al., 1983; Kerlinger, 1973). When one is considering the effect of marital status on love scores, for instance, it is very likely that groups differ on more than just marital status: among other differences, marrieds are probably older than non-marrieds, and have probably been together longer.

When time is an element in organizing groups (e.g., time together and age), the design can be considered cross-sectional in that subjects from different age groups are compared at the same point in time. Harvey et al. (1983) have said that cross-sectional research can be considered a special case of ex post facto design. Among other problems, the most serious flaw in cross-sectional research may be captured in the concept of selective survival (Spanier & Lewis, 1980) or the tendency of unsuccessful relationships to terminate before they become long-

term. As such, the real differences between time-compared groups may be based on the element of unsuccessful/successful rather than the element of shorter versus longer (Davis & Oathout, 1987).

Having outlined the limitations of correlational and quasi-experimental research, it is important to recognize that this design fits the research problems presented in this study. These research questions do not lend themselves to classical experimental inquiry where assignment to groups is random (Kerlinger, 1973), and a cross-sectional design is more economical and cost-effective than a longitudinal design (Borg & Gall, 1979). Further, advances in knowledge can be made through these means (Harvey et al., 1983; Kerlinger, 1973), and a large proportion of research in education and sociology is quasi-experimental (Kerlinger, 1973). Kerlinger has also noted that perhaps half or more than half of the research in psychology is of this type.

Also relevant to the issue of design is that all data has been gathered through a closed form, self-report, questionnaire package (Borg & Gall, 1979). Though this means of collecting data is more economical and perhaps easier to analyze than others (e.g., interviews, paragraph responses, or behaviourial observation), some information is lost in the process (Borg & Gall, 1979). Further, self-report measures of this sort are subject to response bias in the form of social desirability (Crowne & Marlowe, 1964) or the tendency to "fake good" (Olson & Schaefer, 1985). The tendency toward social desirability or marital conventionalization (Edmonds, 1967) is observed in the present study through the Pair Inventory, but no attempt has been made to control for it.

Further limitations in the study have to do with the nature of the sample at hand: subjects were volunteers, who, for the most part, had to come out to the testing location in order to take part in the study. Further, couples rather than singles were urged to participate. Each of these elements has affected the quality of the sample (e.g., volunteer subjects tend to be biased), and a purely random sample of the currently-involved, adult, population cannot be assumed (Borg & Gall, 1979). Though these features affect the overall generalizability of the results, the issue is probably not that serious. Most research in social science is conducted with volunteer subjects (Borg & Gall, 1979) who may also be available and motivated to participate.

<div align="center">Procedures</div>

Advertisement

Both paid and free advertisement were used to draw volunteers to this study, with newspaper advertisement (the only paid advertising vehicle) being the most effective in attracting subjects (see Table 1: How You Found Out). In total, over a one month period, eight heart-shaped ads (see Appendix B) were run in four city-wide Calgary newspapers: four in the Calgary Herald, two in The Calgary Sun, and one each in Neighbours and The Calgary Mirror (both weeklies delivered free of charge). On average, two small (2½" x 2½") ads were published per week, weekdays and weekends included. The total cost of advertising came to $1,196, or around $150 per ad.

Free sources of advertisement, both invited and pursued, were also employed to attract subjects. Radio interviews on CBC 1010 AM, CJAY 92 FM, and CKO

103 FM (all invited) were conducted to appeal to volunteers as was a newspaper interview in the Calgary Herald. To supplement this exposure, and to attempt to reach as broad a population as possible, requests for public service announcements (pursued) (see Appendix C) were made to all 13 local radio stations, to Cable 10 T.V., and to the four newspapers listed above. To my knowledge, requests were granted in most cases. In all, attempts were made to attain as representative a sample, as possible, of Calgary adults, who were currently involved in a close, heterosexual relationship.

Telephone Procedure

If they were interested in participating in research on the nature of love, potential subjects were asked to phone any of three telephone numbers for more information on the study underway. Telephone numbers of three Ph.D. level psychology students were offered in an attempt to answer all calls placed, and to accommodate the number of calls expected at peak periods. Each student (the researcher and two assistants) followed a standard set of telephone procedures (see Appendix D). Eligibility, as outlined in the advertisement, was checked, and information about the purpose and mechanics of the study was communicated. Over a one month period, approximately 450 calls were taken, 65% at the first telephone number (the researcher's) and 25% and 10% at the second and third numbers, respectively. Of those who phoned, approximately 80% or 360 people were sufficiently interested to leave their names and sometimes their partner's names which resulted in a total sign-up of 682 people. Approximately 75% of telephone calls taken were placed by females.

Testing Procedure

In an effort to accommodate "sign-ups," four testing locations were set up, one in each quadrant of the city. Four Calgary Board of Education school libraries, three in junior high schools, and one in a community school, were booked for evening sessions (7:00 to 9:00 p. m.). Evening sessions were set each week, Monday through Thursday, and potentially interested subjects chose according to their convenience. Over a one month period, from September 24 to October 22, 1987, a total of four complete rounds of testing were conducted, yielding 16 testing situations. Turn-out rate averaged 16.5 people per evening, with a low of 2 and a high of 35 persons per session.

When volunteers arrived at a testing situation, they were issued a pencil, an eraser, and a questionnaire package. Subjects were told that the questionnaire would take about 35 minutes to complete, and were asked not to sit near their partner (a measure designed to insure privacy and independent answering [Olson & Schaefer, 1985]). The principal researcher was available during the testing situation to answer questions: on evenings when there was a large sign-up, two administrators were present. When subjects had completed and passed in the test materials, they were offered a $3.00 honorarium and a chance to sign-up to hear about the research results at a later time. All but a few accepted the honorarium (enclosed in an envelope), and most left their first names and telephone numbers on a sign-up sheet. This time also provided an opportunity to talk about responses to the questionnaire and related matters. If subjects seemed concerned about their relationships, a page entitled "Resources for Individual, Marital, or

Family Counselling" was offered (see Appendix E). Only a very few subjects seemed anxious or distressed about their relationships.

In order to standardize the testing procedures and to reduce measurement error, the original plan was to have all subjects complete the questionnaire in a controlled, library setting, supervised by me. For the most part, questionnaires were completed in this manner (264 in total), though at about the two week mark in the data collection, take-home packages were issued to those individuals who felt assured that their partner would complete the questionnaire. This measure was employed in an attempt to increase the male participation in the study. Take-home packages included a page of standardized instructions entitled "Instructions for Home-Completion of Questionnaire" (see Appendix F), a complete questionnaire package, a page entitled "Resources for Individual, Marital, or Family Counselling," three dollars in cash, and a self-addressed, stamped envelope. Thirty-four, or 77% of a total of 44 questionnaires sent home were returned completed; two were returned not completed. Testing location had no effect on love scores as evidenced by Hotelling's T^2 results ($\underline{p} > .05$, $\underline{N} = 298$), results generated through BMDP3D and SPSS MANOVA. In sum, a total of 298 or 44% of the original 682 "sign-ups" completed the questionnaire satisfactorily, 89% in the school setting, and 11% at home. Nine hundred and thirty-three dollars was paid in honoraria, three dollars for each of 311 potential participants.

Measurement Instruments

The data used in this research comes from a 13-page questionnaire package

consisting of a self-made Demographic Information page, and six separate self-

report scales from the related psychological literature (see Appendix A). Before

the package was employed for data collection purposes, it was piloted with 10

adults to assure ease of interpretation. Following the pilot, a few minor changes

were made to those parts of the questionnaire package that were self-created,

though no changes were made to the established scales with the exception of

mate being changed to partner in the Dyadic Adjustment Scale (Spanier, 1976).

This change was made to accommodate dating couples. Hendrick (1988), and

Kurdek and Schmitt (1986) made similar changes with no adverse effects.

Permission to use the established scales was obtained from all appropriate

sources.

Measures appear in the testing package (Appendix A) in the following order:

Demographic Information (p. 147), The Dyadic Trust Scale (p. 148); Rusbult's

Satisfaction Items (p. 149); The Pair Inventory (p. 150, 151, 152); The Triangular

Love Scale (p. 153, 154, 155); Rusbult's Commitment Items (p. 156); and The

Dyadic Adjustment Scale (p. 157, 158, 159, 160). The order of these scales is

purposeful in that I wished to alternate both the lengths and the visual formats of

the scales to provide a varied stimulus to respondents (Anastasi, 1982). The

Triangular Love Scale, the most important of the six established measures in this

research, is placed roughly in the centre of the testing package. All scales chosen were ones that could be used with both married and non-married individuals.

<u>Demographic Information</u>

Demographic information was asked of subjects as a means to describe the sample, and as a means to obtain grouping variables for Research Question 3. Twenty-one questions were asked (see p. 147, Appendix A), with most calling for only a check-mark response. Data obtained was either nominal or ordinal with the exception of data from question 21: interval data (age in years) was generated from the birth dates provided. In retrospect, it may have been helpful to have asked for continuous or interval data for question 3, at least, and perhaps also for questions 9, 10, 11, and 12. Requesting time together in months and years, for instance, would have provided more accurate and complete data for Research Question 3 than the data obtained (Tabachnick & Fidell, 1983).

For the purposes of this research, the most important demographic information is derived from questions 1, 2, 3, 4, 5, and 18 through 21, which determine couple status. The product of each of these questions is explored in Research Question 3. Other questions of particular interest include questions 13, 16, and 17 which relate to occupation, where you live, and how you found out about the study. For this to be a representative sample of currently involved adults, it is important to have subjects who are not students: student samples predominate in most of the related research. Further, efforts were made to accommodate volunteers from all quadrants of the city, another sampling issue.

Finally, the results from question 17 allow the researcher and the reader to evaluate the effectiveness of the different forms of advertising used.

<center>The Dyadic Trust Scale (DTS)</center>

Developed by Larzelere and Huston (1980), the eight-item Dyadic Trust Scale is reported to be "unidimensional, reliable, and relatively free from response biases" (Larzelere & Huston, 1980, p. 595). Factor analytic results yielded just one factor; scale reliability estimates were set at .93 (coefficient alpha); and scale correlations with social desirability (measured by the Marlowe-Crowne Social Desirability Scale [Crowne & Marlowe, 1964]) were negligible (Larzelere & Huston, 1980). Evidence for construct validity was encouraging: dyadic trust was more clearly related to relationship qualities such as love (Rubin, 1970), and self-disclosure (Taylor & Altman, 1966), than to either generalized trust (Rotter, 1967) or social desirability (Crowne & Marlowe, 1964) (Larzelere & Huston, 1980). Items are scored from one to seven, with a possible scale maximum of 56. Five of eight items are reverse scored (see p. 148 Appendix A), presumably to minimize acquiesence (Anastasi, 1982; Cronbach, 1984).

The Dyadic Trust Scale was selected over Rempel, Holmes, and Zanna's (1985) three-factor, 18-item Trust Scale (the only real alternative) chiefly because of its argued reliability and validity (Larzelere & Huston, 1980); because of its brevity (I wished to keep the questionnaire package as concise as possible); and because of its factorial simplicity (I wished the construct of trust to be as unambiguous as possible). Further, Hatfield and Sprecher (1986) used the Dyadic Trust Scale successfully in the construct validation of their Passionate

Love Scale. Hatfield and Sprecher (1986) reported a coefficient alpha of .83 for the Dyadic Trust Scale; coefficient alpha generated through SPSS RELIABILITY was found to be .85 ($\underline{N}$=298) in the present study. The Dyadic Trust Scale has been employed, along with a number of other scales, as part of Research Question 2.

Rusbult's Satisfaction and Commitment Items

Though little validity data exists for Rusbult's (1983) satisfaction and commitment items, these items have been selected on the basis of internal consistency estimates, face validity, theory, and the absence of good alternatives. Satisfaction and commitment items (found on pages 149 and 156 of Appendix A) are scored on nine-point scales, with scale maximums of 27 and 45, respectively. Two of three satisfaction items are reverse scored; three of five commitment items are reverse scored. Over 13 testing situations, Rusbult (1983) found coefficient alphas ranging between .64 and .96 for the satisfaction items, and between .75 and .95 for the commitment items, with only 1 of 13 coefficients falling below .80 in each case. Other studies using the same or very similar items (e.g., Duffy & Rusbult, 1986; Rusbult, Johnson & Morrow, 1986) have found parallel results: coefficient alphas at or above .80. Coefficient alphas in the current study, however, were not as encouraging: alphas for satisfaction and commitment items were found to be .57 and .68, respectively for the full sample ($\underline{N}$=298). As such, they fall below the desirable and perhaps acceptable level of .80 (Anastasi, 1982; Sternberg, 1987a). Discrepancy between the present results and Rusbult's results are difficult to explain.

Beyond reliability, Rusbult's satisfaction and commitment items were chosen as a means to incorporate Rusbult's (1980, 1983) investment model into this research, and because of the lack of good alternatives. Other measures of satisfaction under consideration included the Marital Satisfaction Scale (Roach, Frazier, & Bowden, 1981); The Kansas Marital Satisfaction Scale (Schumm et al., 1986); and The Marital Satisfaction Inventory (Snyder, 1979); however, all were rejected because of their resemblance to Spanier's (1976) Dyadic Adjustment Scale which is already part of this testing package. Further, these scales were dismissed in that they were designed to assess marital dyads, and seemed unadaptable for the present research. One measure of commitment (Lund, 1985) was rejected on empirical and theoretical grounds: in the development of her scale, Lund (1985) weeded out any items that correlated over .70 with Rubin's (1970) Love Scale items. Lund has seen commitment as conceptually distinct from love which is inconsistent with Sternberg's (1986, 1987b) theory. Rusbult's satisfaction and commitment items have been used, along with other scales, as a means to answer Research Question 2.

The Pair Inventory (PAIR)

PAIR, an acronym for Personal Assessment of Intimacy in Relationships, was developed by Schaefer and Olson (1981) as a means to measure intimacy in all types of dyadic relationships, married and not married. The 36-item scale assesses five types of intimacy (emotional, social, sexual, intellectual, and recreational) as well as marital conventionality (Edmonds, 1967), or the tendency to respond in a socially desirable way. Items are scored on a 5-point scale from 0

to 4, with 17 of 36 items being reverse scored (see pages 150, 151, 152, Appendix A). Subscale totals are derived by summing appropriate variables (see codings, pages 150, 151, 152, Appendix A) and multiplying by 4, yielding a possible subscale maximum of 96. Total intimacy could equal 480 (96 x 5 subscales) though Schaefer and Olson (1981) have discouraged the use of a total score saying that it is meaningless. Special instructions were added at the beginning of the measure asking non-sexually active subjects to skip certain items (see page 150, Appendix A). This direction resulted in some missing data.

With respect to reliability and validity, Schaefer and Olson (1981) have reported coefficient alphas of .70 or more for all six subscales and over .80 for two of the six subscales. No overall alpha was reported. Coefficient alpha was set a .91 for the overall scale (excluding conventionality) in the present study ($\underline{N}$=298). Evidence for construct validity was established through factor analytic results and through convergent and discriminant analyses (Schaefer & Olson, 1981). Principal factor extraction with varimax rotation was somewhat supportive of a six-factor solution, and subscales appeared to discriminate and converge in an expected fashion with variables from other sources: e.g., The Marital Adjustment Test (Locke & Wallace, 1959); The Empathy Scale (Truax & Carkhoff, 1967); and the Family Environment Scale (Moos & Moos, 1976).

The Pair Inventory was selected over the Waring Intimacy Questionnaire (Waring, 1984), perhaps the best alternative, mainly because of the relative brevity of the Pair. Compared to Waring's (1984) scale, the Pair Inventory is roughly one-third in length (36 versus 90 items), and is conceptually more simple

with five subscales as compared to eight. Each measure has within it a short, reliable measure of marital conventionality/social desirability. Hames and Waring (1980) reported a highly significant correlation of .77 between the Pair total score and Waring's Scale (the WIQ 160) which consisted of 160 items at that time. The Pair Inventory has been employed as part of Research Question 2 for factor analytic and discriminant/convergent purposes.

The Triangular Love Scale (TLS)

The Triangular Love Scale (Sternberg, 1987a), the centerpiece of this research, was developed as a means to operationalize and validate the Triangular Theory of Love (Sternberg, 1986). The measure consists of 36-items with 12 items in each of three subscales: passion, intimacy, and commitment – see pages 153, 154, 155, Appendix A for subscale codings. Items are scored on a nine-point scale, and subscale maximums of 108 are possible as is a total love score of 324 (36 items x 9). As in Rubin's (1970) Love Scale, and Hatfield and Sprecher's (1986) Passionate Love Scale, all items are keyed in a positive direction.

Item-total correlations, part of Sternberg's (1987a) internal consistency analysis, yielded four questionable items: variables 72, 89, 97, and 104 (see pages 153, 154, 155, Appendix A). Coefficient alphas for lover, a specialized target in Sternberg's research, were found to be .92, .94, and .88 for each of passion, intimacy, and commitment, with an overall alpha of .97 (Sternberg, 1987a). Coefficient alpha for the total scale was found to be a very favourable .96 in the present study (N=298). Intercorrelations between subscale scores for lover were found to be as follows: passion with intimacy, .88; passion with commitment, .85;

and intimacy with commitment, .84 (Sternberg, 1987a). Coefficients of this magnitude were higher than Sternberg had expected (Sternberg, 1987a).

Factor analysis, another part of the construct validation process, produced a three-factor solution accounting for 60% of the variance in the data (Sternberg, 1987a). After principal component extraction and varimax rotation, three factors were interpretable: commitment, intimacy, and passion. Many variables had complex loadings (25 of 34 that reached salience), and loadings were not always according to Sternberg's expectation. In general, factor analytic results were supportive of the theory (that love consists of three components); however, the solution presented may not have been as clear and parsimonious as possible (see arguments in Chapter Four under Research Question 1). Further, correlations with Rubin's (1970) Loving and Liking Scales did not show the convergent/discriminant patterns that Sternberg (1987a) had expected. In sum, Sternberg concluded that the data was generally, but not fully supportive of the scale and the theory.

The Triangular Love Scale has been employed as part of Research Questions 1, 2, and 3.

The Dyadic Adjustment Scale (DAS)

Developed by Spanier (1976), the Dyadic Adjustment Scale consists of 32 items designed to assess the quality of marriage and similar dyads. Four interrelated subscales (dyadic consensus, dyadic satisfaction, dyadic cohesion, and affectional expression) complete what is dyadic adjustment, with the subscales consisting of 13, 10, 5, and 4 items, respectively (see codings, pages

157, 158, 159, 160, Appendix A). As such, dyadic consensus and dyadic satisfaction make up the lion's share of what is dyadic adjustment (23 of 32 items). Items are scored on 2, 5, 6, and 7-point scales, yielding a possible scale maximum of 151. Nineteen of 32 items are reverse scored. In the present study, subjects who had never been sexually active with their partners were asked to skip some items, as were non-cohabiters (see instructions at the top of page 157, Appendix A). These directions have resulted in some missing data for this measure.

With respect to reliability and validity of the scale, Spanier (1976) reported coefficient alphas of .90, .94, .86, and .73 for the subscales dyadic consensus, dyadic satisfaction, dyadic cohesion, and affectional expression, with an overall scale alpha of .96. Coefficient alpha for dyadic adjustment or the overall scale in the present study was found to be .91 ($\underline{N}$=298), matching Spanier and Thompson's (1982) results. Validity estimates for the scale have also been favourable with Spanier (1976) reporting evidence suggesting content, criterion-related, and construct validity. Independent judges selected scale items based on theoretical dimensions suggesting content validity, and the Dyadic Adjustment Scale successfully discriminated married and divorced samples, suggesting concurrent validity (Spanier, 1976). Regarding construct validity, factor analytic results confirmed the existence of four interrelated components within the measure, consistent with the theoretical construct of dyadic adjustment as defined earlier by Spanier and Cole (1974, 1976). Interestingly, Spanier (1976) specified principal factor extraction followed by oblique rotation "since the hypothesized

factors were thought to be interrelated and not orthogonal" (p. 20). Results from Spanier and Thompson (1982) confirmed the basic structure of the Dyadic Adjustment Scale with four clear factors emerging from the data: dyadic consensus, dyadic satisfaction, dyadic cohesion, and affectional expression.

The Dyadic Adjustment Scale has been selected as part of Research Question 2 because of the aforementioned reliability and validity findings, and because of its reputation as one of the two leading measures of marital/dyadic adjustment (Heiman, 1986; Margolin, 1983). The other measure of note, the Marital Adjustment Test (Locke & Wallace, 1959) was rejected because it was designed to assess marital dyads, and as such, was inappropriate for this research. The Dyadic Adjustment Scale has received widespread employment: Spanier and Filsinger (1983) reported that Spanier has received over 500 requests for permission for its use.

Statistical Treatment of the Data

All major statistical procedures were conducted by computer with the aid of three statistical software packages: (a) the Statistical Package for the Social Sciences (2nd ed.) (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975) – otherwise called SPSS; (b) the SPSS Update 7-9 (Hull & Nie, 1981); and (c) the Biomedical Computer Programs entitled BMDP Statistical Software (Dixon, 1983).

The standard statistical assumptions were also made regarding the variables in this study. Assumptions for parametric statistics included: (a) that the values

of interest are normally distributed in the population; (b) that the variances of the populations from which the samples were drawn are equal; (c) that observations were drawn at random from the population; and (d) that the measures to be analyzed are continuous measures with equal intervals (Kerlinger, 1973; Tabachnick & Fidell, 1983). Put another way, assumptions were made with respect to normal distribution of data, homogeneity of variance, random sampling, and the use of interval or ratio-scaled data on the dependent variables. To the extent that these assumptions are violated, incorrect inferences may be drawn (Kerlinger, 1973; Tabachnick & Fidell, 1983). The significance level of .05 was employed throughout this study for inferential purposes.

The Data

Before proceeding to the analyses designed to answer the specific research questions, the researcher wished to address the potential problems of missing and non-normally distributed data within this study. Both issues turned up in the initial stages of data analysis, and needed a resolution before continuing. Missing data was replaced with grand means for two of the three research questions, and skewed data was retained for all analyses. Rationale and implications for these decisions is as follows.

Analysis of BMDPAM (a program designed to assess missing data) indicated that full data existed for 165 of 298 subjects (55.37%) though only 1.28% of the data was actually missing (458 of 35,760 values). Missing data was largely associated with one of Rusbult's commitment items (variable 108) and four items from the Dyadic Adjustment Scale that relate to cohabitation (variables 111, 123,

127, and 130). Some subjects indicated in the testing package that they did not like variable 108, and non-cohabiters were asked to skip certain items in the DAS. Percentages of missing data for variables 108, 111, 123, 127, and 130 were as follows: 14.43%, 20.81%, 18.79%, 18.12%, and 20.47%. Five variables accounted for roughly 60% or 276 of 458 missing values. Because of the amount and pattern of missing data, missing values were replaced with grand means for the purposes of Research Question 2. Missing values were substituted through BMDPAM. If missing data had not been replaced, only cohabiters would have been retained for Research Question 2 excluding the dating, and the engaged (and not cohabiting) subjects (60 of 298 subjects or 20.13% of the sample). SPSS CROSSTABS indicated that non-cohabiters also tended to be young, childless couples in new relationships.

Missing data was also replaced for the purposes of Research Question 1 so that factor analytic results of the Triangular Love Scale could be compared to the results from the second question, if necessary. Seventeen of 298 subjects (5.70%) did not have complete data on the Triangular Love Scale. Missing values were not replaced for Research Question 3 because the pattern of missing data was judged to be random, and because it was limited (again, 281 of 298 subjects had full data for the Sternberg scale).

Though it was deemed necessary to replace missing values with grand means, it is also recognized that to do so lowers the variance in the data, as well as the magnitude of the correlations between variables. Further, this measure tends to reduce the number of factors in a factor analytic solution (Tabachnick & Fidell,

1983). Decisions on how to handle missing data were based largely on recommendations from Tabachnick and Fidell (1983).

In addition to the problem of missing data, it was discovered through SPSS CONDESCRIPTIVE that all scales showed moderate to fairly severe negative skewness. Scale skewness values for the Dyadic Trust Scale, the Pair Inventory, the Triangular Love Scale, and the Dyadic Adjustment Scale were found to be -1.31, -.80, -1.36, and -.96, respectively ($\underline{N}$=298). As such, data appeared to be piled up on the high end of these distributions. On the advice of Tabachnick and Fidell (1983), data transformations were pursued through SPSS COMPUTE in an attempt to normalize distributions, and to meet one of the assumptions for parametric statistics. Transformations were attempted on an experimental basis, but only with the Triangular Love Scale. Following procedures outlined by Tabachnick and Fidell, data was first reflexed and then square root and logarithmic transformations were employed. Data transformation was most successful through the logarithmic transformation, bringing the skewness value for the total Triangular Love Scale down to -.27. When the transformed data was utilized, however, the newly transformed data behaved no better than the original data on a number of simple ANOVAS. Because variance accounted for did not increase (in some cases it decreased), the researcher decided to retain the original data for analysis.

Of practical and theoretical interest is that all scales showed negative skewness in this study, with the Triangular Love Scale and the Dyadic Trust Scale being most skewed. Though the creators of the DTS, PAIR, TLS, and DAS

made no mention of the issue of normality, non-normal distribution is a concern in the present study. On a practical level, working with skewed distributions may cause distortion of Type 1 error rate (Tabachnick & Fidell, 1983). Present skewness may be attributed to the nature of the current sample (people who presumably felt love came out to define love), or a tendency in this sample to respond in a socially desirable way (Edmonds, 1967). An alternate explanation may be that skewed responses actually reflect the nature of these phenomena. Love, for instance, may not be a normally distributed construct (L. C. Handy, personal communication, December, 1988).

CHAPTER FOUR

RESULTS

The results of this chapter are organized according to the research questions asked, with the research questions being stated first, followed by the relevant findings. Important findings will be highlighted in this chapter, though fuller interpretations will be left until Chapter Five.

Research Question 1

Given the current use of the Triangular Love Scale (Sternberg, 1987a), what is the factorial nature (underlying structure) of the scale? To what extent is the scale internally consistent, and consistent with the Triangular Theory of Love (Sternberg, 1986, 1987b)?

This question, which addresses matters of reliability and construct validity of the scale and theory, is answered principally by factor analytic means. The rationale for asking this question lies simply in the perceived need to examine the internal structure and workings of a new scale and theory. Given that no attempt was made to replicate Sternberg's (1987a) study, and that the two studies are quite dissimilar (particularly in sample composition), the goal of this question is not so much to challenge or confirm Sternberg's (1987a) findings, but rather to be additive to them. Factor analytic procedures to answer this question should be considered exploratory rather than confirmatory (Kim & Meuller, 1978, Tabachnick & Fidell, 1983).

As a means to address this question, principal factor extractions with both varimax and direct quartimin rotations were performed through BMDP4M on 36

Table 2

Eigenvalues, Percentages of Variance, and Cumulative Percentages of Variance
for First Fifteen Factors: Triangular Love Scale

Factor	Eigenvalue	Percentages of Variance	Cumulative Percentages of Variance
1	16.02	44.51	44.51
2	2.61	7.24	51.75
3	1.50	4.17	55.92
4	.81	2.26	58.18
5	.57	1.59	59.77
6	.45	1.23	61.00
7	.37	1.03	62.03
8	.27	.75	62.78
9	.22	.62	63.40
10	.17	.49	63.89
11	.16	.43	64.32
12	.10	.28	64.60
13	.07	.20	64.80
14	.05	.15	64.95
15	.04	.12	65.07

items from the Triangular Love Scale[4]. Three factors were extracted, with the

first accounting for 45% of the shared variance, the second 7%, and the third 4%,

before rotation (see Table 2). In total, the three factors accounted for 55.9% of

the total variability in the data as explained by the factor solution. A three-factor

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[4]Principal factor extraction was specified rather than principal component extraction (the only alternative considered) because the Triangular Love Scale had already been factor analyzed by Sternberg (1987a), and I wished to examine only the shared variance between the variables, independent of unique and error variance (Tabachnick & Fidell, 1983). Varimax and direct quartimin rotations, the orthogonal and oblique default options in BMDP4M, were chosen on the recommendations of Frane, Jennrich, and Sampson (1983); and Tabachnick and Fidell (1983). Factors are uncorrelated in the varimax solution (gamma is set at 1); factors are allowed to be fairly correlated in the oblique solution (gamma is set at 0) (Tabachnick & Fidell, 1983).

solution was chosen on the basis of Kaiser's Eigenvalue greater than one criterion, which is widely accepted as an aid to determining the number of factors in a solution (Gorsuch, 1983; Kim & Meuller, 1978; Tabachnick & Fidell, 1983), and is standard for the BMDP4M program. Visual inspection of Cattell's (1966) Scree technique (recommended by Gorsuch, 1983, and Tabachnick & Fidell, 1983) confirms a three-factor solution, consistent with Sternberg's (1987a) results. Figure 3 illustrates the confirmatory Scree Test results.

Varimax and direct quartimin rotations are presented (see Tables 3 and 4) for comparison purposes and as a means to highlight the preferred oblique solution. The oblique solution has been chosen over the orthogonal solution on the basis of theory (according to Sternberg, 1986, 1987b, components are expected to be intercorrelated); on the basis of size of factor correlations; and on the basis of simple structure as outlined by Thurstone (1947), and later by Gorsuch (1983), and Kim and Meuller (1978). Factors following direct quartimin rotation correlated as follows: factor 1 with factor 2, .54; factor 1 with factor 3, .29; and factor 2 with factor 3, .32, suggesting the need for an oblique solution (Tabachnick & Fidell, 1983). Correlations are high, but not so high as to question the existence of three separate factors (Tabachnick & Fidell, 1983).

With reference to simple structure, the oblique rotation presented has obvious advantages. Of the 28 variables having salience (factor loadings of .50 or more), 6 (or 21%) can be considered complex in the oblique solution; whereas, 22 of 31 salient variables (71%) are complex in the orthogonal rotation. Orthogonal results presented here are not dissimilar to Sternberg's (1987a)
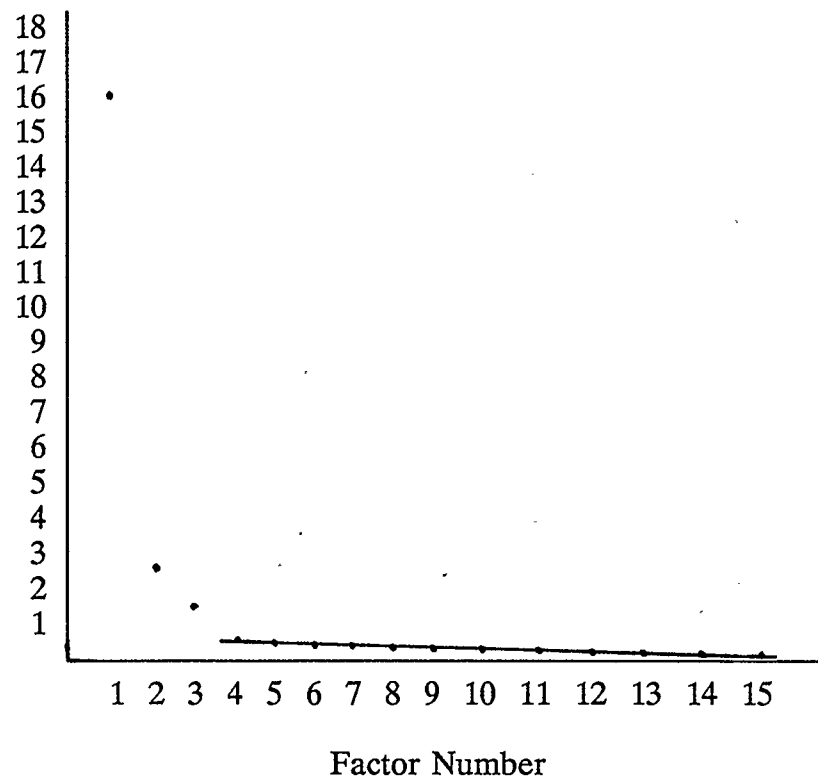
Figure 3.   Cattell's Scree Test for estimating the number of meaningful factors: Triangular Love Scale

Table 3

Sorted Factor Loadings, Communalities (h²), Sum of Squared Factor Loadings (SSLS), and Percents of Variance and Covariance for Three-Factor Principal Factor Solution with Varimax Rotation: Triangular Love Scale

Item		Sternberg Designation	F_1	F_2	F_3	h^2
V 84	View relationship as permanent.	C	.84	.32	–	.80
V 82	Expect love to last forever.	C	.77	.29	–	.70
V 95	Committed to maintaining relationship.	C	.76	–	–	.67
V 85	Would stay with ___ through difficult times.	C	.74	–	–	.63
V 75	Nothing more important than relationship.	P	.73	–	.31	.66
V 98	Could not allow anything to interrupt commitment.	C	.71	–	–	.56
V 83	Can't imagine ending relationship.	C	.71	–	–	.57
V 99	Have confidence in stability of relationship.	C	.69	.49	–	.71
V 91	Value ___ greatly in my life.	I	.68	.39	.38	.76
V 93	Certain of my love for ___.	C	.67	.33	.37	.70
V100	Willing to share self, possessions with ___.	I	.67	.32	–	.59
V 94	Have decided that I love ___.	C	.61	.25	.41	.60
V 79	Can't imagine life without ___.	P	.60	–	.30	.49
V 86	___ is able to count on me.	I	.53	–	.28	.39
V 74	Feel a strong responsibility for ___.	C	.53	–	–	.33
V 71	Experience intimate communication with.	I	–	.78	.27	.72
V 70	Have a warm, comfortable relationship with.	I	.32	.77	–	.74
V 78	Receive considerable emotional support from.	I	.25	.71	.31	.66
V 77	Have mutual understanding with ___.	I	.27	.66	.27	.59
V104	Relationship with ___ is very "alive."	P	–	.64	.53	.73
V 76	Relationship with ___ is very romantic	P	–	.63	.48	.63
V 81	Can count on ___ in times of need.	I	.38	.61	–	.51
V102	Feel emotionally close to ___.	I	.41	.59	.44	.70
V101	Experience great happiness with ___.	I	.41	.58	.52	.77
V 88	Seeing ___ is exciting for me.	P	–	.27	.81	.75
V 87	Think about ___ often during the day.	P	–	–	.70	.55
V 96	Something "magical" about my relationship with.	P	–	.29	.66	.58
V 90	Find ___ very attractive physically.	P	–	–	.58	.39
V 80	I adore ___.	P	.39	.32	.53	.55
V105	Like giving presents to ___.	P	–	–	.53	.36
V 92	I idealize ___.	P	–	–	.52	.32
V 73	___ makes me happier than anyone imaginable.	P	.44	.35	.37	.46
V 97	View relationship as thought-out decision.	C	.31	–	–	.13
V103	Give considerable emotional support to ___.	I	.35	.32	.46	.44
V 89	View commitment as matter of principle.	C	–	–	–	.06
V 72	Desire to promote well-being of ___.	I	.31	.36	.32	.33
SSL$_S$			8.78	5.87	5.49	20.14
Percent of variance			24.38	16.31	15.25	55.94
Percent of covariance			43.59	29.15	27.26	
Label			Commitment	Intimacy	Passion	

Note. Variables have been ordered and grouped by size of loading to facilitate interpretation. Loadings less than .25 have been replaced by dashes. C=Commitment; P=Passion; I=Intimacy.

Table 4

Sorted Factor Loadings and Sum of Squared Factor Loadings (SSLS) for Three-Factor Principal Factor Solution with Direct Quartimin Rotation: Triangular Love Scale

Item	Sternberg Designation	F_1	F_2	F_3
V 84 View relationship as permanent.	C	.97	–	–
V 82 Expect love to last forever.	C	.84	–	–
V 95 Committed to maintaining relationship with.	C	.82	–	–
V 85 Would stay with ___ through difficult times.	C	.81	–	–
V 99 Have confidence in stability of relationship.	C	.78	–	.31
V 83 Can't imagine ending relationship.	C	.77	–	–
V 98 Could not allow anything to interrupt commitment.	C	.76	–	–
V 75 Nothing more important than relationship.	P	.74	–	–
V100 Willing to share self, possessions with ___.	I	.70	–	–
V 91 Value ___ greatly in my life.	I	.66	–	–
V 93 Certain of my love for ___.	C	.66	–	–
V 79 Can't imagine life without ___.	P	.60	–	–
V 94 Have decided that I love ___.	C	.57	.29	–
V 74 Feel a strong responsibility for ___.	C	.55	–	–
V 86 ___ is able to count on me.	I	.52	–	–
V 88 Seeing ___ is exciting for me.	P	–	.90	–
V 87 Think about ___ often during the day.	P	–	.77	–
V 96 Something "magical" about my relationship with.	P	–	.69	–
V 90 Find ___ very attractive physically.	P	–	.62	–
V105 Like giving presents to ___.	P	–	.56	–
V 92 I idealize ___.	P	–	.55	–
V104 Relationship with ___ is very "alive.".	P	–	.52	.49
V 71 Experience intimate communication with.	I	–	–	.69
V 70 Have a warm, comfortable relationship with.	I	.31	–	.66
V 78 Receive considerable emotional support from.	I	–	–	.60
V 77 Have mutual understanding with ___.	I	–	–	.56
V 76 Relationship with ___ is very romantic.	P	–	.49	.53
V 81 Can count on ___ in times of need.	I	.43	–	.52
V 80 I adore ___.	P	.28	.49	–
V 72 Desire to promote the well-being of ___.	I	.26	.25	–
V 73 ___ makes me happier than anyone imaginable.	P	.40	.28	–
V101 Experience great happiness with ___.	I	.31	.45	.38
V102 Feel emotionally close to ___.	I	.33	.35	.41
V103 Give considerable emotional support to ___.	I	.25	.42	–
V 97 View relationship as thought-out decision.	C	.30	–	–
V 89 View commitment as a matter of principle.	C	–	–	–
SSL$_s$		9.03	4.79	3.07
Label		Commitment	Passion	Intimacy

Note. Variables have been ordered and grouped by size of loading to facilitate interpretation. Loadings less than .25 have been replaced by dashes. C=Commitment; P=Passion; I=Intimacy.

orthogonal solution where 74% or 25 of 34 variables with salience had loadings of greater than .25 on a second factor. That the oblique rotation has presented a simpler, more parsimonious factorial solution is not surprising given theoretical expectations, and the oblique factor correlations as reported.

With reference to the internal consistency of the scale, two measures are reported: coefficient alphas and factor analytic results. The coefficient alpha for the whole scale was found to be a substantial .96 ($\underline{N}$=298), a value practically identical to Sternberg's (1987a) alpha of .97 for lover, the target most similar to the focus of this research. Coefficient alpha was generated in the present study through SPSS RELIABILITY. With regard to factor analytic findings, items loaded pretty much where they were supposed to, given the multivariate nature of the theory and the scale. In the oblique rotation (the preferred solution) 22 (or 79%) of 28 variables that reached salience loaded according to Sternberg's theoretical designation: 10 out of 15 for the first factor, 7 out of 7 for the second, and 5 out of 6 for the third (see Table 4). Factors appear reliable (each has fairly unambiguous loadings on three or more variables [Tabachnick & Fidell, 1983]); and can be interpreted as commitment, passion, and intimacy. Unfortunately eight variables are left out of the factor solution in the oblique rotation, and as such they have questionable value in the scale. Sternberg's (1987a) internal consistency analyses identified four bad items to be revised or discarded, variables 72, 89, 97, and 104; and these results confirm his findings except for perhaps variable 104. Other questionable variables may include variables 73, 101, 102, and 103. Variable 80, though not included in the factor

solution, approaches the .50 cutoff for salience, and if salient, would load according to its designated subscale. In sum, scale items perform pretty much as they are supposed to with the exception of six that loaded where they shouldn't have, and a few bad items that await Sternberg's revisions.

Order and size of factors are similar when one compares Sternberg's (1987a) varimax solution to the varimax solution presented here; however, differences arise when one compares the varimax solutions with the direct quartimin results. In both varimax solutions factor order was commitment, intimacy, and passion; whereas, the second and third factors change place with the oblique rotation (see Table 4). Percent of variance accounted for after rotation was 26%, 19%, and 15% for the three factors in the Sternberg solution, and a roughly equal 24%, 16%, and 15% in the varimax solution at hand (see Table 3). Percents of variance are not calculated for the present oblique rotation in that factors are correlated and share overlapping variability (Tabachnick & Fidell, 1983). Just the same, size of SSLs associated with factors can be taken as rough approximations of the importance of the factors (Frane, Jennrich, & Sampson, 1983; Tabachnick & Fidell, 1983), suggesting that the first factor, commitment, is considerably more robust than the second and the third (see Table 4). Sum of squared factor loadings are set at 9.03 for commitment, 4.79 for passion, and 3.07 for intimacy.

In sum, the oblique solution presented is the preferred solution when considering the Triangular Love Scale and Theory. The oblique solution allows factors to be correlated (consistent with theory) and offers a cleaner, more parsimonious factor pattern matrix than does the orthogonal rotation. The

underlying structure of the scale can be expressed best within a three factor solution: factors are interpretable as commitment, passion, and intimacy, consistent with theory. Factors are clearly defined (a measure of internal consistency), but all variables are not included in the factor definitions, suggesting a need for some scale revision. A definition of love, for this sample, at least, seems to be predominated by the commitment component. Elsewhere, Sternberg has argued that intimacy is perhaps the core component of love (Sternberg, 1986; Sternberg & Wright, 1987).

Research Question 2

To what extent is Sternberg's (1987a) construct of love empirically similar or dissimilar to the related constructs of trust (Larzelere & Huston, 1980); intimacy (Schaefer & Olson, 1981); satisfaction and commitment (Rusbult, 1983); and dyadic adjustment (Spanier, 1976)?

The rationale for asking this question lies in the perceived need to work with a new scale and theory in an effort to explore the relationship of this scale and theory with related constructs. Knowledge can be generated through the relationships found, and evidence may be uncovered to either support or refute the construct validity of Sternberg's scale and theory – a discussion issue for the next chapter.

Response to the above question can be effected in two ways: (a) by the examination of Pearson product-moment correlation coefficients between the Sternberg components and the related scales and subscales; and (b) through analysis of factor pattern matrices for the 120 variables that underlie these scales.

Accordingly, this portion of the chapter will be divided into two subsections: Correlational Results and Factor Analytic Results.

Correlational Results

Sample means and standard deviations for related scales and subscales are presented in Table 5, as are means and standard deviations for existing norms (e.g., Larzelere & Huston, 1980; Spanier, 1976; Schaefer & Olson, 1981; and Sternberg, 1987a). Basic statistics, generated by SPSS CONDESCRIPTIVE, suggest that performance for this sample ($\underline{N}$=298) is fairly consistent with the established norms for trust, dyadic adjustment, and love, but not for intimacy as measured by the Pair Inventory. Discrepancies with respect to mean scores on the Pair Inventory are difficult to explain, but may be justified on the grounds of sample differences. In the present study, subjects volunteered to participate in a study to define love; whereas, in the Schaefer and Olson study, subjects were concurrently participating in a marital enrichment weekend. As such, each sample may have effectively skewed the Pair data, but in opposite directions.

With respect to Pearson correlations generated by SPSS PEARSON CORR, Sternberg's love components have 19 possible correlates, 15 from other scales, and 4 from within. All correlations have a two-tailed significance at $\underline{p}$<.001: two-tailed in that there is no directionality assumed in Research Question 2 (Slavin, 1984). Correlations of particular note include those between the Sternberg components and trust, commitment, dyadic adjustment, and total intimacy as measured by the Pair Inventory. For the first, Sternberg's intimacy appears to be more highly correlated with trust than is either passion or commitment ($\underline{r}$=.50

Table 5

Means, Standard Deviations, and Correlations of Related Scales and Subscales (N=298)

| | | | | | | Correlations | | | |
Variable	(Source)	M	SD	M[a]	SD[b]	INT.	PAS.	COM.	L.O.
Trust	(DTS)	46.13	8.21	48.71	–	.50	.41	.36	.46
Satisfaction	(RS)	23.37	3.69	–	–	.63	.62	.50	.64
Commitment	(RC)	40.66	5.68	–	–	.57	.48	.71	.65
Dyadic Consensus	(DAS)	48.58	7.15	57.9	8.5	.59	.50	.46	.57
Affectional Expression	(DAS)	9.37	2.04	9.0	2.3	.51	.48	.23	.44
Dyadic Satisfaction	(DAS)	39.80	4.74	40.5	7.2	.77	.66	.63	.75
Dyadic Cohesion	(DAS)	16.13	3.62	13.4	4.2	.48	.43	.28	.44
Dyadic Adjustment	(DAS)	113.88	14.42	114.8	17.8	.74	.64	.53	.70
Emotional Intimacy	(PAIR)	70.30	18.82	46.0	17.0	.62	.50	.34	.53
Social Intimacy	(PAIR)	62.78	18.23	61.0	16.9	.33	.25	.26	.30
Sexual Intimacy	(PAIR)	75.72	19.18	58.0	18.8	.47	.45	.18	.40
Intellectual Intimacy	(PAIR)	71.88	18.34	50.0	17.0	.60	.50	.33	.52
Recreational Intimacy	(PAIR)	73.14	16.52	58.0	15.0	.49	.48	.32	.48
Conventionality	(PAIR)	60.84	20.51	38.0	17.0	.68	.68	.54	.70
Total Intimacy	(PAIR)	353.82	66.74	–	–	.68	.59	.39	.61
Intimacy	(TLS)	7.95	1.09	7.55	1.49	1.00	.79	.73	.92
Passion	(TLS)	7.02	1.42	6.91	1.65		1.00	.66	.91
Commitment	(TLS)	7.53	1.33	7.06	1.49			1.00	.88
Love Overall	(TLS)	7.50	1.15	7.17	1.47				1.00

Note: (DTS) = Dyadic Trust Scale; (RS) = Rusbult Satisfaction Scale; (RC) = Rusbult Commitment Scale; (DAS) = Dyadic Adjustment Scale; (PAIR) = Pair Inventory; (TLS) = Triangular Love Scale; INT. = TLS Intimacy Subscale; PAS. = TLS Passion Subscale; COM. = TLS Commitment Subscale; L.O. = TLS Lover Overall. [a] Means for existing norms. [b] Standard Deviations for existing norms. Dash = no available data. All correlations are significant at $p<.001$, two-tailed.

versus .41 and .36 [N=298]). The same pattern is true with respect to both

dyadic adjustment and total intimacy as measured by the DAS and PAIR,

respectively. Correlational results with respect to trust and dyadic adjustment are

consistent with the related literature, and results regarding the PAIR intimacy

correlations tend to be confirming of the Sternberg scale. Equally confirming is

that Sternberg's commitment component correlated more highly with Rusbult's commitment scale than did either intimacy or passion. All correlations reported are considered in the context of the Sternberg components themselves being correlated: intimacy with passion, .79; intimacy with commitment, .73; and passion with commitment, .66 ($\underline{N}$=298). As such, the Sternberg components are significantly intercorrelated, which is consistent with theory (Sternberg, 1986, 1987b), and Sternberg's (1987a) previous results. For lover, Sternberg (1987a) found the following Pearson correlation coefficients: intimacy with passion, .88; intimacy with commitment, .84; and passion with commitment, .85.

<u>Factor Analytic Results</u>

Parallel and consistent with the factor analytic procedures reported for Research Question 1, principal factor extractions with varimax and direct quartimin rotations were performed on 120 variables, across six scales. A nine factor solution was decided upon on the basis of Kaiser's Eigenvalue greater than one criteria (see Table 6), a visual inspection of Cattell's (1966) Scree technique (see Figure 4), and upon examination of factor pattern matrices for the varimax and direct quartimin rotations (see Tables 7 and 8). Nine factors represent acompromise position between the Kaiser criterion, which would favour 14 factors extracted, and the Scree technique which may suggest seven. Further, nine factors were interpretable within both factor pattern matrices, though a tenth was not. For factor 10, there were no salient loadings in the orthogonal solution, and only one in the oblique solution. Factors 11 through 14 had no salient loadings

Table 6

Eigenvalues, Percentages of Variance, and Cumulative Percentages of Variance
for First Twenty Factors: All Scales

Factor	Eigenvalue	Percentages of Variance	Cumulative Percentages of Variance
1	32.42	27.00	27.00
2	7.23	6.04	33.04
3	4.01	3.33	36.37
4	3.00	2.50	38.87
5	2.59	2.16	41.03
6	2.31	1.93	42.96
7	2.11	1.76	44.72
8	1.75	1.46	46.18
9	1.58	1.32	47.50
10	1.40	1.16	48.66
11	1.27	1.06	49.72
12	1.13	.95	50.67
13	1.06	.88	51.55
14	1.02	.85	52.40
15	.92	.77	53.17
16	.87	.73	53.90
17	.76	.64	54.54
18	.74	.61	55.15
19	.70	.58	55.73
20	.66	.55	56.28

in either solutions, making them uninterpretable. Nine factors accounted for

47.5% of the total variability in the data as explained by the factor solution.

Varimax and direct quartimin rotations are presented again for comparison

purposes, and as a means to highlight the preferred oblique solution. The

oblique solution has been chosen over the orthogonal solution on the basis of

theory (theory has suggested that constructs measured by these scales should be

correlated), and on the basis of simple structure. Though factor correlations
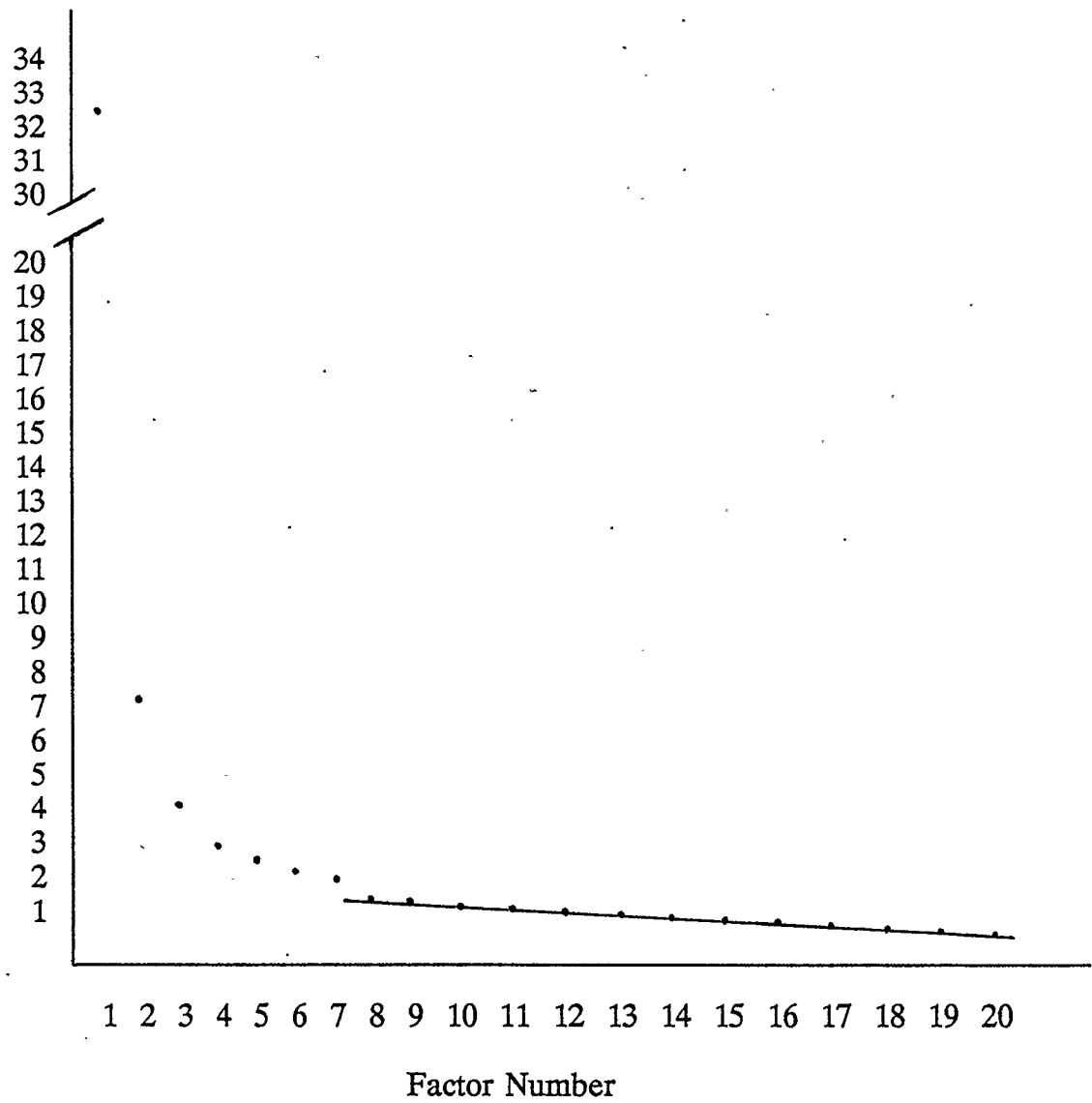
Figure 4. Cattell's Scree Test for estimating the number of meaningful factors: All scales.

Table 7

Sorted Factor Loadings, Communalities (h²), Sum of Squared Factor Loadings (SSLs), and Percents of Variance and Covariance for Nine-Factor Principal Factor Solution with Varimax Rotation: All Scales

Item	Source + (Designation)	F_1	F_2	F_3	F_4	F_5	F_6	F_7	F_8	F_9	h^2
V 84 View relationship as permanent.	TLS(C)	.86	–	–	–	–	–	–	–	–	.84
V 95 Committed to maintaining relationship.	TLS(C)	.83	–	–	–	–	–	–	–	–	.73
V 82 Expect love to last forever.	TLS(C)	.80	–	–	–	–	–	–	–	–	.75
V 91 Value _____ greatly in my life.	TLS(I)	.80	–	–	–	–	–	–	–	–	.80
V 93 Certain of my love for _____ .	TLS(C)	.78	–	–	–	.27	–	–	–	–	.78
V 85 Would stay with _____ through difficult times.	TLS(C)	.77	–	–	–	–	–	–	–	–	.66
V107 For how long would you like relationship to last?	R(C)	.77	–	–	–	–	–	–	–	–	.65
V100 Willing to share self, possessions with _____ .	TLS(I)	.76	–	–	–	–	–	–	–	–	.66
V 75 Nothing more important than relationship.	TLS(P)	.74	–	–	–	–	–	–	–	–	.69
V 94 Have decided that I love _____ .	TLS(C)	.72	–	–	–	.29	–	–	–	–	.67
V 99 Have confidence in stability of relationship.	TLS(C)	.70	.32	–	–	–	–	.25	–	–	.80
V 83 Can't imagine ending relationship.	TLS(C)	.68	–	–	–	–	–	–	–	–	.64
V 98 Could not allow anything to interrupt commitment.	TLS(C)	.66	–	–	–	–	–	–	–	–	.61
V109 To what extent are you "attached" to partner?	R(C)	.66	–	–	–	–	–	–	–	–	.56
V106 How likely is it that you will soon end relationship?	R(C)	.64	–	–	–	–	–	–	–	–	.56
V 79 Can't imagine life without _____ .	TLS(P)	.61	–	–	–	.31	–	–	–	–	.65
V 86 _____ is able to count on me.	TLS(I)	.60	–	–	–	–	–	–	–	–	.45
V142 Extent of commitment to relationship.	DAS(DS)	.58	–	–	–	–	–	–	–	–	.47
V101 Experience great happiness with _____ .	TLS(I)	.57	.36	.25	–	.39	.26	–	–	–	.80
V102 Feel emotionally close to _____ .	TLS(I)	.56	.43	–	–	.30	–	–	–	–	.75
V 74 Feel a strong responsibility for _____ .	TLS(C)	.52	–	–	–	–	–	–	–	–	.39
V 73 _____ makes me happier than anyone imaginable.	TLS(P)	.50	–	–	–	.36	–	–	–	–	.57
V 34 Partner listens to me.	PAIR(EI)	–	.68	–	–	–	–	–	–	–	.60
V 52 Partner understands my hurts and joys.	PAIR(EI)	–	.66	–	–	–	–	–	–	–	.63
V 28 I feel partner not considerate enough.	DTS(T)	–	.60	–	–	–	–	–	–	–	.53
V 46 Often feel distant from my partner.	PAIR(EI)	–	.56	–	–	–	–	–	–	–	.57
V 70 Have a warm, comfortable relationship with.	TLS(I)	.45	.53	.30	–	–	–	–	–	–	.74
V 64 Sometimes feel lonely when we're together.	PAIR(EI)	–	.52	–	–	–	–	–	–	–	.38
V 71 Experience intimate communication with.	TLS(I)	.37	.52	.37	–	–	–	–	–	–	.73
V 58 Feel neglected at times by my partner.	PAIR(EI)	–	.51	–	–	–	–	–	–	–	.44
V 36 I am satisfied with our sex life.	PAIR(SEI)	–	–	.80	–	–	–	–	–	–	.74
V116 Agree on sex relations.	DAS(A)	–	–	.66	.30	–	–	–	–	–	.65
V 66 Partner seems disinterested in sex.	PAIR(SEI)	–	–	.66	–	–	–	–	–	–	.50
V 54 I feel uncomfortable: hold back sex interest.	PAIR(SEI)	–	–	.63	–	–	–	–	–	–	.52
V 60 Sexual expression essential to our relationship.	PAIR(SEI)	–	–	.50	–	–	–	–	–	–	.37
V 76 Relationship with _____ is very romantic.	TLS(P)	–	.43	.50	–	.36	–	–	–	–	.76

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Table 7 (continued)

Item	Source + (Designation)	F_1	F_2	F_3	F_4	F_5	F_6	F_7	F_8	F_9	h^2
V132 Get on each other's nerves. How often?	DAS(DS)	–	.27	–	.56	–	–	–	–	–	.53
V131 How often do you kiss your partner?	DAS(DS)	–	–	–	.53	–	–	–	–	–	.42
V126 How often do you consider terminating relationship?	DAS(DS)	.32	–	–	.50	–	–	–	–	–	.52
V 88 Seeing _____ is exciting for me.	TLS(P)	.30	–	.27	–	.65	–	–	–	–	.70
V 96 Something "magical" about my relationship with.	TLS(P)	.33	–	–	–	.59	–	–	–	–	.62
V 92 I idealize _____.	TLS(P)	–	–	–	–	.56	–	–	–	–	.47
V 87 Think about _____ often during the day.	TLS(P)	.30	–	–	–	.56	–	–	–	–	.54
V 80 I adore _____.	TLS(P)	.48	.25	–	–	.52	–	–	–	–	.61
V137 How often do you calmly discuss something?	DAS(DC)	–	–	–	–	–	.68	–	–	–	.56
V135 Stimulating exchange of ideas. How often?	DAS(DC)	–	–	–	–	–	.66	–	–	–	.56
V136 How often do you laugh together?	DAS(DC)	–	–	–	–	–	.63	–	–	–	.56
V138 Work together on a project? How often?	DAS(DC)	–	–	–	–	–	.51	–	–	–	.35
V 26 I can trust my partner completely.	DTS(T)	–	–	–	–	–	–	.85	–	–	.82
V 25 My partner is perfectly honest with me.	DTS(T)	–	–	–	–	–	–	.74	–	–	.63
V 27 My partner is sincere in his (her) promises.	DTS(T)	–	–	–	–	–	–	.73	–	–	.66
V 30 My partner can be counted on to help me.	DTS(T)	–	.32	–	–	–	–	.55	–	–	.49
V 29 My partner treats me fairly and justly	DTS(T)	–	.39	–	–	–	–	.50	–	–	.51
V 38 We enjoy same recreational activities.	PAIR(RI)	–	.28	–	–	–	–	–	.66	–	.65
V112 Agree on matters of recreation.	DAS(CN)	–	–	–	.34	–	–	–	.58	–	.62
V124 Agree on leisure time interests and activities.	DAS(CN)	–	–	.25	.35	–	–	–	.50	–	.59
V 35 We enjoy spending time with other couples.	PAIR(SOI)	–	–	–	–	–	–	–	–	.71	.52
V 53 Time with friends an important shared event.	PAIR(SOI)	–	–	–	–	–	–	–	–	.70	.54
V 47 We have few friends in common.	PAIR(SOI)	–	–	–	–	–	–	–	–	.64	.53
V 59 Partner's closest friends are my closest friends.	PAIR(SOI)	–	–	–	–	–	–	–	–	.54	.39
SSL		16.08	9.19	5.91	5.56	5.17	4.44	3.90	2.80	2.75	55.80
Percent of variance		26.80	15.32	9.85	9.27	8.62	7.40	6.50	4.67	4.58	93.00
Percent of covariance		28.82	16.47	10.59	9.96	9.27	7.96	6.99	5.02	4.93	
Label		(C)	(EI)	(SEI)	(DS)	(P)	(DC)	(T)	(RI)	(SOI)	

Note. Variables have been ordered and grouped by size to facilitate interpretation. Loadings less than .25 have been replaced by dashes. Communalities are for 14 factor solution. TLS = Triangular Love Scale; R = Rusbult Scale; DAS = Dyadic Adjustment Scale; PAIR = Pair Inventory; DTS = Dyadic Trust Scale; (C) = commitment; (I) = intimacy; (P) = passion; (DS) = dyadic satisfaction; (EI) = emotional intimacy; (T) = trust; (SEI) = sexual intimacy; (A) = affectional expression; (DC) = dyadic cohesion; (RI) = recreational intimacy; (CN) = dyadic consensus; (SOI) = social intimacy.

Table 8

Sorted Factor Loadings and Sum of Squared Factor Loadings (SSLs) for Nine-Factor Principal Factor Solution with Direct Quartimin Rotation: All Scales

Item	Source + (Designation)	F_1	F_2	F_3	F_4	F_5	F_6	F_7	F_8	F_9
V 95 Committed to maintaining relationship.	TLS(C)	.80	–	–	–	–	–	–	–	–
V 84 View relationship as permanent.	TLS(C)	.76	–	–	–	–	–	–	–	–
V107 For how long would you like relationship to last?	R(C)	.75	–	–	–	–	–	–	–	–
V 82 Expect love to last forever.	TLS(C)	.71	–	–	–	–	–	–	–	–
V 85 Would stay with _____ through difficult times.	TLS(C)	.70	–	–	–	–	–	–	–	–
V 93 Certain of my love for _____ .	TLS(C)	.68	–	–	–	–	–	–	–	–
V100 Willing to share self, possessions with _____ .	TLS(I)	.67	–	–	–	–	–	–	–	–
V106 How likely is it that you will soon end relationship?	R(C)	.65	–	–	–	–	–	–	–	–
V 94 Have decided that I love _____ .	TLS(C)	.64	–	–	–	–	–	–	–	–
V 91 Value _____ greatly in my life.	TLS(I)	.62	–	–	–	–	–	–	–	–
V 75 Nothing more important than relationship.	TLS(P)	.54	–	–	.30	–	–	–	–	–
V 86 _____ is able to count on me.	TLS(I)	.53	–	–	–	–	–	–	–	–
V142 Extent of commitment to relationship.	DAS(DS)	.52	–	–	–	–	–	–	–	–
V 99 Have confidence in stability of relationship.	TLS(C)	.50	–	–	–	–	–	–	–	–
V 26 I can trust my partner completely.	DTS(T)	–	.96	–	–	–	–	–	–	–
V 25 My partner is perfectly honest with me.	DTS(T)	–	.84	–	–	–	–	–	–	–
V 27 My partner is sincere in his (her) promises.	DTS(T)	–	.84	–	–	–	–	–	–	–
V 30 My partner can be counted on to help me.	DTS(T)	–	.60	–	–	–	–	–	–	–
V 29 My partner treats me fairly and justly	DTS(T)	–	.52	–	–	–	–	–	–	–
V 36 I am satisfied with our sex life.	PAIR(SEI)	–	–	.81	–	–	–	–	–	–
V 66 Partner seems disinterested in sex.	PAIR(SEI)	–	–	.67	–	–	–	–	–	–
V 54 I feel uncomfortable: hold back sex interest.	PAIR(SEI)	–	–	.63	–	–	–	–	–	–
V116 Agree on sex relations.	DAS(A)	–	–	.62	–	–	–	–	–	–
V 60 Sexual expression essential to our relationship.	PAIR(SEI)	–	–	.52	–	–	–	–	–	–
V 92 I idealize _____ .	TLS(P)	–	–	–	.59	–	–	–	–	–
V 96 Something "magical" about my relationship with.	TLS(P)	–	–	–	.59	–	–	–	–	–
V 88 Seeing _____ is exciting for me.	TLS(P)	–	–	–	.55	–	–	–	–	–
V 80 I adore _____ .	TLS(P)	–	–	–	.53	–	–	–	–	–
V 79 Can't imagine life without _____ .	TLS(P)	.34	–	–	.50	–	–	–	–	–
V 81 Can count on _____ in times of need.	TLS(I)	–	–	–	–	.53	–	–	–	–
V137 How often do you calmly discuss something?	DAS(DC)	–	–	–	–	–	.70	–	–	–
V135 Stimulating exchange of ideas. How often?	DAS(DC)	–	–	–	–	–	.69	–	–	–
V136 How often do you laugh together?	DAS(DC)	–	–	–	–	–	.64	–	–	–
V138 Work together on a project? How often?	DAS(DC)	–	–	–	–	–	.55	–	–	–

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Table 8 (continued)

Item	Source + (Designation)	F_1	F_2	F_3	F_4	F_5	F_6	F_7	F_8	F_9
V112 Agree on matters of recreation.	DAS(CN)	–	–	–	–	–	–	.66	–	–
V 38 We enjoy same recreational activities.	PAIR(RI)	–	–	–	–	–	–	.62	–	–
V124 Agree on leisure time interests and activities.	DAS(CN)	–	–	–	–	–	–	.59	–	–
V131 How often do you kiss your partner?	DAS(DS)	–	–	–	–	–	–	–	.57	–
V 35 We enjoy spending time with other couples.	PAIR(SOI)	–	–	–	–	–	–	–	–	.74
V 53 Time with friends an important shared event.	PAIR(SOI)	–	–	–	–	–	–	–	–	.74
V 47 We have few friends in common.	PAIR(SOI)	–	–	–	–	–	–	–	–	.67
V 59 Partner's closest friends are my closest friends.	PAIR(SOI)	–	–	–	–	–	–	–	–	.59
SSLs		8.90	4.18	4.17	4.04	3.72	3.55	3.08	2.90	2.89
Label		(C)	(T)	(SEI)	(P)	(?)	(DC)	(RI)	(?)	(SOI)

Note. Variables have been ordered and grouped by size to facilitate interpretation. Loadings less than .25 have been replaced by dashes.
TLS = Triangular Love Scale; R = Rusbult Scale; DAS = Dyadic Adjustment Scale; DTS = Dyadic Trust Scale; PAIR = Pair Inventory;
(C) = commitment; (I) = intimacy; (P) = passion; (DS) = dyadic satisfaction; (T) = trust; (SEI) = sexual intimacy;
(A) = affectional expression; (DC) = dyadic cohesion; (CN) = dyadic consensus; (RI) = recreational intimacy; (SOI) = social intimacy;
(?) = questionable label: insufficient information.

Table 9

Factor Correlations for Rotated Factors Following Direct Quartimin Rotation:
All Scales

	F_1	F_2	F_3	F_4	F_5	F_6	F_7	F_8	F_9
Factor 1	1.00								
Factor 2	.24	1.00							
Factor 3	.15	.20	1.00						
Factor 4	.37*	.22	.24	1.00					
Factor 5	.25	.43*	.24	.24	1.00				
Factor 6	.18	.23	.26	.25	.32*	1.00			
Factor 7	.08	.22	.21	.16	.26	.25	1.00		
Factor 8	.13	.25	.23	.12	.24	.15	.33*	1.00	
Factor 9	.24	.21	.08	.16	.14	.21	.21	.10	1.00

Note. Correlation coefficients .30 and over are asterisked for easy identification.

presented in Table 9 show four correlations over .30, correlations of this number and size may or may not dictate the presentation of an oblique solution (Tabachnick & Fidell, 1983). Of note, correlations over .30 occur between factors 1 and 4 (interpretable as commitment and passion [see Table 8]); between factors 2 and 5 (interpretable as trust and (?)); between factors 5 and 6 (interpretable as (?) and dyadic cohesion); and between factors 7 and 8 (interpretable as recreational intimacy and (?)). That these factors are correlated more than .30 is not surprising given theory and Pearson correlations as presented in Table 5.

With reference to simple structure, the oblique rotation presented has obvious advantages. Of the 42 variables having salience (factor loadings of .50 or more),

2 (or 5%) can be considered complex in the oblique rotation; whereas, 22 of 60 salient variables (37%) are complex in the orthogonal solution. That the oblique rotation has presented a simpler, more parsimonious factorial solution is again not surprising given theoretical expectations.

With respect to the oblique rotation (the solution of choice), the researcher is much more interested in the underlying structure of the factor pattern matrix than in either the size or order of factors produced. Manifest in the underlying structure is information on factor definitions, as well as evidence on how six somewhat related scales behave in a collective sense.

Of note, the first factor, labelled commitment (see Table 8), consists of seven designated commitment items from the Sternberg scale, two commitment items from Rusbult's commitment scale, and one satisfaction item from the Dyadic Adjustment Scale that Spanier (1976) has said "was developed originally as a measure of commitment" (p. 22). The only items possibly out of place are three intimacy items, and one passion item from the Triangular Love Scale; however, all four (variables 100, 91, 75, and 86) have loadings considerably smaller than those of the possible marker variables 95 and 84. Just the same, the first factor is not uncontaminated with 4 of 14 variables (29%) loading somewhere other than their theoretical designation. That the Sternberg commitment items cluster with the Rusbult and Spanier variables adds strength to Sternberg's construct of commitment. That commitment variables are not found within other factors suggests that commitment is somewhat empirically distinct – note: factors are still correlated in this solution.

Of theoretical importance is the way factors 2, 3, 6, 7, and 9 seem to break away from Sternberg's construct of love: that is, no Sternberg variables appear in any of these solutions. Factor 2, labelled trust, is made up exclusively of trust items from Larzelere and Huston's (1980) Dyadic Trust Scale. Similarly, factor 6 and 9 appear uncontaminated, with factor 6 consisting of items exclusively related to dyadic cohesion, and factor 9 consisting only of social intimacy items from the Pair Inventory. Factors 3 and 7 seem to be related to sexual intimacy and recreational intimacy, and like the others are empirically distinct from any of the Sternberg components. Also of note, factor 4, labelled passion, appears to break clearly from the first factor (commitment) and all others. No factor that could be called intimacy (Sternberg's hypothesized core component) emerges from the factor pattern matrix. Factors 5 and 8 are considered unreliable and indefinable in that each consists of only one variable (Harman, 1967; Tabachnick & Fidell, 1983).

In summary, the essence of these results is in how they apply to Sternberg's construct of love. Empirically, at least, though correlated, trust (factor 2), from the Dyadic Trust Scale, appears to be distinct from Sternberg's commitment component (factor 1) and passion component (factor 4). Similarly, sexual, recreational, and social intimacy (factors 3, 7, and 9, from the Pair Inventory) all appear to be distinct from the Sternberg components, as does dyadic cohesion (factor 6) from the Dyadic Adjustment Scale. Factor analytic results presented here, though oblique, tend to show underlying structural distinctions between constructs not evident in the Pearson correlations presented in Table 5.

Research Question 3

3.1 Recognizing the multivariate nature of Sternberg's love components (passion, intimacy, and commitment), to what extent can group membership be reliably predicted by these predictor variables? Group membership is organized according to demographic variables: e.g., age, time together, and relationship status.

3.2 Allowing that grouping variables are interrelated and not statistically independent, which grouping variables (dependent variables) can be predicted best?

3.3 As a general question, how can dimensions (discriminant functions) along which groups are separated be interpreted? More specifically, which predictor variables are most important in predicting group membership? How are groups located in space with respect to statistically significant discriminant functions? Given a classification scheme through one or more discriminant functions, to what extent are cases correctly classified?

The rationale for asking these questions again lies in the perceived need to work with a new scale and theory, and to explore the relationship of the scale and theory with selected demographics or background variables. Knowledge can be generated about the theory through the relationships found, and evidence may arise to support or refute the construct validity of Sternberg's scale and theory – a discussion issue for the next chapter.

Research Question 3.1

The first question has to do with the overall multivariate statistical significance of a number of sets of discriminant functions that have been derived to predict group membership. In total, ten, one-way, stepwise discriminant function analyses were run through SPSS DISCRIMINANT, each on a different scheme of group organization. The same individuals were organized and reorganized according to couple status, age, gender, time together, relationship status, marital status, level of sexual activity, children you have, children living with you, and school/home completion. All schemes of organization (grouping variables) appeared to reach multivariate significance ($p < .05$) with the exception of gender and school/home completion. This is to say that different weighted and linear combinations of Sternberg's love components (passion, intimacy, and commitment) can significantly predict group membership – this is tentative – for all but two of the classification schemes listed above: classification by gender and classification by where the questionnaire was completed (a methodological and design issue). With respect to gender, Sternberg (1987a) also found no significant effect when subjects were grouped in this fashion. Hotelling's T^2 findings were confirming of the discriminant function results for all two-level grouping schemes: couple status, gender, marital status, and school/home completion.

Of cautionary note is that many of these grouping variables are confounded and intercorrelated, making it difficult to partial out the effects of one variable over another. Spearman correlation coefficients, for instance, were found to be .46 ($p < .001$, $N = 298$) between time together and age; -.64 ($p < .001$, $N = 298$)

between time together and marital status (marrieds were coded 1, and non-marrieds were coded 2); and -.27 ($\underline{p} < .001$, $\underline{N} = 298$) between age and marital status. Kendall's Tau results were similar to the Spearman findings. Spearman correlations and Kendall's Tau results were generated through SPSS NONPAR CORR and SPSS CONDESCRIPTIVE, respectively. Also of note is that Type 1 error is probable (Tabachnick & Fidell, 1983) in that the same subjects were tested and retested in different groupings without making the appropriate error term adjustments. As such, differences in group means may appear to be significant when in fact they are not.

Research Question 3.2

Different than statistical significance (an important first step), Research Question 3.2 is concerned with the practical significance of the relationship between sets of predictor variables on one hand, and group membership on the other. One way to address practical significance is to examine the proportion of variance shared between grouping variables and sets of predictor variables (discriminant functions). According to Klecka (1975) and Tabachnick & Fidell (1983), proportion of variance shared or strength of association can be derived by squaring canonical correlation coefficients for each statistically significant discriminant function. By doing so, one should be able to make some tentative statement about which grouping variables can be predicted best (Research Question 3.2), and in what order.

Subsequent analyses rank ordered significant grouping variables as follows: relationship status, marital status, time together, age, level of sexual activity,

children living with you, children you have, and couple status, with the proportions of variance shared at 29.2%, 24.5%, 16.3%, 16.0%, 6.5%, 5.1%, 5.0%, and 1.6%, respectively. This suggests that, in an applied sense, there is a fairly strong relationship between Sternberg's love components and, at least, the first four grouping variables: relationship status, marital status, time together, and age. That the variance accounted for is so much stronger for relationship status (29.2%) than time together (16.3%) may be additive to Sternberg's theory of love in that Sternberg's (1986, 1987b) focus has been principally on how passion, intimacy, and commitment change over time. Neither has Sternberg emphasized age of individual, which may need to be incorporated into his theory as it develops. Caution needs to be exercised in interpreting these results, however, in that grouping variables in this research tend not to be statistically independent. Because of the obvious confounding between age and time together, for instance, it is difficult to say which can be predicted best without some design that will adjust for covariance.

Research Question 3.3

Even though there is arguable statistical justification to analyze discriminant functions for all grouping variables but those organized by gender and school/home completion (eight in total −see Research Question 3.1), for the purposes of this research, analyses will be limited to grouping variables organized by relationship status, time together, and age. Results for marital status are not presented because they are very similar to the findings for relationship status, only less specific. The decision to present results for just three grouping schemes

is based on statistical grounds (to reflect the power of the empirical results in this study — see Research Question 3.2), and on theoretical grounds (to reflect what has been emphasized in the related literature). Accordingly, interpretative results related to composition of discriminant functions, placement of group centroids, and classification results will be offered for only three grouping schemes. Each will be handled in turn, beginning with relationship status.

Relationship status. Using Wilks' Lambda as a method to direct the stepping progression in a stepwise discriminant function analysis (a stepping recommendation in the absence of contrary reasons [Tabachnick & Fidell, 1983]), all three components entered the multivariate equation (see Table 10). Order of entry was such that all three components were eligible to enter the discriminant function analysis with commitment entering first, followed by passion and intimacy. The stepwise procedure did not produce a reduced set of predictors. As shown further in Table 11, only the first discriminant function is significant $(p=.001)$. After the first function was removed, Wilks' Lambda increased to .960 with an associated chi-square of 11.21 (8), $p=.190$. Of the three discriminant functions calculated, the first discriminant function contributes to 90.89% of the between group variability for individuals grouped by relationship status (see Table 11).

· In terms of theory underlying this research, and in terms of adding to existing theory, one important issue has to do with the relative contribution that the predictor variables (passion, intimacy, and commitment) make in defining significant discriminant functions. According to Klecka (1975) and Tabachnick

Table 10

Summary Table for Stepwise Discriminant Function Analysis: Relationship Status

Step	Action Entered	Variables In	Wilks' Lambda	p
1	COM	1	.833	.001
2	PAS	2	.694	.001
3	INT	3	.680	.001

Table 11

Canonical Discriminant Functions of the Discriminating Variables by Stepwise
Discriminant Analysis: Relationship Status

Function	Eigenvalue	Percent of Variance	Canonical Correlation	:	After Function	Wilks' Lambda	Chi-Squared	df	p
				:	0	.680	106.27	15	.001
1	.412	90.89	.540	:	1	.960	11.21	8	.190
2	.035	7.62	.183	:	2	.993	1.86	3	.601
3	.007	1.50	.082	:					

Table 12

Standardized Canonical Discriminant Function Coefficients for the Discriminating Variables Identified by Stepwise Discriminant Analysis: Relationship Status

	FUNC 1
PAS	-.814
COM	1.529
INT	-.381

Table 13

Canonical Discriminant Functions Evaluated at Group Means (Group Centroids) and Classification Results: Relationship Status

Group	n	Group Means Func 1	Percent Correct Classification						Overall % Correct
			1 as 1	2 as 2	3 as 3	4 as 4	5 as 5	6 as 6	
1	48	-1.22	22	4	1	5	25	10	
2	12	- .13	(45.8%)	(33.3%)	(11.1%)	(12.5%)	(16.0%)	(30.3%)	22.48%
3	9	- .49							
4	40	- .49							
5	156	.42							
6	33	.54							
N	298								

Note. Group 1 = dating; Group 2 = engaged (and not cohabiting); Group 3 = engaged (and cohabiting); Group 4 = cohabiting; Group 5 = 1st marriage; Group 6 = 2nd marriage (or more).

and Fidell (1983), one indication of the relative contribution or importance of predictor variables can be found in the absolute magnitude of the standardized canonical discriminant function coefficients (see Table 12). When the sign is ignored, these coefficients represent the relative contributions of the variables to the respective functions and "can be used to name the functions by identifying the dominant characteristics they measure" (Klecka, 1975, p. 443). The sign, which also may be considered, denotes whether the variable is making a positive or negative contribution to the function.

In the case of the first and only significant discriminant function (the only one to be presented), commitment appears to be nearly twice as important as passion, and nearly four times as important as intimacy in defining the function. Commitment, passion, and intimacy coefficients are set at 1.529, -.814, and -.381, respectively. In consideration of these coefficients, one may make a guarded statement that groups organized according to relationship status are largely separated on the basis of commitment scores with passion and particularly intimacy scores playing a much less important role. This statement is necessarily guarded, however, in that the components themselves are not orthogonal (Tabachnick & Fidell, 1983).

A further means to interpreting the relationship between the discriminant functions and the grouping variables is to examine the group centroids (the mean discriminant scores for each group on each function) – see Table 13. By doing this, one can get a sense of group differences and how close or far apart groups are along a particular dimension. Results from Table 13 suggest that the first

discriminant function maximally separates dating ($\underline{M}$=-1.22) from marrieds ($\underline{M}$=.42, and $\underline{M}$=.54) with the other three groups falling between these extremes. Results of this sort make sense in that one might expect dating individuals to have the lowest mean scores on commitment (an interpretation of the first function), and marrieds to have the highest scores (Coleman, 1984; Lund, 1985; Sternberg, 1986).

Finally, one test of the adequacy of the derived discriminant functions (all three are used) is to consider how accurately they predict group membership. In the case of relationship status, dating individuals can be most reliably classified followed by those in groups 2 and 6, engaged (and not cohabiting), and 2nd marriage (or more), respectively. Overall percent of correct classification is 22.48%. Classification results are poorer than chance for groups 3, 4, and 5, engaged (and cohabiting), cohabiting, and 1st marriage, respectively.

Time together. After relationship status and marital status, time together accounts for the largest proportion of variance shared between grouping variables and predictor variables (16.3%). As in the previous inquiry, all three components entered the discriminant function analysis, with commitment entering first, followed by passion and intimacy (see Table 14). Again, only the first discriminant function was significant ($\underline{p}$=.001) (see Table 15), with the first function contributing to 83.39% of the between group variability for individuals grouped by time together. In terms of understanding this function, once again commitment appears to be considerably more important in its definition than

Table 14

Summary Table for Stepwise Discriminant Function Analysis: Time Together

Step	Action Entered	Variables In	Wilks' Lambda	p
1	COM	1	.945	.008
2	PAS	2	.832	.001
3	INT	3	.806	.001

Table 15

Canonical Discriminant Functions of the Discriminating Variables by Stepwise Discriminant Analysis: Time Together

Function	Eigenvalue	Percent of Variance	Canonical Correlation	:	After Function	Wilks' Lambda	Chi-Squared	df	p
				:	0	.806	59.54	15	.001
1	.195	83.39	.404	:	1	.962	10.53	8	.230
2	.033	14.18	.179	:	2	.994	1.56	3	.669
3	.006	2.43	.075	:					

Table 16

Standardized Canonical Discriminant Function Coefficients for the Discriminating
Variables Identified by Stepwise Discriminant Analysis: Time Together

	FUNC 1
PAS	-.814
COM	1.476
INT	-.588

Table 17

Canonical Discriminant Functions Evaluated at Group Means (Group Centroids)
and Classification Results: Time Together

Group	n	Group Means Func 1	Percent Correct Classification 1 as 1	2 as 2	3 as 3	4 as 4	5 as 5	6 as 6	Overall % Correct
1	62	- .65	26	13	7	15	0	9	
2	58	- .39	(41.9%)	(22.4%)	(7.9%)	(35.7%)	(0.0%)	(31.0%)	23.49%
3	89	.24							
4	42	.43							
5	18	.33							
6	29	.50							
N	298								

Note. Group 1 = 0 –18 mo.; Group 2 = 19 mo. –3 yrs.; Group 3 = 4 –9 yrs.;
Group 4 = 10 –15 yrs.; Group 5 = 16 –21 yrs.; Group 6 = 22 yrs. +.

Groupings According to Time Together
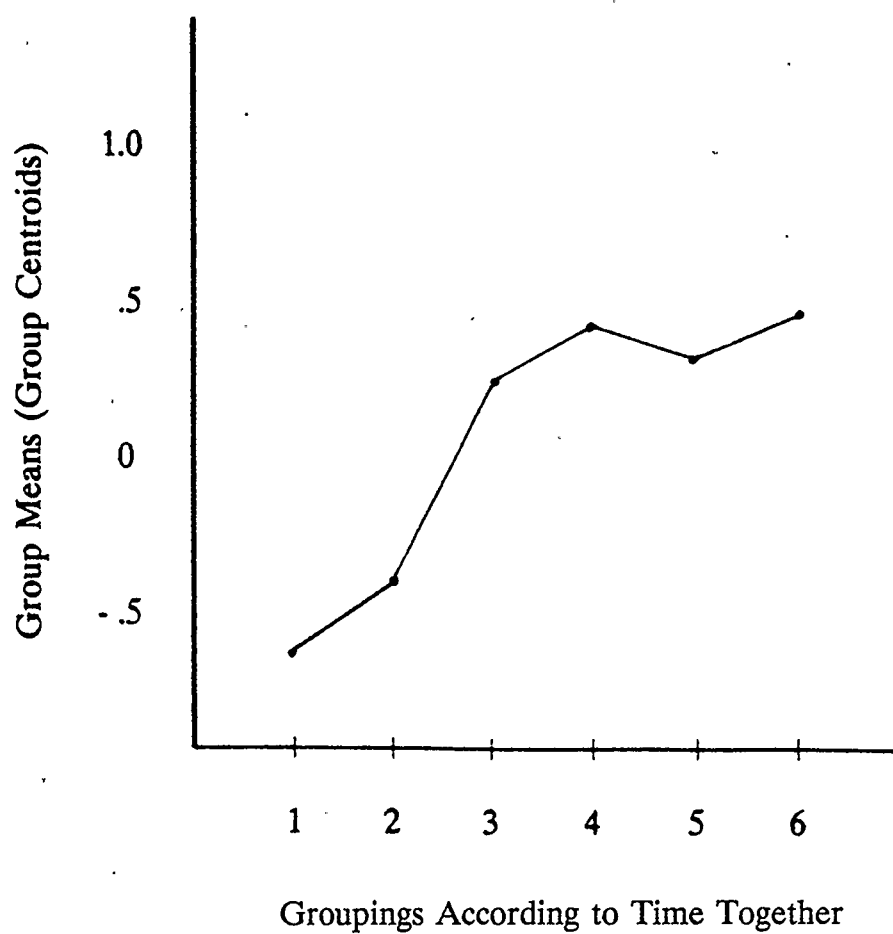
1 = 0 – 18 mo.
2 = 19 mo. – 3 yrs.
3 = 4 – 9 yrs.
4 = 10 – 15 yrs.
5 = 16 – 21 yrs.
6 = 22+ yrs.

Figure 5.   Group means over time for the first discriminant
function: Time together

either passion or intimacy. Ignoring signs, commitment, passion and intimacy coefficients are set at 1.476, .814, and .588 respectively (see Table 16).

Group centroids, as shown in Table 17, suggest that the first discriminant function maximally separates the newest relationships from the oldest (group 1 from group 6) with the other four groups falling between these extremes. Group centroids indicate a steady increase in scores as relationships progress over time, with the exception of group 5 where the mean is less than group 4. To the extent that the first and only significant discriminant function can be defined as commitment, commitment would appear to increase steadily from the newest relationships (group 1), to the most senior (group 6) with a slight drop-off for those who have been together for 16-21 years (group 5) – see Figure 5. With the exception of this minor irregularity, these results are consistent with theory (Sternberg, 1986, 1987b).

Classification results (Table 17) exceed chance (16.66%) for four of the six groups, with individuals from groups 1, 2, 4, and 6 being classified most successfully. Classification results are particularly poor for individuals from groups 3 and 5, with classification accuracy at 7.9% and 0%, respectively. As such, these results indicate only a moderately good scheme for classifying individuals according to time together.

Age. Unlike the previous stepping orders reported, entry of predictor variables in this analysis was such that passion entered the multivariate equation first, followed by commitment and intimacy (see Table 18). As indicated in Table 19, two significant discriminant functions were produced with the first accounting

Table 18

Summary Table for Stepwise Discriminant Function Analysis: Age

Step	Action Entered	Variables In	Wilks' Lambda	p
1	PAS	1	.921	.001
2	COM	2	.851	.001
3	INT	3	.836	.001

Table 19

Canonical Discriminant Functions of the Discriminating Variables by Stepwise Discriminant Analysis: Age

Function	Eigenvalue	Percent of Variance	Canonical Correlation	:	After Function	Wilks' Lambda	Chi-Squared	df	p
				:	0	.836	49.40	15	.001
1	.117	62.36	.323	:	1	.934	18.98	8	.015
2	.059	31.35	.236	:	2	.988	3.23	3	.358
3	.012	6.29	.108	:					

Table 20

Standardized Canonical Discriminant Function Coefficients for the Discriminating Variables Identified by Stepwise Discriminant Analysis: Age

	FUNC 1	FUNC 2
PAS	1.414	0.341
COM	-0.852	1.172
INT	-0.134	-0.665

Table 21

Canonical Discriminant Functions Evaluated at Group Means (Group Centroids) and Classification Results: Age

Group	n	Group Means Func 1	Func 2	Percent Correct Classification 1 as 1	2 as 2	3 as 3	4 as 4	5 as 5	6 as 6	Overall % Correct
1	46	.55	.03	15	3	23	5	8	14	
2	74	.15	-.06	(32.6%)	(4.1%)	(29.1%)	(13.3%)	(38.1%)	(35.0%)	22.82%
3	79	-.48	.02							
4	38	.11	-.18							
5	21	-.08	-.52							
6	40	.03	.49							
N	298									

Note. Group 1 = 18 –23 yrs.; Group 2 = 24 –29 yrs.; Group 3 = 30 –35 yrs.; Group 4 = 36 –41 yrs.; Group 5 = 42 –47 yrs.; Group 6 = 48 yrs. +.

for 62.36% of the between group variability for individuals grouped by age, and the second accounting for 31.35%. After the second function was removed, Wilks' Lambda increased to .988 with an associated chi-square of 3.23(3), $p=.358$. Results found in Table 20 suggest that the first and second functions may be seen as predominately measures of passion and commitment, respectively. Ignoring signs, standardized canonical discriminant function coefficients for the first and most powerful function are set at 1.414, .852, and .134 for each of passion, commitment, and intimacy.

With respect to group centroids, results in Table 21 and Figure 6 suggest that the first discriminant function maximally separates group 1 ($M=.55$) from group 3 ($M=-.48$), whereas the second maximally separates group 5 ($M=-.52$) from group 6 ($M=.49$). To the extent that the first function can be defined as passion, 18-23 year olds appear to have the highest passion scores with 30-35 year olds having the lowest. To the extent that the second function can be defined as commitment, 42-47 year olds appear to have the lowest commitment scores, with those 48 years plus having the highest. Another expression of these functions over age is illustrated in Figure 7. Each function shows a curvilinear trend, information that may be additive in the development of Sternberg's (1986, 1987b) theory.

Classification results (Table 21) are significant overall in that they exceed chance (16.66% correct); however, classification accuracy is poorer than chance for groups 4 and 2, individuals 36 to 41 years of age and individuals 24 to 29 years of age. Success of overall classification is roughly equivalent across all six-
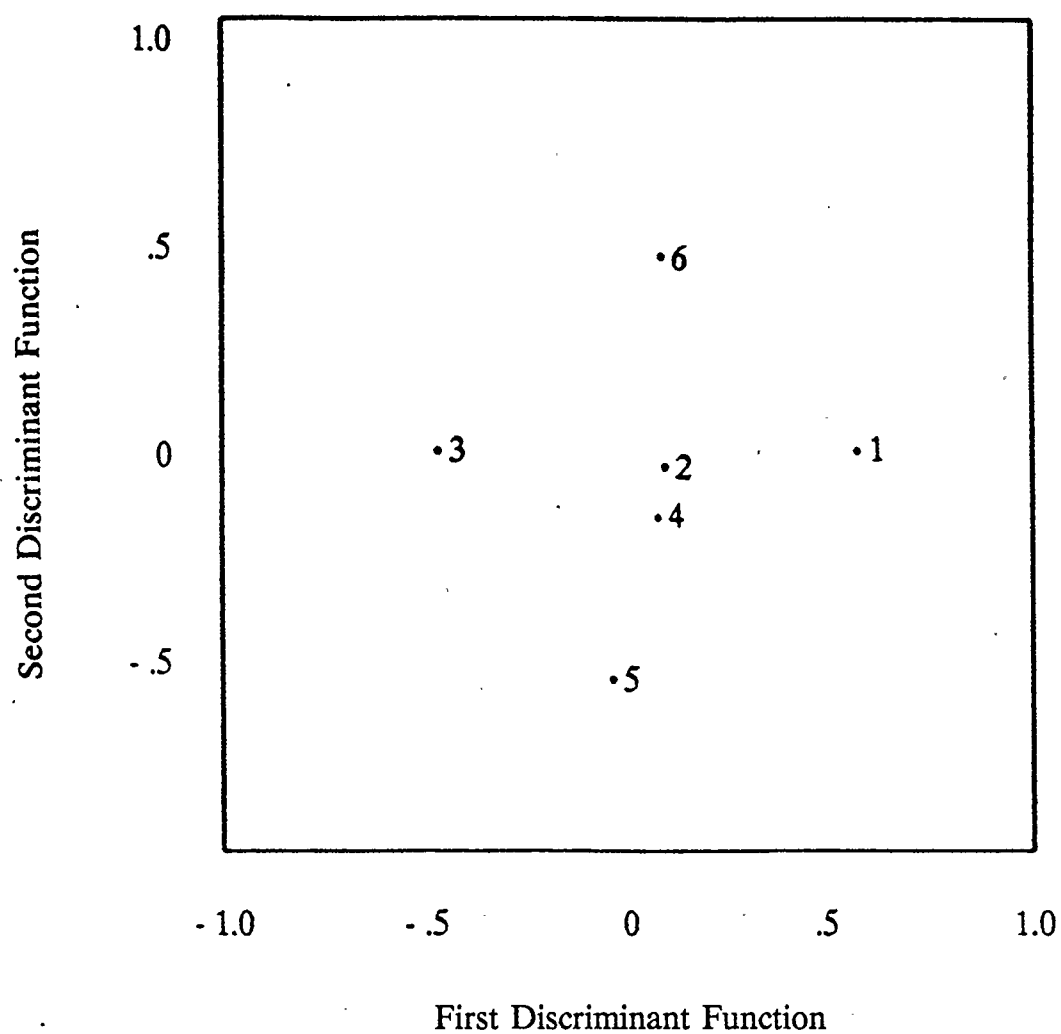
1 = 18–23 yrs.
2 = 24–29 yrs.
3 = 30–35 yrs.
4 = 36–41 yrs.
5 = 42–47 yrs.
6 = 48+ yrs.

Figure 6.   Canonical discriminant functions evaluated at group
means (group centroids): Age
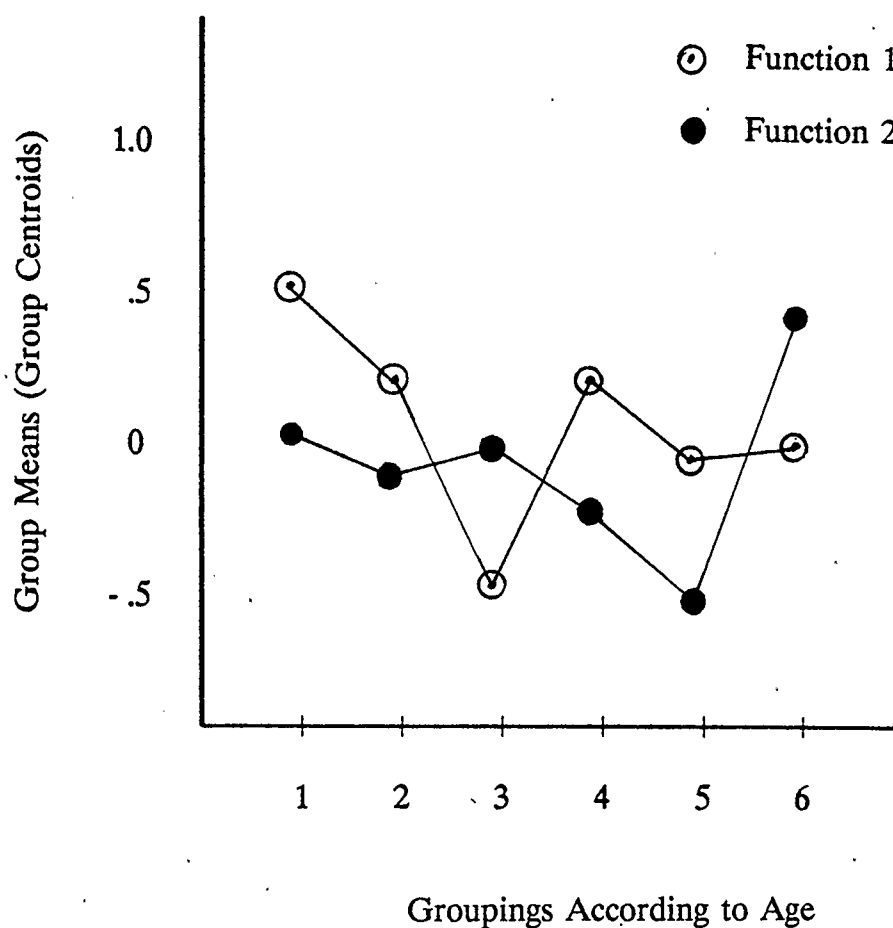
1 = 18–23 yrs.
2 = 24–29 yrs.
3 = 30–35 yrs.
4 = 36–41 yrs.
5 = 42–47 yrs.
6 = 48+ yrs.

Figure 7.   Group means over age for the first and second discriminant functions: Age

level organizational schemes (age, time together, and relationship status), with the present percent correct set at 22.82%, relationship status set at 22.48%, and time together set at 23.49% correct. As such, success in classification for each of these grouping schemes is only moderately good.

CHAPTER FIVE

DISCUSSION

This chapter will summarize the most important findings from the previous chapter, and discuss these findings in the context of the related literature and methodological limitations. Recommendations for future research will be advanced, as will concluding comments and possible applications for this and related research.

Summary of Results

In a general sense, the problem for this research was found in Trotter's (1986) statement: that love is "an understudied topic that is extremely important to people's lives" (p. 46). In a specific sense, the goal of this research has been to work with Sternberg's (1986, 1987a) Triangular Love Scale and Theory in an attempt to address the general problem, and, at the same time, explore a new and virtually untested measure of love. Quasi-experimental manipulation of Sternberg's scale, and of the scale with other scales, was also seen as a means to provide additional information regarding the construct validity of Sternberg's new measure and theory.

In total, 298 currently-involved, heterosexual adults volunteered to participate in a study to define love. Subjects were drawn to the study largely through newspaper advertisement, and data was collected through a self-report, questionnaire package that consisted of a demographic information page and six

measures from the related psychological literature. Questionnaires were completed, for the most part, in a controlled, school-library setting.

Statistical analyses of the data in this study yielded the following important findings. Results are presented in the order of the research questions asked.

Research Question 1

Principal factor extraction indicated a three-factor solution for the Triangular Love Scale, consistent with the Triangular Theory of Love and consistent with Sternberg's (1987a) results. Three factors accounted for an acceptable 55.9% of the shared variance among the factors, similar to Sternberg's (1987a) findings for principal component extraction. Varimax and direct quartimin rotations were performed and compared as a means to highlight the preferred oblique solution. The oblique solution was chosen over the orthogonal solution on the basis of size of factor correlations, theory underlying the scale, and simple structure, as outlined by Thurstone (1947). Factors were generally correlated over .30 (a cutoff suggesting non-orthogonality [Tabachnick & Fidell, 1983]); and theory (Sternberg, 1986, 1987b) has suggested that love components should be considered interrelated and multivariate. Further, the oblique rotation presented a simpler and more parsimonious solution than did the varimax rotation: 6 of 28 salient variables in the oblique solution were complex as compared to 22 of 31 salient variables in the orthogonal solution. Possible issue is taken with Sternberg's (1987a) presentation of a varimax solution in that such a position is inconsistent with theory.

With respect to the internal consistency of the scale, coefficient alpha was found to be a favorable .96 ($\underline{N}$=298), and 22 of 28 variables that reached salience in the oblique solution loaded according to Sternberg's theoretical designation. Eight variables were left out of the factor solution, and, as such, have questionable value in the scale — ultimately they may need to be modified or replaced. Factors appear reliable and can be interpreted, in order, as commitment, passion, and intimacy, consistent with Sternberg's (1987a) results, with the exception of the order of factors two and three. That commitment in the first factor, however, is inconsistent with theory: theory has proposed that intimacy is the core component of love (Sternberg, 1986; Sternberg & Wright, 1987).

<center>Research Question 2</center>

Correlational results produced in conjunction with Research Question 2 are generally supportive of Sternberg's scale and theory — evidence for construct validity. Sternberg's intimacy component is more highly correlated with trust than either passion or commitment (consistent with theory); and the same pattern is true with respect to dyadic adjustment and total intimacy, as measured by the Pair Inventory. Equally confirming of Sternberg's scale and theory is that commitment correlated more highly with Rusbult's commitment scale, than did either intimacy or passion. All patterns of correlations are understood, of course, in the context that Sternberg's components, themselves, are correlated: intimacy with passion, .79; intimacy with commitment, .73; and passion with commitment, .66 ($\underline{p}$<.001, two-tailed, $\underline{N}$=298). Correlations of this magnitude suggest a non-

orthogonality among components, again congruent with theory and previous findings (Sternberg, 1987a).

With respect to factor analytic procedures, principal factor extractions with varimax and direct quartimin rotations were performed on 120 variables across six scales. A nine-factor solution was chosen which accounted for an acceptable 47.5% of the shared variance among the factors. Varimax and direct quartimin rotations were performed and compared as a means to highlight the preferred oblique solution. The oblique solution was chosen over the orthogonal solution on the basis of theory (theory has suggested that the constructs measured by these scales should be correlated), and on the basis of simple structure. Of 42 variables having salience in the oblique solution, 2 were found to be complex; whereas, 22 of 60 variables in the orthogonal solution were complex. That the oblique rotation presented a simpler, more parsimonious factorial solution is not surprising given previous Pearson correlation findings and theoretical expectations.

Evidence within the underlying structure of the oblique solution is both supportive of Sternberg's scale, and additive to Sternberg's theory. Commitment items from Sternberg's scale and other scales clustered within the first factor confirming Sternberg's construct of commitment (see Table 8); and commitment appeared to be empirically distinct from other identifiable factors such as trust (factor 2), and sexual intimacy (factor 3) −note: factors in an oblique solution are still correlated. Further, factors 2 (trust), 3 (sexual intimacy), 6 (dyadic cohesion), 7 (recreational intimacy), and 9 (social intimacy) all seemed to break away from

Sternberg's construct of love, suggesting that love, as operationalized by Sternberg, is possibly distinct from these other constructs. Also of note is that Sternberg's passion component (factor 4) appears to break clearly from the first factor (commitment), and all others, most notably sexual intimacy. No factor that could be labelled intimacy (Sternberg's hypothesized core component) emerges from the factor pattern matrix. Results above have theoretical importance in that evidence is presented which assesses the extent to which Sternberg's construct of love is similar or dissimilar to related constructs. Factor analytic results presented here, though oblique, tend to show underlying structural distinctions between constructs not evident in the Pearson correlations presented in Table 5.

Research Question 3

3.1

Ten, separate, one-way, stepwise discriminant function analyses were run, each on a different scheme of group organization: organization by couple status, age, gender, time together, relationship status, marital status, level of sexual activity, children you have, children living with you, and school/home completion. Using the Triangular Love Scale as a predictor variable, all schemes of organization (grouping variables) appeared to reach multivariate significance ($p < .05$) with the exception of gender and school/home completion. That gender did not reach multivariate significance suggests that males and females responded similarly to Sternberg's scale which is congruent with previous findings (Sternberg, 1987a). That school/home completion did not reach multivariate significance suggests

that location of questionnaire completion, a methodological issue, has not effected scores on the Triangular Love Scale.

Of cautionary note is that many of the grouping variables that have been found significant are confounded and intercorrelated, making it difficult to partial out the effects of one variable over another. As such, multivariate differences in group means for different grouping variables (e.g., age, time together, relationship status, etc.) may appear to be significant, when in fact they are not. Unfortunately, one-way discriminant function analysis does not allow for error term adjustment when grouping variables are confounded. When a number of MANCOVAS were attempted, using age as a continuous covariate, solutions (variance accounted for) were no better than had been the case through discriminant analysis. This may have been the case because scattergrams from SPSS SCATTERGRAM indicated a possible curvilinear relationship between age and total love scores. Had there been a linear relationship, a partial correlation technique may have been more effective (Pedhazur, 1982).

3.2

Information regarding the grouping variables that could be predicted best was gained through the examination of the proportion of variance shared between grouping variables and significant discriminant functions. Allowing that some grouping variables are correlated, subsequent analyses rank ordered grouping variables as follows: relationship status, marital status, time together, age, level of sexual activity, children living with you, children you have, and couple status, with the proportions of variance shared at 29.2%, 24.5%, 16.3%, 16.0%, 6.5%, 5.1%,

5.0%, and 1.6%, respectively. This suggests that, in an applied sense, there is a

fairly strong relationship between Sternberg's love components, and, at least, the

first four grouping variables: relationship status, marital status, time together, and

age. That the variance accounted for is so much stronger for relationship status

(29.2%) and marital status (24.5%) than time together (16.3%), may be additive

to Sternberg's theory, in that Sternberg (1986, 1987b) has stressed, as most

important, how love changes over time, not the connection between love and

relationship status. Further, Sternberg has not mentioned the possible

importance of age of individuals when considering love. Caution needs to be

exercised in interpreting these results, however, in that grouping variables tend

not to be statistically independent.

3.3

Interpretation of significant discriminant functions, examination of group

centroids, and classification results were presented for three grouping schemes:

groups organized by relationship status, time together, and age.

Relationship status. All three love components were eligible to enter the

discriminant function analysis with commitment entering first, followed by passion

and intimacy. Only the first discriminant function was found to be significant –

the first function accounted for 90.89% of the between group variability for

individuals grouped by relationship status. Within the first discriminant function,

commitment appeared to be the most important defining element followed by

passion and intimacy. Standardized canonical discriminant function coefficients

were found to be 1.529, -.814, and -.381 for commitment, passion, and intimacy,

respectively. One interpretation of these coefficients is that commitment appears to be nearly twice as important as passion, and nearly four times as important as intimacy in discriminating among groups organized by relationship status. This statement is necessarily guarded, however, in that the components, themselves, are not orthogonal.

When considering group centroids, results have indicated that the first and only significant discriminant function maximally separates the dating group from both married groups, with the other three groups falling between these extremes. Results of this sort make sense in that one might expect dating individuals to have the lowest mean scores on commitment (an interpretation of the first function), and marrieds to have the highest (Coleman, 1984; Lund, 1985; Sternberg, 1986). As such, these results are supportive of Sternberg's scale and theory —evidence for construct validity.

Finally, one test of the adequacy of the derived discriminant functions, and the scale, is to consider how accurately they, and it, can predict group membership. Dating individuals (group 1) were most reliably classified (45.8% correct classification), followed by those in groups 2 and 6, engaged (and not cohabiting) and 2nd marriage (or more). Overall percent of correct classification was 22.48%, which is significant in that it exceeds the chance level of 16.66% —a confirmation of the scale. Classification results were poorer than chance for groups 3, 4, and 5, engaged (and cohabiting), cohabiting, and 1st marriage, respectively. Presumably, the issue of commitment is more ambiguous for groups

3, 4, and 5, than it is for groups 1, 2, and 6. For more complete information see Table 13.

Time together. After relationship status and marital status, time together accounted for the largest proportion of variance shared between grouping variables and predictor variables (16.3%). As in the previous inquiry, all three components entered the discriminant function analysis, with commitment entering first, followed by passion and intimacy. Again, only the first discriminant function was significant. In terms of understanding this function, once again, commitment appeared to be considerably more important in its definition than either passion or intimacy: standardized canonical discriminant function coefficients were found to be 1.476, -.814, and -.588 for commitment, passion, and intimacy.

With reference to group centroids, results have indicated that the first discriminant function maximally separates the newest relationships (0–18months) from the oldest (22 years +). Group centroids have indicated a steady increase in scores as relationships progress over time, with the exception of group 5 (16–21 years) where the mean is less than group 4 (10–15years). To the extent that the first discriminant function can be understood as commitment, commitment would appear to increase steadily from the newest relationships to the most senior, with a slight drop-off for those who have been together for 16–21years (group 5). With the exception of this minor irregularity, results are consistent with theory (Sternberg, 1986, 1987b) – a confirmation of the theory and the scale.

Classification results exceeded chance (16.66%) for four of six groups, with individuals from groups 1, 2, 4, and 6 being classified most successfully.

Classification results were particularly poor for individuals from groups 3 (4–9 years) and 5 (16–21years), with classification accuracy set at 7.9% and 0%, respectively. Presumably, the issue of commitment (an interpretation of the first function) is more ambiguous for individuals from these two groups, than it is for the other individuals. No theory exists with respect to this matter.

Age. Unlike the previous stepping orders reported, entry of predictor variables in this analysis was such that passion entered the multivariate equation first, followed by commitment and intimacy. Also unlike the previous analyses, two significant discriminant functions were produced: the first accounted for 62.36% of the between group variability, and the second accounted for 31.35%. In terms of understanding these functions, the first appears to be largely a measure of passion, and the second, largely a measure of commitment. Standardized canonical discriminant function coefficients for the first function were found to be 1.414, -.852, and -.134 for passion, commitment, and intimacy; whereas, coefficients for the second function were found to be 1.172, -.665, and .341 for commitment, intimacy, and passion.

With respect to group centroids, results suggest that the first function maximally separates group 1 (18–23year olds) from group 3 (30–35year olds); whereas, the second function maximally separates group 5 (42–47year olds) from group 6 (48 year olds +). To the extent that the first function can be defined as passion, 18–23year olds appear to have the highest passion scores (consistent with theory: Hatfield & Sprecher, 1986; Hendrick & Hendrick, 1986), with 30–35 year olds having the lowest. To the extent that the second function can be

defined as commitment, 42–47year olds appear to have the lowest commitment scores, with those 48 years plus having the highest. That passion should be highest for the youngest group is consistent with theory; however, theory (particularly Sternberg's) is undeveloped with respect to the course of passion over successive age groups. Here, both discriminant functions have shown an unexplained curvilinear trend (see Figure 7), and no research or theory (Sternberg's or otherwise) exists to confirm or disconfirm these patterns.

Finally, classification results were significant overall in that they exceeded chance (16.66% correct); however, classification accuracy was poorer than chance for groups 4 and 2, individuals 36 to 41 years of age, and individuals 24 to 29 years of age. No explanation is offered for the success or lack of success of classification results. Success of overall classification was roughly equivalent across all three discriminant function analyses presented: 22.82% correct for age; 22.48% correct for relationship status; and 23.49% correct for time together. As such, success in classification for each of these grouping schemes is nearly equal, but only moderately good.

Limitations and Recommendations for Future Research

Confidence in the above findings is tempered by a number of methodological limitations. Limitations presented relate to the issues of sampling, research design and procedures, instrumentation, and the data itself. Strengths of this study will be assessed, as will weaknesses. Recommendations for future research will be advanced.

Sample

Two hundred and ninety-eight, currently-involved, heterosexual adults volunteered to participate in a study to define love. For the most part, volunteers needed to be mobile; that is, they needed to be able to get to a specified testing location at a pre-arranged evening time. No special provisions (e.g., mail-outs or hand-delivery of questionnaires) were made for holidaying, handicapped, home-bound, or working couples, effectively skewing the sample. Further, as volunteers, they were likely to be biased[5] (Borg & Gall, 1979; Rosenthal & Rosnow, 1975); and distributions according to age, gender, occupation, etc. are probably not truly representative of an "involved," adult population. In all, random sampling cannot be assumed, which, in turn, affects the generalizability of the results (Kerlinger, 1973; Tabachnick & Fidell, 1983).

Size of sample can be considered good; however, perhaps double or triple the subjects would be needed if one wished to carry out a more complex factorial design, or compare underlying factor structures within certain sample subsets (e.g., relationship status or time together). Both proposals would offer more precision to our understanding of Sternberg's scale and model – a recommendation for future research.

Despite the limitations outlined above, in an applied sense, the current sample can be considered a good one. It compares very favorably to samples in the

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[5]Citing Rosenthal and Rosnow (1975), Borg and Gall (1979) have suggested that, among other things, volunteers tend to be better educated and more social than non-volunteers, and have a higher social class and a higher need for social approval.

related literature that have relied exclusively on university undergraduates (e.g., Hatfield & Sprecher, 1986; Hendrick & Hendrick, 1986; Fehr, 1988; Rubin, 1970); and is considerably more substantial than Sternberg's (1987a) $\underline{N}$ of 84 singles[6]. Comrey (1973) and Tabachnick and Fidell (1983) have argued that a sample size of at least 100 is recommended for factor analytic purposes, though appropriate sample size is dependent on the number of variables under study.

Research Design and Procedures

Research Design

The overall research design can be considered correlational (Borg & Gall, 1979; Harvey et al., 1983), and as such, causal inference cannot be made. The design for Research Question 3 is also ex post facto (after the fact), and quasi-experimental, in that assignment to groups was not random (Cook & Campbell, 1979; Harvey et al., 1983). If assignment was random, the experimenter would have more control over the variance in the data (Borg & Gall, 1979; Kerlinger, 1973). Most criterion or grouping variables are confounded, making it uncertain what factors are the active ingredients when differences between group means are found (Kirk, 1968; Kerlinger, 1973). When subjects from different age groups

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[6]Some (e.g., Schram, 1979; Thompson & Walker, 1982) have argued that a distinction should be made between singles who happen to be currently involved in a close heterosexual relationship, and couples, those individuals who happen to participate in a study as a couple or as a matched pair. In Sternberg's (1987a) case, he employed 84 singles; whereas, in the present study, the sample was made up of 54 singles and 244 couples. Results from a Hotelling's T^2 analysis indicated that couple status was significant ($\underline{p} < .05$, $\underline{N} = 298$); that is, couples had significantly higher love scores than did singles. Though this design issue is probably not that critical, it may be worthwhile in future research to make a distinction between a sample that is made up of singles and a sample that is made up of couples.

were compared at the same point in time, the design can be considered cross-sectional —a special case of ex post facto design (Harvey et al., 1983). Confidence in the results presented, particularly in the case of Research Question 3, is influenced by probable confounding among groups, and problems inherent in cross-sectional designs, such as selective survival (Harvey et al., 1983; Spanier & Lewis, 1980).

In spite of the inherent limitations in the research design outlined, it is important to recognize that this design fits the research problems presented in this study. The research problems do not lend themselves to classical experimental inquiry (Harvey et al., 1983; Kerlinger, 1973). Further, cross-sectional research, though flawed, is more practical, economical, and cost-effective than longitudinal research, an alternative to a cross-sectional design. Ideally, this research would be supplemented with longitudinal research —a recommendation for future study. At the same time, however, it is recognized that longitudinal research also has problems such as the loss of subjects over time (Harvey et al., 1983; Spanier & Lewis, 1980). Further, there is a matter of practicality: some relationships last longer than the career of the researcher, or at the very least, longer than the term of the average research grant (Spanier & Lewis, 1980). For a Ph.D. student to consider a longitudinal design spanning much more than two years would be unfeasible.

Also relevant to the issue of design is that all data has been gathered through a closed form, self-report, questionnaire package (Borg & Gall, 1979). Though this means of collecting data is more economical and perhaps easier to analyze

than others (e.g., sentence completions, paragraph responses, interviews, or behavioral observation), some information is lost in the closed form format (Borg & Gall, 1979). Ideally, the questionnaire data from this study would be supplemented with the other types of data mentioned above, particularly behavioral data – a recommendation for future research. Rubin (1970), for instance, found that mutual gazing or eye contact was predictive of romantic love, and Sternberg (1986, 1987b) has suggested a number of behaviors that may be consistent with the three love components: hugging, kissing, and making love for passion; close communication and mutual support for intimacy; and engagement, marriage, and fidelity for commitment. A design that would consider behavioral data in conjunction with scores from the Triangular Love Scale would address the issue of criterion-related validity, and at the same time, the construct validity of the scale and theory.

Another design that would integrate different forms of data for the purposes of construct validity – a recommendation for future research – is the multitrait-multimethod matrix as proposed by Campbell and Fiske (1959). In a convergent/discriminant fashion, this matrix consists of the correlations of two or more constructs or traits, each of which has been measured by two or more methods. To establish satisfactory construct validity, the monotrait-heteromethod correlations should be higher than the heterotrait-monomethod correlations (Campbell & Fiske, 1959). Put another way, variance accounted for, due to trait, must run significantly higher than variance accounted for due to measurement method.

Before leaving the topic of research design, it is also important to point out that the present data is of the self-report type, and as such, is subject to response bias in the form of social desirability (Crowne & Marlowe, 1964) or the tendency to "fake good" (Olson & Schaefer, 1985). The tendency toward social desirability or marital conventionalization (Edmonds, 1967) is observed in the present study through the Pair Inventory, but no attempt has been made to control for it – perhaps a limitation of this study.[7] On the other hand, most studies related to love have not dealt with the topic either (e.g., Hatfield & Sprecher, 1986; Hendrick & Hendrick, 1986; Rubin, 1970; Sternberg, 1987a).

Procedures

Both paid and free advertisement were used to draw volunteers to this study, with newspaper advertisement (the only paid advertising vehicle) being the most effective. Over a one-month period, eight heart-shaped ads were run in four city-wide Calgary newspapers at the total cost of $1,196.00, double what had been anticipated for advertising. Just the same, extra costs were incurred so that a pre-set target of 300 subjects could be reached, and so that the data could be collected in an efficient fashion.

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[7]Edmonds (1967) has suggested that one way to control for marital conventionality or social desirability is to eliminate those subjects in the sample who have extreme conventionality scores (no cutoff point is offered); the other is to employ conventionality scores in a partial correlation technique. Neither suggestion has much support in the related literature (Hansen, 1981; Schaefer & Olson, 1981; Schram, 1979) because researchers are generally hesitant to discard hard-earned subjects, and because some have argued that conventionality may be an artifact of the nature of marital satisfaction or adjustment (Hansen, 1981; Schumm et al., 1986). In the present study, I have chosen to passively observe conventionality scores, as have Schaefer and Olson (1981).

Free sources of advertising, both invited and pursued, were also used to attract subjects to this study. Free sources included interviews on three local radio stations, a newspaper interview, and public service announcements in a number of local radio, television, and print media services. In all, attempts were made to attain as representative a sample, as possible, of Calgary adults who were currently involved in a close, heterosexual relationship. No changes in advertising procedures are recommended for future research.

With respect to telephone and testing procedures, the researcher is also satisfied with the design that was used. Three Ph.D. students made themselves available to take calls from prospective volunteers, and a standard set of telephone procedures was followed. In the testing situation, time, setting, instructions, and procedures were also standardized in an attempt to control for measurement error. The only deviation from the original plan was that at about the half-way mark in the data collection, take-home questionnaire packages were issued to those individuals who felt assured that their partner (usually a male) would complete the questionnaire and return it. Thirty-four of 44 (or 77%) of those questionnaires sent home were returned completed – a good return rate (Borg & Gall, 1979; Kerlinger, 1973). Further, testing location appeared to have no effect on love scores. In all, no changes in telephone or testing procedures are recommended for future research.

Instrumentation

The quality of the measurement instruments used – their respective reliability and validity – has obvious bearing on the confidence that one can place in the

results from this study. Arguments in the related literature attest to the reliability and validity of all scales employed, particularly the Dyadic Trust Scale, the Pair Inventory, and the Dyadic Adjustment Scale (see Chapter Three). Of the three, perhaps the most confidence can be placed in the Dyadic Adjustment Scale because of the extensive research that has been done with this measure (Spanier, 1976; Spanier & Filsinger, 1983; Spanier & Thompson, 1982).

With respect to the current study, all scales seemed to perform fairly well with the exception of the Pair Inventory and Rusbult's satisfaction and commitment items. In the case of the former, mean scores in the present study were inexplicably higher than the existing norm (Schaefer & Olson, 1981); and reliability estimates for Rusbult's measures were less than desirable: coefficient alpha for satisfaction was found to be .57 ($\underline{N}$=298); coefficient alpha for commitment was set at .68 ($\underline{N}$=298). On the other hand, all scales showed sensible patterns of correlations in a Pearson correlation matrix (Table 5), and the underlying factor structure of the six scales together seemed reasonable (see Table 8). Sensible patterns of correlations tend to be an indication of construct validity (Nunnally, 1978; Sternberg, 1987a).

With particular reference to the Triangular Love Scale, the assessment of it cuts both ways: not only does the quality of the scale effect the results, but the results influence our assessment of the quality of the scale. At the risk of judging the Triangular Love Scale prematurely, I would say that overall it is a good instrument, though it is not without flaws. First, in it, there are some bad items. Sternberg (1987a) has argued that there are perhaps four bad items; I suggest

that there may be seven or eight items that may ultimately need to be modified or replaced. Second, the present study suggested a three-factor solution (consistent with Sternberg's, 1987a results and theory); however, some items in the scale were complex, and some did not load where they were supposed to. On the other hand, it may be too much to ask that all items load exactly according to theoretical designation (Spanier & Thompson, 1982). Perhaps more important than some inappropriate loadings, the factors extracted were not in the order of importance as suggested by theory (Sternberg, 1986; Sternberg & Wright, 1987). As theory has it, intimacy is the core component of love, not commitment. In both this research and the research of Sternberg (1987a), commitment was found to be the main component underlying the Triangular Love Scale. Ultimately, either the theory or the scale may need to be modified so that there is congruence between the two. Obviously, more research needs to be conducted with the Triangular Love Scale to settle this issue.

When the Triangular Love Scale was juxtaposed with related scales, patterns of correlations made sense, as did factor analytic results – support for the scale and theory. Further, when the scale was employed as a predictor variable in Research Question 3, it appeared to perform fairly well. Results were consistent with theory to the extent that theory exists. A series of discriminant function analyses indicated that relationship status, time together, and age are perhaps the most important demographic variables when considering love; and interpretations of group centroids tended to be in keeping with existing theory. In sum, evidence exists for the construct validity of the Triangular Love Scale and Theory. With

the exception of the relative importance of the love components, the scale appears congruent with the Triangular Theory of Love. Further, the theory, itself, holds up well in the light of the related literature (see Chapter Two).

The Data

One final theme that has bearing on the quality of results at hand is the issue of the data itself. As indicated in Chapter Three, preliminary analysis of the data indicated certain patterns of missing data, as well as the fact that distributions for all dependent measures showed fair to severe negative skewness. On the first point, the researcher decided to replace missing values with grand means for two of three research questions (Research Questions 1 and 2) because of the pattern and amount of missing data. In the case of the first research question, missing data for the Triangular Love Scale was replaced as a matter of convenience, and so that factor analytic results from this question could be compared to those from the second question, if necessary. Further, replacing missing values for the Triangular Love Scale was not seen to be a serious matter in that only 17 of 298 values were missing, and missing values tended to be spread out in the sample.

In the case of the second research question, however, missing values were not randomly distributed throughout the sample. Missing values tended to be associated with one of Rusbult's commitment items, and four items from the Dyadic Adjustment Scale that related to cohabitation. If data had not been replaced in the case of the Dyadic Adjustment Scale, all non-cohabiting subjects (60 of 298 subjects) would have been eliminated from the factor analysis, effectively changing the nature of the sample. Just the same, the researcher is

cognizant of the fact that to replace missing values with grand means tends to lower the variance in the data, lower the magnitude of the correlations between variables, and reduce the number of factors in any factor analytic solution (Tabachnick & Fidell, 1983). Had data not been replaced, slightly different results might have occurred, especially for Research Question 2.

With respect to skewed data, data transformations were attempted on the Triangular Love Scale which reduced the skewness values on the scale from the original -1.36 down to -.27, indicating a nearly normal distribution. When the transformed data was utilized, however, the transformed data behaved no better than the original data on a number of simple ANOVAS. Accordingly, the researcher decided to continue to work with the original data, knowing that skewed data can cause distortion in Type 1 error rate (Tabachnick & Fidell, 1983) – a concern in this study. On the other hand, the presence of negative skewness in the Triangular Love Scale may be an accurate representation of the nature of love. Put another way, it may be inappropriate to transform love scores or to expect that love would be a normally distributed construct.

Conclusions and Applications

Conclusions

The importance of this research lies in the work that has been done with the Triangular Love Scale and Theory, a new scale and theory that is part of a larger body of research, the psychology of love. Results from this study speak to the

ongoing question of construct validity of Sternberg's new measure and model (a simultaneous process [Cronbach, 1984; Sternberg, 1987a]). Further, some results may be seen as additive to existing theory, where theory is only partially developed. Key findings from this study are as follows:

1. Factor analytic results of the Triangular Love Scale indicated a three-factor solution (consistent with theory), though the order of factors extracted (commitment, passion, and intimacy) was inconsistent with theory. Further, 8 of 36 items were left out of the preferred oblique solution, suggesting a need for further scale revision. Internal analyses of the Triangular Love Scale were only partially supportive of the scale's construct validity.

2. When the Triangular Love Scale was juxtaposed with related scales, Pearson correlations showed expected patterns of correlations – a confirmation of the scale and the theory. When factor analytic solutions were pursued, again results were generally supportive; however, no factor that could be labelled intimacy (Sternberg's hypothesized core component) emerged. Of theoretical importance is that Sternberg's love components appeared to break clearly from the related constructs of trust, sexual intimacy, and dyadic cohesion. Factor analytic results are understood in the context of the factors, themselves, being correlated.

3. When the Triangular Love Scale was employed to predict group membership, the scale performed moderately well, and according to theoretical expectations, to the extent that theory currently exists. Of note is that the demographic grouping variables, relationship status, time together, and age,

though correlated, seemed to share considerable variance with the Sternberg love components. Results are novel and additive to existing theory.

In sum, evidence has been presented that is supplemental to theory and germane to the topic of construct validity of Sternberg's new scale and model. Limitations of this study have been outlined, as have recommendations for future research. Limitations include those related to sampling, research design, procedures, instrumentation, and the data itself.

Applications

To the extent that knowledge can be gained about love, researchers may be in the position to offer information about love's nature and process which could conceivably have both educational and therapeutic application. Rubin (1988), for one, has argued that, with knowledge, people may be in the position to "choose partners more wisely," "cultivate love more resourcefully," and "make more realistic demands on relationships" (p. xi). Knowledge of love's nature and process, says Rubin, may, in turn, have the potential of increasing both the quality and durability of intimate relationships, which would enrich people's loves. If research of this sort were to move individuals, even slightly, toward these ends, few would disagree about the importance of study in this area.

REFERENCES

Anastasi, A. (1982). Psychological testing (5th ed.). New York: Macmillan.

Argyle, M. E., & Henderson, M. (1985), The anatomy of relationships. London: Heinemann.

Bahr, S. J., Chappell, C. B., & Leigh, G. K. (1983). Age at marriage, role enactment, role consensus, and marital satisfaction. Journal of Marriage and the Family, 45, 795-803.

Bailey, W. C., Hendrick, C., & Hendrick, S. S. (1987). Relation of sex and gender role to love, sexual attitudes, and self-esteem. Sex Roles, 16, 637-648.

Barnett, R. C., Biener, L., & Baruch, G. K. (Eds.) (1987). Gender and stress. New York: Free Press.

Beach, S. R. H., & Tesser, A. (1988). Love in marriage: A cognitive account. In R. J. Sternberg & M. L. Barnes (Eds.), The psychology of love (pp. 330-355). New Haven, CT: Yale University Press.

Berscheid, E. (1983). Emotion. In H. H. Kelley, E. Berscheid, A. Christensen, J. H. Harvey, T. L. Huston, G. Levinger, E. McClintock, L. A. Peplau, & D. R. Peterson (Eds.), Close relationships (pp. 110-168). New York: W. H. Freeman.

Berscheid, E. (1984). Interpersonal attraction. In G. Lindzey & E. Aronson (Eds.), The handbook of social psychology (3rd ed.). Hillsdale, NJ: Erlbaum.

Berscheid, E. (1988). Some comments on love's anatomy: Or, whatever happened to old-fashioned lust? In R. J. Sternberg & M. L. Barnes (Eds.), The psychology of love (pp. 359-374). New Haven, CT: Yale University Press.

Borg, W. R., & Gall, M. D. (1979). Educational research (3rd ed.). New York: Longman.

Branden, N. (1988). A vision of romantic love. In R. J. Sternberg & M. L. Barnes (Eds.), The psychology of love (pp. 218-231). New Haven, CT: Yale University Press.

Brehm, S. S. (1985). Intimate relationships. New York: Random House.

Brehm, S. S. (1988). Passionate love. In R. J. Sternberg & M. L. Barnes (Eds.), The psychology of love (pp. 232-263). New Haven, CT: Yale University Press.

Burgess, E. W., & Locke, J. (1953). The family. New York: American Book.

Buss, D. M. (1988). Love acts: The evolutionary biology of love. In R. J. Sternberg & M. L. Barnes (Eds.), The psychology of love (pp. 100-118). New Haven, CT: Yale University Press.

Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. Psychological Bulletin, 56, 81-105.

Cattell, R. B. (1968). The scree test for the number of factors. Multivariate Behavioral Research, 1, 245-276.

Coleman, J. C. (1984). Intimate relationships, marriage, and family. Indianapolis: Bobbs-Merrill.

Comrey, A. L. (1973). A first course in factor analysis. New York: Academic Press.

Cook, T. D., & Campbell, D. T. (1979). Quasi-experimentation: Design & analysis issues for field settings. Chicago: Rand McNally.

Cox, F. D. (1978). Human intimacy: Marriage, the family and its meaning. St. Paul, MN: West Publishing.

Cronbach, L. J. (1960). Essentials of psychological testing (2nd ed.). New York: Harper & Brothers.

Cronbach, L. J. (1984). Essentials of psychological testing (4th ed.). New York: Harper & Row.

Crowne, D. P., & Marlowe, D. (1964). The approval motive: Studies in evaluative dependence. New York: Wiley.

Cuber, J. F., & Harroff, P. B. (1965). The significant Americans: A study of sexual behavior among the affluent. New York: Appleton-Century.

Davis, K. E. (1985, February). Near and dear: Friendship and love compared. Psychology Today, 22-30.

Davis, M. H., & Oathout, H. A. (1987). Maintenance of satisfaction in romantic relationships: Empathy and relational competence. Journal of Personality and Social Psychology, 53, 2, 397-410.

de Rougemont, D. (1956). Love in the Western world. New York: Harper & Row.

Dion, K. L., & Dion, K. K. (1988). Romantic love: Individual and cultural

    perspectives. In R. J. Sternberg & M. L. Barnes (Eds.), The psychology of

    love (pp. 264-289). New Haven, CT: Yale University Press.

Dixon, W. J. (Ed.). (1983). BMDP statistical software. Berkeley: University of

    California Press.

Driscoll, R., Davis, K. E., & Lipetz, M. E. (1982). Parental interference and

    romantic love: The Romeo and Juliet effect. Journal of Personality and

    Social Psychology, 24, 1, 1-10.

Duffy, S. M., & Rusbult, C. E. (1986). Satisfaction and commitment in

    homosexual and heterosexual relationships. Journal of Homosexuality, 12,

    2, 1-23.

Edmonds, V. H. (1967). Marital conventionalization: Definition and

    measurement. Journal of Marriage and the Family, 29, 681-688.

Farber, B. A. (1980). Adolescence. In K. S. Pope (Ed.), On love and loving (pp.

    44-60). San Francisco: Jossey-Bass.

Fehr, B. (1988). Prototype analysis of the concepts of love and commitment.

    Journal of Personality and Social Psychology, 55, 4, 557-579.

Frane, J., Jennrich, R., & Sampson, P. (1983). P4M: Factor analysis. In W. J.

    Dixon (Ed.), BMDP statistical software (pp. 480-499). Berkeley: University

    of California Press.

Freud, S. (1962). Three contributions to the theory of sex. New York: Dutton.

    (Original work published 1905).

Fromm, E. (1956). The art of loving. New York: Harper & Row.

Gale, G. (1979). Theory of science: An introduction to the history, logic, and philosophy of science. New York: McGraw-Hill.

Gorsuch, R. L. (1983). Factor analysis (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum.

Hames, J., & Waring, E. M. (1980). Marital intimacy and non-psychotic emotional illness. The Psychiatric Forum, 9, 13-19.

Hansen, G. L. (1981). Marital adjustment and conventionalization: A reexamination. Journal of Marriage and the Family, 43, 855-863.

Harman, H. H. (1967). Modern factor analysis. Chicago: University of Chicago Press.

Harris, G. T. (1978). Introduction. In E. Walster and G. W. Walster, A new look at love (pp. vi-xi). Reading, MA: Addison-Wesley.

Harvey, J. H., Christensen, A., & McClintock, E. (1983). Research methods. In H. H. Kelley, E. Berscheid, A. Christensen, J. H. Harvey, T. L. Huston, G. Levinger, E. McClintock, L. A. Peplau & D. R. Peterson (Eds.), Close relationships (pp. 449-485). New York: W. H. Freeman.

Hatfield, E. (1988). Passionate and companionate love. In R. J. Sternberg & M. L. Barnes (Eds.), The psychology of love (pp. 191-217). New Haven, CT: Yale University Press.

Hatfield, E., & Sprecher, S. (1986). Measuring passionate love in intimate relationships. Journal of Adolescence, 9, 383-410.

Hatfield, E., & Walster, G. W. (1978). A new look at love. Lantham, MA: University Press of America.

Heiman, J. R. (1986). Treating sexually distressed marital relationships. In N. S.

Jacobson & A. S. Gurman (Eds.), Clinical handbook of marital therapy

(pp. 361-384). New York: Guilford.

Helgeson, V. S., Shaver, P., & Dyer, M. (1987). Prototypes of intimacy and

distance in same-sex and opposite-sex relationships. Journal of Social and

Personal Relationships, 4, 195-233.

Hendrick, C., & Hendrick, S. (1983). Liking, loving, & relating. Monterey, CA:

Brooks/Cole.

Hendrick, C., & Hendrick, S. (1986). A theory and method of love. Journal of

Personality and Social Psychology, 50, 392-402.

Hendrick, C., Hendrick, S., Foote, F. H., & Slapion-Foote, M. J. (1984). Do men

and women love differently? Journal of Social and Personal Relationships,

1, 177-195.

Hendrick, S. S. (1988). A generic measure of relationship satisfaction. Journal of

Marriage and the Family, 50, 93-98.

Hendrick, S. S., Hendrick, C., & Adler, N. L. (1988). Romantic relationships:

Love, satisfaction, and staying together. Journal of Personality and Social

Psychology, 54, 6, 980-988.

Hull, C. H., & Nie, N. H. (1981). SPSS update 7-9: New procedures and facilities

for releases 7-9. New York: McGraw-Hill.

Kelley, H. H. (1983). Love and commitment. In H. H. Kelley, E. Berscheid, A.

Christensen, J. H. Harvey, T. L. Huston, G. Levinger, E. McClintock, L. A.

Peplau, & D. R. Peterson (Eds.), Close relationships (pp. 265-314). New York: W. H. Freeman.

Kerlinger, F. N. (1973). Foundations of behavioral research (2nd ed.). New York: Holt, Rinehart, & Winston.

Kim, J., & Meuller, C. W. (1978). Factor analysis: Statistical methods and practical issues. Beverly Hills: Sage.

Kirk, R. E. (1968). Experimental design: Procedures for the behavioral sciences. Belmont, CA: Brooks/Cole.

Klecka, W. R. (1975). Discriminant analysis. In N. H. Nie, C. H. Hull, J. G. Jenkins, K. Steinbrenner & D. H. Bent (Eds.), Statistical package for the social sciences (2nd ed.) (pp. 434-467). New York: McGraw-Hill.

Kovacs, L. (1983). A conceptualization of marital development. Family Therapy, 10, 183-210.

Kurdek, L. A., & Schmitt, J. P. (1986). Early development of relationship quality in heterosexual married, heterosexual cohabiting, gay, and lesbian couples. Developmental Psychology, 22, 3, 305-309.

Larzelere, R. E., & Huston, T. L. (1980). The dyadic trust scale: Toward understanding interpersonal trust in close relationships. Journal of Marriage and the Family, 42, 595-604.

Lasswell, M., & Lobsenz, N. M. (1980). Styles of loving. New York: Ballentine.

Lauer, J., & Lauer, R. (1985, June). Marriages made to last. Psychology Today, pp. 22-26.

135

Lee, J. A. (1973). Colours of love: An exploration of the ways of loving. Toronto: New Press.

Lee, J. A. (1977). A typology of styles of loving. Personality and Social Psychology Bulletin, 3, 173-182.

Lee, J. A. (1988). Love styles. In R. J. Sternberg & M. L. Barnes (Eds.), The psychology of love (pp. 38-67). New Haven, CT: Yale University Press.

Levinger, G. (1988). Can we picture "love"? In R. J. Sternberg & M. L. Barnes (Eds.), The psychology of love (pp. 139-158). New Haven, CT: Yale University Press.

Levinger, G., Rands, M., & Talabar, R. (1977). The assessment of involvement and rewardingness in close and casual pair relationships (National Science Foundation Tech. Rep. DK). Amherst: University of Massachusetts.

Lewis, R. A., & Spanier, G. B. (1979). Theorizing about the quality and stability of marriage. In W. R. Burr, R. Hill, F. I. Nye & I. L. Reiss (Eds.), Contemporary theories about the family: Vol. 1 (pp.268-294). New York: Free Press.

Locke, H. L., & Wallace, K. M. (1959). Short marital-adjustment and prediction tests: Their reliability and validity. Journal of Marriage and Family Living, 21, 251-255.

Lund, M. (1985). The development of investment and commitment scales for predicting continuity of personal relationships. Journal of Social and Personal Relationships, 2, 3-23.

Maccoby, E. E., & Jacklin, C. N. (1974). The psychology of sex differences. Stanford: Stanford University Press.

Macklin, E. D. (1983). Nonmarital heterosexual cohabitation: An overview. In E. D. Macklin & R. H. Rubin (Eds.), Contemporary families and alternative lifestyles (pp. 49-74). Beverly Hills: Sage.

Margolin, G. (1983). An interactional model for the behavioral assessment of marital relationships. Behavioral Assessment, 5, 103-127.

Maslow, A. H. (1954). Motivation and personality. New York: Harper & Row.

Maslow, A. H. (1962). Toward a psychology of being. Princeton, NJ: Van Nostrand.

Maslow, A. H. (1966). The psychology of science. New York: Harper & Row.

Maxwell, G. M. (1985). Behavior of lovers: Measuring closeness of relationships. Journal of Social and Personal Relationships, 2, 215-238.

Mellon, L. W. (1981). The evolution of love. San Francisco: W. H. Freeman.

Messick, S. (1980). Test validity and the ethics of assessment. American Psychologist, 35, 1012-1027.

Miller, B. C. (1976). A multivariate developmental model of marital satisfaction. Journal of Marriage and the Family, 38, 643-657.

Minuchin, S., & Fishman, C. H. (1981). Family therapy techniques. Cambridge, MA: Harvard University Press.

Moos, R. H., & Moos, B. A. (1976). A typology of family social environments. Family Process, 15, 357-372.

Murstein, B. I. (1988). A taxonomy of love. In R. J. Sternberg & M. L. Barnes (Eds.), The psychology of love (pp. 13-37). New Haven, CT: Yale University Press.

Newcomb, M. D. (1981). Heterosexual cohabitation relationships. In S. Duck & R. Gilmour (Eds.), Personal relationships. 1: Studying personal relationships (pp. 131-164). London: Academic Press.

Nie, N. H., Hull, C. H., Jenkins, J. G., Steinbrenner, K., & Bent, D. H. (Eds.). (1975). Statistical package for the social sciences (2nd ed.). New York: McGraw-Hill.

Nunnally, J. C. (1978). Psychometric theory (2nd ed.). New York: Free Press.

Olson, D. H., & Schaefer, M. T. (1985). PAIR: Personal assessment of intimacy in relationships: Procedure manual. Family Social Science, St. Paul: University of Minnesota.

Pedhazur, E. J. (1982). Multiple regression in behavioral research (2nd ed.). New York: Holt, Rinehart, & Winston.

Peele, S. (1988). Fools for love: The romantic ideal, psychological theory, and addictive love. In R. J. Sternberg & M. L. Barnes (Eds.), The psychology of love (pp. 159-188). New Haven, CT: Yale University Press.

Rempel, J. K., Holmes, J. G., & Zanna, M. P. (1985). Trust in close relationships. Journal of Personality and Social Psychology, 49, 1, 95-112.

Roach, A. J., Frazier, L. P., & Bowden, S. R. (1981). The marital satisfaction scale: Development of a measure for intervention research. Journal of Marriage and the Family, 43, 537-546.

Rosenthal, R., & Rosnow, F. L. (1975). The volunteer subject. New York: Wiley.

Rossi, A. S. (Ed.) (1985). Gender and the life course. New York: Aldine.

Rotter, J. B. (1967). A new scale for the measurement of interpersonal trust. Journal of Personality, 35, 651-665.

Rubin, Z. (1970). Measurement of romantic love. Journal of Personality and Social Psychology, 16, 265-273.

Rubin, Z. (1973). Liking and loving: An invitation to social psychology. New York: Holt, Rinehart & Winston.

Rubin, Z. (1988). Preface. In R. J. Sternberg & M. L. Barnes (Eds.), The psychology of love (pp. vii-xii). New Haven, CT: Yale University Press.

Rusbult, C. E. (1980). Commitment and satisfaction in romantic associations: A test of the investment model. Journal of Experimental Social Psychology, 16, 172-186.

Rusbult, C. E. (1983). A longitudinal test of the investment model: The development (and deterioration) of satisfaction and commitment in heterosexual involvements. Journal of Personality and Social Psychology, 45, 101-107.

Rusbult, C. E., Johnson, D. J., & Morrow, G. D. (1986). Predicting satisfaction and commitment in adult romantic involvements: An assessment of the generalizability of the investment model. Social Psychology Quarterly, 49, 1, 81-89.

Sager, C. J. (1976). Marriage contracts and couple therapy. New York: Brunner/Mazel.

Sager, C. J. (1981). Couples therapy and marriage contracts. In A. S. Gurman & D. P. Kniskern (Eds.), Handbook of family therapy (pp. 85-130). New York: Brunner Mazel.

Schaefer, M. T., & Olson, D. H. (1981). Assessing intimacy: The Pair Inventory. Journal of Marital and Family Therapy, 7, 47-60.

Schram, R. W. (1979). Marital satisfaction over the family life cycle: A critique and proposal. Journal of Marriage and the Family, 41, 7-12.

Schumm, W. R., Paff-Bergen, L. A., Hatch, R. C., Obiorah, F. C., Copeland, J. M., Meens, L. D., & Bugaighis, M. A. (1986). Concurrent and discriminant validity of the Kansas marital satisfaction scale. Journal of Marriage and the Family, 48, 381-387.

Swenson, C. H., & Trahaug, G. (1985). Commitment and the long-term marriage relationship. Journal of Marriage and the Family, 47, 939-945.

Shaver, P., Hazan, C., & Bradshaw, D. (1988). Love as attachment: The integration of three behavioral systems. In R. J. Sternberg & M. L. Barnes (Eds.), The psychology of love (pp. 68-99). New Haven, CT: Yale University Press.

Simpson, J. A., Campbell, B., & Berscheid, E. (1986). The association between romantic love and marriage: Kephart (1967) twice revisited. Personality and Social Psychology Bulletin, 12, 363-372.

Slavin, R. E. (1984). Research methods in education: A practical guide. Englewood Cliffs, NJ: Prentice-Hall.

Snyder, D. K. (1979). Multidimensional assessment of marital satisfaction. Journal of Marriage and the Family, 41, 813-823.

Spanier, G. B. (1976). Measuring dyadic adjustment: New scales for assessing the quality of marriage and similar dyads. Journal of Marriage and the Family, 38, 15-28.

Spanier, G. B., & Cole, C. L. (1974, October). Toward clarification and investigation of marital adjustment. Revision of a paper presented at the National Council on Family Relations, Toronto.

Spanier, G. B., & Cole, C. L. (1976). Toward clarification and investigation of marital adjustment. International Journal of Sociology of the Family, 6, 121-146.

Spanier, G. B., & Filsinger, E. E. (1983). The dyadic adjustment scale. In E. E. Filsinger (Ed.), Marriage and family assessment: A sourcebook for family therapy (pp. 155-168). New York: Sage.

Spanier, G. B., & Lewis, R. A. (1980). Marital quality: A review of the seventies. Journal of Marriage and the Family, 42, 825-839.

Spanier, G. B., & Thompson, L. (1982). A confirmatory analysis of the dyadic adjustment scale. Journal of Marriage and the Family, 44, 731-738.

Steck, L., Levitan, D., McLane, D., & Kelley, H. H. (1982). Care, need, and conceptions of love. Journal of Personality and Social Psychology, 43, 3, 481-491.

Sternberg, R. J. (1986). A triangular theory of love. Psychological Review, 93, 119-135.

Sternberg, R. J. (1987a). Construct validation of a triangular theory of love. Manuscript submitted for publication.

Sternberg, R. J. (1987b). Liking versus loving: A comparative evaluation of theories. Psychological Bulletin, 102, 3, 331-345.

Sternberg, R. J. (1988). Triangulating love. In R. J. Sternberg & M. L. Barnes (Eds.), The psychology of love (pp. 119-138). New Haven, CT: Yale University Press.

Sternberg, R. J. (in press). Explorations of love. In D. Perlman & W. Jones (Eds.), Perspectives in interpersonal behavior and relationships. Greenwich, CT: JAL Press.

Sternberg, R. J., & Barnes, M. L. (1985). Real and ideal others in romantic relationships: Is four a crowd? Journal of Personality and Social Psychology, 49, 1586-1608.

Sternberg, R. J., & Barnes, M. L. (Eds.) (1988a). The psychology of love. New Haven, CT: Yale University Press.

Sternberg, R. J., & Barnes, M. L. (Eds.) (1988b). An introduction to the psychology of love. In R. J. Sternberg & M. L. Barnes (Eds.), The psychology of love (pp. 3-10). New Haven, CT: Yale University Press.

Sternberg, R. J., & Grajek, S. (1984). The nature of love. Journal of Personality and Social Psychology, 47, 312-329.

Sternberg, R. J., & Wright, S. L. (1987). What matters when? A cross-sectional study of love across the adult life span. Manuscript submitted for publication.

Tabachnick, B. G., & Fidell, L. S. (1983). Using multivariate statistics. New York: Harper & Row.

Taylor, D. A., & Altman, I. (1966). Intimacy-scaled stimuli for use in studies of interpersonal relations. Psychological Reports, 19, 729-730.

Tennov, D. (1979). Love and limerence. New York: Stein & Day.

Tesch, S. A. (1985). The psychosocial intimacy questionnaire: Validation studies and an investigation of sex roles. Journal of Social and Personal Relationships, 2, 471-488.

Thompson, L., & Walker, A. J. (1982). The dyad as the unit of analysis: Conceptual and methodological issues. Journal of Marriage and the Family, 44, 889-900.

Thurstone, L. L. (1947). Multiple factor analysis. Chicago: University of Chicago Press.

Tolstedt, B. E., & Stokes, J. P. (1983). Relation of verbal, affective, and physical intimacy to marital satisfaction. Journal of Counseling Psychology, 30, 4, 573-580.

Trotter, R. J. (1986, September). The three faces of love. Psychology Today, 46-57.

Truax, C. B., & Carkhoff, R. R. (1967). Toward effective counselling and psychotherapy: Training and practice. Chicago: Aldine.

Walster, E., & Walster, G. W. (1978). A new look at love. Reading, MA: Addison-Wesley.

Waring, E. M. (1984). The measurement of marital intimacy. Journal of Marital and Family Therapy, 10, 2, 185-192.

Waring, E. M., & Chelune, G. J. (1983). Marital intimacy and self-disclosure. Journal of Clinical Psychology, 39, 183-190.

Wynne, L. C., & Wynne, A. R. (1986). The quest for intimacy. Journal of Marital and Family Therapy, 12, 4, 383-394.

APPENDICES

APPENDIX A

QUESTIONNAIRE PACKAGE

Information for Participants

The goal of this study is to explore the nature of love in a variety of heterosexual relationships. This research is being conducted for academic purposes by me, Peter W. Joy, a Ph.D. Candidate in Educational Psychology at the University of Calgary.

What follows first is a page with questions on it where you are asked to describe yourself, e.g., your age, your gender, how long you've been involved with your partner, and so on. Following this, are a series of questions which ask you to describe your relationship with your partner, and how you feel about him/her. Please answer the questions as honestly and completely as you can. There are no right or wrong answers: responses are entirely individual and personal. The total questionnaire package will take you about 30 minutes to complete.

Answering questions like the ones found in this package usually involve no risks to adults. However, if, as a result of these procedures, you have concerns about the contents of this material, or concerns about personal consequences resulting from it, I will be present both during and after this session to answer any questions that you may have. As well, your participation in this study is entirely voluntary, and you are free to withdraw from it at any time, or refuse to answer any particular questions without it being held against you. Similarly, I have the right to terminate your involvement in this study.

In completing this questionnaire package, your responses are anonymous, and no attempt will be made to match your name with your personal responses. This page with your name on it will be removed and put in a separate pile as soon as you pass in your completed questionnaire package.

Finally, for participating in this study, you will be given $3.00, and an opportunity to either read or hear about the results of this research at a later date. If you wish to receive a written summary of the research results or attend an information meeting sometime in the late Fall, please leave your name and telephone number on a separate sheet with me.

Thank you for your cooperation. Your part in this study is invaluable and greatly appreciated.

Sincerely,

Peter W. Joy

Given the above conditions, I agree to participate in this study.

Name (please print) _____

Signature _____

Date _____

Demographic Information

Please check (✓) the appropriate blank with reference to yourself:

1. Age: 18-23 yrs.____ 24-29 yrs.____ 30-35 yrs.____ 36-41 yrs.____ 42-47 yrs.____ 48 yrs.+____

2. Gender: Male____ Female____

3. Duration of current intimate relationship (including pre-marriage or pre-cohabitation, if applicable): 0-18 mo.___ 19 mo.-3 yrs.___ 4-9 yrs.___ 10-15 yrs.___ 16-21 yrs.___ 22 yrs.+___

4. Description of your current intimate relationship:
   dating____ engaged____ engaged____ cohabiting____ 1st marriage____ 2nd marriage____
   (and not (and cohabiting) (or more)
   cohabiting)

5. Marital Status: Married____ Not Married____

6. Have you ever been sexually active with your partner? Yes____ No____

7. Have you been sexually active with your partner in the last month? Yes____ No____

8. Have you been sexually active with your partner in the last week? Yes____ No____

9. Number of children you have: none____ one____ two____ three or more____

10. Number of children living with you: none___ one___ two___ three or more___

11. Years of formal education: 9 yrs. or less___ 10-12 yrs.____ 13-17 yrs.____ 18 yrs.+____

12. Personal income level: ≤$10,000___ $10,001-$18,000___ $18,001-$26,000___
    $26,001-$34,000___ $34,001-$42,000___ $42,001 +___

13. Occupation: Unemployed___ Student___ Homemaker___ Trades/Services____
    Clerical/Sales___ Professional/Managerial___ Retired___

14. Racial background: Caucasian___ Non-Caucasian (please specify)_____

15. Religion: Protestant___ Roman Catholic___ Jewish___ No religion practised___
    Other (please specify)_____

16. Quadrant of Calgary in which you live: N.W.___ S.W.___ S.E.___ N.E.___
    Location other than Calgary (please specify)_____

17. How did you find out about this study? Newspaper ad___ Word of mouth___
    Flyer posted___ Other (please specify)_____

18. Is your partner currently filling out this questionnaire? Yes____ No____

19. If no, has your partner filled out this questionnaire? Yes____ No____

20. If no, is your partner planning to fill out this questionnaire at a future meeting?
    Please answer to the best of your knowledge. Yes____ No____

21. So that couples can be matched without disclosing the identity of either person, please record
    the birth dates of both partners. Male partner ____ ____ ____;
    Day Month Year
    Female partner ____ ____ ____.
    Day Month Year

Please answer as accurately as you can.

All questions in this package are meant to be answered with either your current intimate partner in mind, or with your relationship with that person in mind. Please answer the questions according to how you feel now, in the present. Please answer the questions as honestly as you can. There are no right or wrong answers: responses are entirely individual and personal.

PLEASE CHECK (✓) THE RESPONSE MOST APPROPRIATE:

	(1) Very Strongly Agree	(2) Strongly Agree	(3) Mildly Agree	(4) Neutral	(5) Mildly Disagree	(6) Strongly Disagree	(7) Very Strongly Disagree
1. (23) My partner is primarily interested in his (her) own welfare. (T)							
2. (24) There are times when my partner cannot be trusted. (T)							
3. (25) My partner is perfectly honest and truthful with me. (T) (r)							
4. (26) I feel that I can trust my partner completely. (T) (r)							
5. (27) My partner is truly sincere in his (her) promises. (T) (r)							
6. (28) I feel that my partner does not show me enough consideration. (T)							
7. (29) My partner treats me faily and justly. (T) (r)							
8. (30) I feel that my partner can be counted on to help me. (T) (r)							

Note: (T) = Trust; (r) = Reverse Scored. From "The Dyadic Trust Scale: Toward Understanding Interpersonal Trust in Close Relationships" by R. E. Larzelere and T. L. Huston, 1980, *Journal of Marriage and the Family, 42,* p. 599.

IN THIS CASE, PLEASE CHECK (✓) THE EMPTY BOX THAT MOST ACCURATELY
REPRESENTS YOUR RESPONSE:

1. How much do you like
(31) your partner?
   (1 = very much,
   9 = not at all) (S) (r)

Very much								Not at all
1	2	3	4	5	6	7	8	9
☐	☐	☐	☐	☐	☐	☐	☐	☐

2. To what extent are you
(32) attracted to your
   partner?
   (1 = not at all,
   9 = extremely) (S)

Not at all								Extremely
1	2	3	4	5	6	7	8	9
☐	☐	☐	☐	☐	☐	☐	☐	☐

3. To what degree are
(33) you satisfied with your
   relationship?
   (1 = extremely,
   9 = not at all) (S) (r)

Extremely								Not at all
1	2	3	4	5	6	7	8	9
☐	☐	☐	☐	☐	☐	☐	☐	☐

Note: (S) = Satisfaction; (r) = Reverse Scored. From "A Longitudinal Test of the Investment Model:
The Development (and Deterioration) of Satisfaction and Commitment in Heterosexual Involve-
ments" by C. E. Rusbult, 1983, *Journal of Personality and Social Psychology, 45*, p. 107.

AGAIN, WITH A SLIGHTLY DIFFERENT FORMAT, PLEASE CHECK (✓) THE RESPONSE MOST APPROPRIATE. FOR THOSE INDIVIDUALS WHO HAVE NEVER BEEN SEXUALLY ACTIVE WITH THEIR PARTNER, SKIP ITEMS 3, 9, 15, 21, 27, AND 33.

	(0) Strongly Disagree	(1) Somewhat Disagree	(2) Neutral	(3) Somewhat Agree	(4) Strongly Agree
1. (34) My partner listens to me when I need someone to talk to. (EI)					
2. (35) We enjoy spending time with other couples. (SOI)					
3. (36) I am satisfied with our sex life. (SEI)					
4. (37) My partner helps me clarify my thoughts. (II)					
5. (38) We enjoy the same recreational activities. (RI)					
6. (39) My partner has all of the qualities I've always wanted in a mate. (C)					
7. (40) I can state my feelings without him/her getting defensive. (EI)					
8. (41) We usually "keep to ourselves." (SOI) (r)					
9. (42) I feel our sexual activity is just routine. (SEI) (r)					
10. (43) When it comes to having a serious discussion, it seems we have little in common. (II) (r)					
11. (44) I share a few of my partner's interests. (RI) (r)					
12. (45) There are times when I do not feel a great deal of love and affection for my partner. (C) (r)					
13. (46) I often feel distant from my partner. (EI) (r)					

	(0) Strongly Disagree	(1) Somewhat Disagree	(2) Neutral	(3) Somewhat Agree	(4) Strongly Agree
14. We have few friends in common. (47) (SOI) (r)					
15. I am able to tell my partner when I (48) want sexual intercourse. (SEI)					
16. I feel "put-down" in a serious conversa-(49) tion with my partner. (II) (r)					
17. We like playing together. (RI) (50)					
18. Every new thing I have learned about (51) my partner has pleased me. (C)					
19. My partner can really understand my (52) hurts and joys. (EI)					
20. Having time together with friends is an (53) important part of our shared activities. (SOI)					
21. I "hold back" my sexual interest be-(54) cause my partner makes me feel un-comfortable. (SEI) (r)					
22. I feel it is useless to discuss some (55) things with my partner. (II) (r)					
23. We enjoy the out-of-doors together. (56) (RI)					
24. My partner and I understand each (57) other completely. (C)					
25. I feel neglected at times by my (58) partner. (EI) (r)					
26. Many of my partner's closest friends (59) are also my closest friends. (SOI)					
27. Sexual expression is an essential part (60) of our relationship. (SEI)					
28. My partner frequently tries to change (61) my ideas. (II) (r)					

	(0) Strongly Disagree	(1) Somewhat Disagree	(2) Neutral	(3) Somewhat Agree	(4) Strongly Agree
29. (62) We seldom find time to do fun things together. (RI) (r)					
30. (63) I don't think anyone else could possibly be happier than my partner and I when we are with one another. (C)					
31. (64) I sometimes feel lonely when we're together. (EI) (r)					
32. (65) My partner disapproves of some of my friends. (SOI) (r)					
33. (66) My partner seems disinterested in sex. (SEI) (r)					
34. (67) We have an endless number of things to talk about. (II)					
35. (68) I feel we share some of the same interests. (RI)					
36. (69) I have some needs that are not being met by my relationship. (C) (r)					

Note: (EI) = Emotional Intimacy; (SOI) = Social Intimacy; (SEI) = Sexual Intimacy; (II) = Intellectual Intimacy; (RI) = Recreational Intimacy; (C) = Conventionality Scale; (r) = Reverse Scored. From "Assessing Intimacy: The Pair Inventory" by M. T. Schaefer and D. H. Olson, 1981, *Journal of Marital and Family Therapy, 7*, p. 53-54.

AGAIN, WITH YOUR PARTNER IN MIND, PLEASE CIRCLE THE NUMBERED RESPONSE MOST APPROPRIATE, WHERE 1 = NOT AT ALL, AND 9 = EXTREMELY:

	Not at all		Somewhat		Moderately		Quite		Extremely
	1	2	3	4	5	6	7	8	9

1. (70) I have a warm and comfortable relationship with ____. (I)
1 2 3 4 5 6 7 8 9

2. (71) I experience intimate communication with ____. (I)
1 2 3 4 5 6 7 8 9

3. (72) I strongly desire to promote the well-being of ____. (I)
1 2 3 4 5 6 7 8 9

4. (73) I cannot imagine another person making me as happy as ____ does. (P)
1 2 3 4 5 6 7 8 9

5. (74) I will always feel a strong responsibility for ____. (C)
1 2 3 4 5 6 7 8 9

6. (75) There is nothing more important to me than my relationship with ____. (P)
1 2 3 4 5 6 7 8 9

7. (76) My relationship with ____ is very romantic. (P)
1 2 3 4 5 6 7 8 9

8. (77) I have a relationship of mutual understanding with ____. (I)
1 2 3 4 5 6 7 8 9

9. (78) I receive considerable emotional support from ____. (I)
1 2 3 4 5 6 7 8 9

10. (79) I cannot imagine life without ____. (P)
1 2 3 4 5 6 7 8 9

11. (80) I adore ____. (P)
1 2 3 4 5 6 7 8 9

Not at all	Somewhat	Moderately	Quite	Extremely

	Not at all		Somewhat		Moderately		Quite		Extremely
	1	2	3	4	5	6	7	8	9

12.
(81) I am able to count on _____ in times of need. (I)

1	2	3	4	5	6	7	8	9

13.
(82) I expect my love for _____ to last for the rest of my life. (C)

1	2	3	4	5	6	7	8	9

14.
(83) I can't imagine ending my relationship with _____. (C)

1	2	3	4	5	6	7	8	9

15.
(84) I view my relationship with _____ as permanent. (C)

1	2	3	4	5	6	7	8	9

16.
(85) I would stay with _____ through the most difficult times. (C)

1	2	3	4	5	6	7	8	9

17.
(86) _____ is able to count on me in times of need. (I)

1	2	3	4	5	6	7	8	9

18.
(87) I find myself thinking about _____ frequently during the day. (P)

1	2	3	4	5	6	7	8	9

19.
(88) Just seeing _____ is exciting for me. (P)

1	2	3	4	5	6	7	8	9

20.
(89) I view my commitment to _____ as a matter of principle. (C)

1	2	3	4	5	6	7	8	9

21.
(90) I find _____ very attractive physically. (P)

1	2	3	4	5	6	7	8	9

22.
(91) I value _____ greatly in my life. (I)

1	2	3	4	5	6	7	8	9

23.
(92) I idealize _____. (P)

1	2	3	4	5	6	7	8	9

24.
(93) I am certain of my love for _____. (C)

1	2	3	4	5	6	7	8	9

Not at all		Somewhat		Moderately		Quite		Extremely

	Not at all		Somewhat		Moderately		Quite		Extremely
	1	2	3	4	5	6	7	8	9

25. I have decided that I love
(94) _____. (C)

    1   2   3   4   5   6   7   8   9

26. I am committed to maintain-
(95) ing my relationship with
_____. (C)

    1   2   3   4   5   6   7   8   9

27. There is something almost
(96) "magical" about my relation-
ship with _____. (P)

    1   2   3   4   5   6   7   8   9

28. I view my relationship with
(97) _____ as, in part, a thought
-out decision (C)

    1   2   3   4   5   6   7   8   9

29. I could not let anything get
(98) in the way of my commit-
ment to _____. (C)

    1   2   3   4   5   6   7   8   9

30. I have confidence in the
(99) stability of my relationship
with _____. (C)

    1   2   3   4   5   6   7   8   9

31. I am willing to share myself
(100) and my possessions with
_____. (I)

    1   2   3   4   5   6   7   8   9

32. I experience great happiness
(101) with _____. (I)

    1   2   3   4   5   6   7   8   9

33. I feel emotionally close to
(102) _____. (I)

    1   2   3   4   5   6   7   8   9

34. I give considerable emotion-
(103) al support to _____. (I)

    1   2   3   4   5   6   7   8   9

35. My relationship with
(104) _____ is very "alive." (P)

    1   2   3   4   5   6   7   8   9

36. I especially like giving
(105) presents to _____. (P)

    1   2   3   4   5   6   7   8   9

Not at all	Somewhat	Moderately	Quite	Extremely

Note: (P) = Passion; (I) = Intimacy; (C) = Commitment. From *Construct Validation of a Triangular Theory of Love* by R. J. Sternberg, 1987. Manuscript submitted for publication.

FOR THESE ITEMS, PLEASE CHECK (✓) THE EMPTY BOX THAT MOST ACCURATELY REPRESENTS YOUR RESPONSE:

(106)
How likely is it that you will end your relationship in the near future?
(1 = not at all likely,
9 = extremely likely)
(C) (r)

Not at all likely   Extremely likely

1	2	3	4	5	6	7	8	9
☐	☐	☐	☐	☐	☐	☐	☐	☐

(107)
For what length of time would you like your relationship to last?
(1 = week or so,
9 = lifetime) (C)

Week or so   Lifetime

1	2	3	4	5	6	7	8	9
☐	☐	☐	☐	☐	☐	☐	☐	☐

(108)
How attractive an alternative would you require before adopting it and ending your relationship?
(1 = extremely attractive alternative, 9 = moderately attractive alternative) (C) (r)

Extremely attractive alternative   Moderately attractive alternative

1	2	3	4	5	6	7	8	9
☐	☐	☐	☐	☐	☐	☐	☐	☐

(109)
To what extent are you "attached" to your partner?
(1 = not at all,
9 = extremely) (C)

Not at all   Extremely

1	2	3	4	5	6	7	8	9
☐	☐	☐	☐	☐	☐	☐	☐	☐

(110)
To what extent are you committed to your relationship?
(1 = extremely,
9 = not at all) (C) (r)

Extremely   Not at all

1	2	3	4	5	6	7	8	9
☐	☐	☐	☐	☐	☐	☐	☐	☐

Note: (C) = Commitment; (r) = Reverse Scored. From "A Longitudinal Test of the Investment Model: The Development (and Deterioration) of Satisfaction and Commitment in Heterosexual Involvements" by C. E. Rusbult, 1983, *Journal of Personality and Social Psychology, 45*, p. 107.

FOR THE FINAL SET OF ITEMS, PLEASE CHECK (√) THE RESPONSE MOST APPROPRIATE. FOR THOSE INDIVIDUALS WHO DO NOT LIVE WITH THEIR PARTNER, SKIP ITEMS 1, 13, 17, AND 20. FOR THOSE INDIVIDUALS WHO HAVE NEVER BEEN SEXUALLY ACTIVE WITH THEIR PARTNER, SKIP ITEMS 6, AND 29.

Most persons have disagreements in their relationships. Please indicate below the approximate extent of agreement or disagreement between you and your partner for each item on the following:

		(0) Always Agree	(1) Almost Always Agree	(2) Occa-sionally Disagree	(3) Fre-quently Disagree	(4) Almost Always Disagree	(5) Always Disagree
1. (111)	Handling family finances (CN) (r)	____	____	____	____	____	____
2. (112)	Matters of recreation (CN) (r)	____	____	____	____	____	____
3. (113)	Religious matters (CN) (r)	____	____	____	____	____	____
4. (114)	Demonstrations of affection (A) (r)	____	____	____	____	____	____
5. (115)	Friends (CN) (r)	____	____	____	____	____	____
6. (116)	Sex relations (A) (r)	____	____	____	____	____	____
7. (117)	Conventionality (correct or proper behavior) (CN) (r)	____	____	____	____	____	____
8. (118)	Philosophy of life (CN) (r)	____	____	____	____	____	____
9. (119)	Ways of dealing with parents or in-laws (CN) (r)	____	____	____	____	____	____
10. (120)	Aims, goals, and things believed important (CN) (r)	____	____	____	____	____	____
11. (121)	Amount of time spent together (CN) (r)	____	____	____	____	____	____
12. (122)	Making major decisions (CN) (r)	____	____	____	____	____	____
13. (123)	Household tasks (CN) (r)	____	____	____	____	____	____

		(0) Always Agree	(1) Almost Always Agree	(2) Occa- sionally Disagree	(3) Fre- quently Disagree	(4) Almost Always Disagree	(5) Always Disagree
14. (124)	Leisure time interests and activities (CN) (r)	——	——	——	——	——	——
15. (125)	Career decisions (CN) (r)	——	——	——	——	——	——

		(0) All the time	(1) Most of the time	(2) More often than not	(3) Occa- sionally	(4) Rarely	(5) Never
16. (126)	How often do you discuss or have you considered divorce, separation, or terminating your relationship? (DS)	——	——	——	——	——	——
17. (127)	How often do you or your partner leave the house after a fight? (DS)	——	——	——	——	——	——
18. (128)	In general, how often do you think that things between you and your partner are going well? (DS) (r)	——	——	——	——	——	——
19. (129)	Do you confide in your partner? (DS) (r)	——	——	——	——	——	——
20. (130)	Do you ever regret that you married? (or lived together) (DS)	——	——	——	——	——	——
21. (131)	How often do you and your partner quarrel? (DS)	——	——	——	——	——	——
22. (132)	How often do you and your partner "get on each other's nerves?" (DS)	——	——	——	——	——	——

		(0) Every Day	(1) Almost Every Day	(2) Occa- sionally	(3) Rarely	(4) Never
23. (133)	Do you kiss your partner? (DS) (r)	____	____	____	____	____

		(0) All of them	(1) Most of them	(2) Some of them	(3) Very few of them	(4) None of them
24. (134)	Do you and your partner engage in outside interests together? (DC) (r)	____	____	____	____	____

How often would you say the following events occur between you and your partner?

		(0) Never	(1) Less than once a month	(2) Once or twice a month	(3) Once or twice a week	(4) Once a day	(5) More often
25. (135)	Have a stimulating exchange of ideas (DC)	____	____	____	____	____	____
26. (136)	Laugh together (DC)	____	____	____	____	____	____
27. (137)	Calmly discuss something (DC)	____	____	____	____	____	____
28. (138)	Work together on a project (DC)	____	____	____	____	____	____

These are some things about which couples sometimes agree and sometimes disagree. Indicate if either item below caused differences of opinions or were problems in your relationship during the past few weeks. (check yes or no)

	(0) Yes	(1) No	
29. (139)	____	____	Being too tired for sex. (A)
30. (140)	____	____	Not showing love. (A)

31.
(141)
The dots on the following line represent different degrees of happiness in your relationship. The middle point, "happy," represents the degree of happiness of most relationships. Please circle the dot which best describes the degree of happiness, all things considered, of your relationship. (DS)

0	1	2	3	4	5	6
•	•	•	•	•	•	•

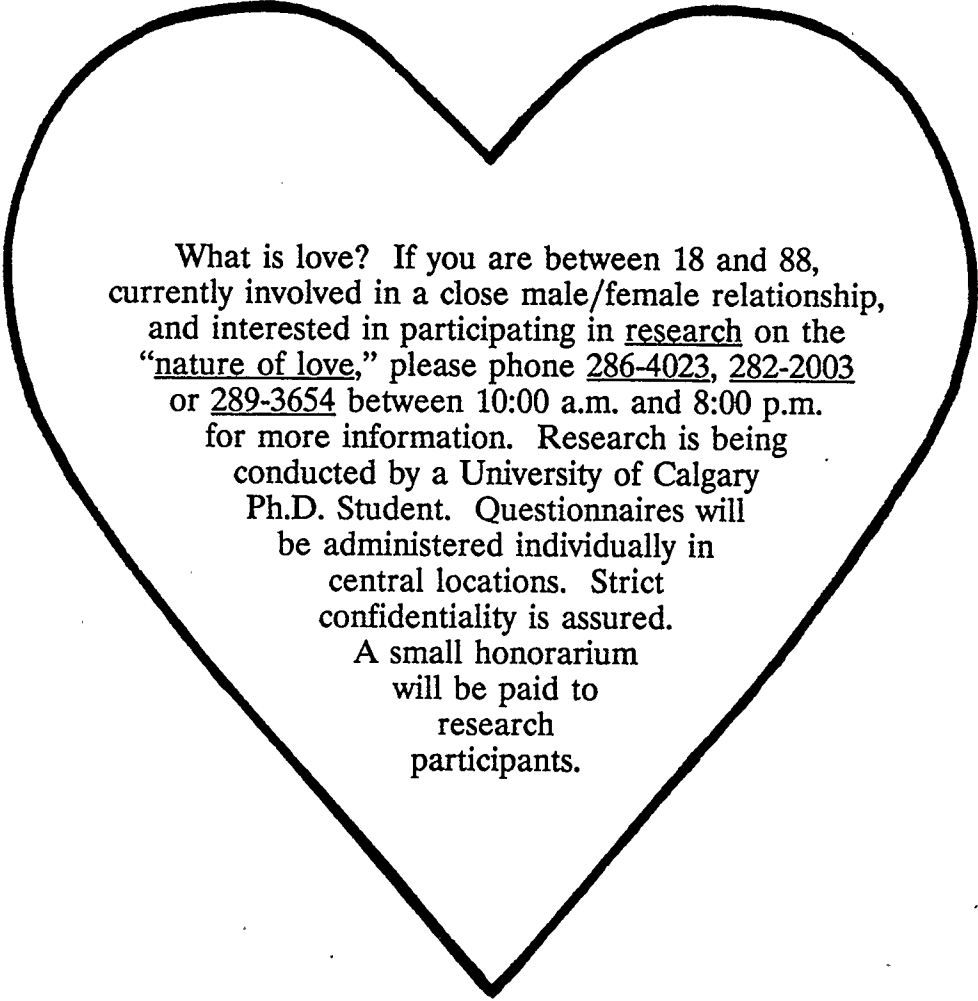| Extremely Unhappy	Fairly Unhappy	A little Unhappy	Happy	Very Happy	Extremely Happy	Perfect

32.
(142)
Which of the following statements best describes how you feel about the future of your relationship? (DS)

_(5)_ I want desperately for my relationship to succeed, and would go to almost any length to see that it does.

_(4)_ I want very much for my relationship to succeed, and will do all I can to see that it does.

_(3)_ I want very much for my relationship to succeed, and will do my fair share to see that it does.

_(2)_ It would be nice if my relationship succeeded, but I can't do much more than I am doing now to help it succeed.

_(1)_ It would be nice if it succeeded, but I refuse to do any more than I am doing now to keep the relationship going.

_(0)_ My relationship can never succeed, and there is no more that I can do to keep the relationship going.

Note: (CN) = Dyadic Consensus; (A) = Affectional Expression; (DS) = Dyadic Satisfaction; (DC) = Dyadic Cohesion; (r) = Reversed Scored. From "Measuring Dyadic Adjustment: New Scales for Assessing the Quality of Marriage and Similar Dyads" by G. B. Spanier, 1976, *Journal of Marriage and the Family, 38*, p. 27-28.

APPENDIX B

HEART-SHAPED AD

What is love? If you are between 18 and 88,
currently involved in a close male/female relationship,
and interested in participating in research on the
"nature of love," please phone 286-4023, 282-2003
or 289-3654 between 10:00 a.m. and 8:00 p.m.
for more information. Research is being
conducted by a University of Calgary
Ph.D. Student. Questionnaires will
be administered individually in
central locations. Strict
confidentiality is assured.
A small honorarium
will be paid to
research
participants.

APPENDIX C

REQUEST FOR PUBLIC SERVICE ANNOUNCEMENT

163, 3437 42 Street N.W.
Calgary, AB T3A 2M7

October 16, 1987

<u>Public Service Announcement/News</u>

STUDY PROBES THE MYSTERY OF LOVE!

A University of Calgary Ph.D. student is looking for people between the ages of 18 and 88 to participate in <u>research</u> on the <u>nature of love</u>. Volunteers need to be currently involved in a close male/female relationship.

A small honorarium will be paid to participants. For more information, please call 286-4023 or 282-2003 between 10:00 a.m. and 8:00 p.m.

(Please air this announcement as soon as you are able, and if possible, through to about October 21, 1987).

Thank you.

Sincerely,

Peter W. Joy
286-4023

APPENDIX D

STANDARDIZED TELEPHONE PROCEDURES

When subjects phone, the following information will be covered:

1. Researcher identified: Peter Joy, a Ph.D. student in Educational Psychology at the University of Calgary.

2. Purpose of research:
   1. To study the nature of love in a variety of heterosexual relationships: looking at time together, age of individuals, relationship status, and so on.

   2. Research is for my academic purposes.

3. Mechanics of study: Subjects respond to a questionnaire administered by me in group settings. Will take about 30 minutes to complete. If you choose to participate, you will be paid $3.00 for completing the questionnaire, that is $3.00 for individuals, or $6.00 per couple. Also, you will be given an opportunity to learn about the results of this study, either by means of a written synopsis or through an information meeting, whichever you prefer.

4. Cautionary note: Some questions in the questionnaire package may be considered quite personal, for example, how you feel about a number of intimate aspects of your relationship with your partner. However, you can feel at ease in that your responses are entirely anonymous, and you can also choose not to answer any particular questions.

   (If there are any hesitations or questions on the part of the potential subject, more explanatory detail could be provided at this time. For example, depending on the question, I would tell a potential subject that there are a few general questions related to satisfaction with sexual intimacy in the relationship).

5. Does it sound like you're interested in participating in this study? If no, thank you for calling. If yes, take first name and telephone number in case I have to contact subject regarding any changes in testing location and/or time. Does your partner know of this study? Is he/she planning on participating? Would he/she participate? If yes, take first name and telephone number of partner.

6. Arrange meeting location and time according to subject's convenience. At the time of the phone call, I will have booked a number of meeting locations and times from which the subject may choose.

APPENDIX E

RESOURCES FOR INDIVIDUAL, MARITAL, OR FAMILY COUNSELLING

Resources for Individual, Marital, or Family Counselling

Free services:

Local hospitals (require a referral from a medical doctor). Alberta Mental Health - 2nd Floor, 1000 8th Ave. S.W. 297-7311. Educational institutions such as The University of Calgary, Mount Royal College, or SAIT provided one is a registered student in one of these settings.

Partially subsidized services:

At least three local agencies provide counselling services on a sliding scale based on one's personal and financial circumstances. Fees charged range from approximately $5.00 per hour to $75.00 per hour. Agencies suggested include:

Calgary Family Service Bureau - 200, 707 10th Avenue S.W.	233-2370
Catholic Family Service Bureau - 707, 10 Avenue S.W.	233-2360
The Pastoral Institute - 240, 15 Avenue S.W.	265-4980

Full-charge services:

A number of private practitioners (marriage and family counsellors, psychologists, and social workers) provide counselling services, and are listed in the yellow pages of the Calgary telephone directory. For the most part, fees charged range up to $75.00 per hour for services, however, sometimes it is possible for people to partially offset the cost of counselling through personal insurance plans.

If you wish more information about referrals, please feel free to talk to me now, or phone me at either 286-4023 or 220-7076.

Sincerely,

Peter Joy

APPENDIX F

INSTRUCTIONS FOR HOME-COMPLETION OF QUESTIONNAIRE

Instructions for Home-Completion of Questionnaire

1. Complete this questionnaire in private, in a quiet location, and preferably at a desk or table.

2. Read carefully the covering letter entitled "Information for Participants." This letter explains the nature of this study, and the conditions under which you will complete it. With reference to your consent, do not put your name or signature on the covering letter. If you complete the questionnaire, it is assumed that you agree to do so.

3. As soon as your questionnaire is completed, seal it in the attached envelope. Do not show your responses to your partner. As well, do not put your name or signature on the envelope. The absence of your name on the questionnaire and on the envelope will insure your complete anonymity.

4. If you have concerns regarding the contents of this questionnaire, or concerns about personal consequences resulting from the completion of it, please phone me, regardless of the hour, at any of 286-4023, 282-2002, 289-3654, or 220-7076. The attached sheet also lists sources of help if you are troubled by the completion of this instrument.

5. Please mail or hand deliver[8] your completed questionnaire to either of the following addresses, whichever method is most convenient for you. If you are mailing the questionnaire, please use the 42 St. N.W. address.

1. Peter Joy
   163, 3437 42 St. N.W.
   Calgary, AB T3A 2M7

2. Peter Joy
   Graduate Student
   Dept. of Educational Psychology
   3rd Floor, Education Tower
   The University of Calgary T2N 1N4

Thank you.

Sincerely,

Peter W. Joy

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[8]Returning questionnaires by hand was offered as an option in that we were in the middle of a mail strike during part of the data collection period.