

Effects of PREPARE/ENRICH Couple Relationship Education for Chinese  
College Students in Heterosexual Exclusive Dating Relationships

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## Abstract

With the rapid economic growth and urbanization in mainland China since 1980s, there is a growing need for prevention efforts to help couples obtain skills and knowledge in order to sustain a satisfying intimate relationship. Couple Relationship Education (CRE) programs were developed by psychologists in Western countries as a preventive intervention for couples before relationships reach crisis stage. There was, however, a lack of empirical studies to examine the effectiveness of CRE in Chinese cultural context. The present study examined PREPARE/ENRICH (PE) effectiveness (as one example of a CRE program) on improving relationship quality by focusing on the college heterosexual dating couples in mainland China.

A total of 92 recruited college couples in mainland China were randomly assigned to one of three groups: (a) treatment (PE assessment report + 12-hour workshop; 31 couples), (b) comparison (PE assessment report only; 30 couples), and (c) no-contact control group (31 couples). Seven measures were used to measure couple satisfaction; communication, conflict resolution, leisure activities, partner style and habits, sex and affection, and couple closeness at pre- and post-test.

Results showed that the PE workshop was effective in improving all relationship variables except for the variable of sex and affection. The results also suggested that the PE workshop had more significant effects on female participants than on male participants on the dependent variables of relationship satisfaction, communication, conflict resolution and couple closeness. Recommendations for future research are discussed.

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## **Chapter One**

### **Introduction**

Intimate relationships have always been a universal aspiration for human beings. Indeed, for most people the goal of forming a permanent, intimate, emotional liaison with another person is important in life in which massive energy is invested (Coontz, 2006; Derlega, 2013; Flecher, Simpson, Campbell, & Overall, 2012). The experience of romantic love and the subsequent experience of heartbreak have captured the human imagination throughout history as evidenced in different forms of arts and literature. Human beings have shown a fundamental need to belong (Anisworth, Blehar, Waters, & Wall, 2014; Cozolino, 2014; Baumeister & Leary, 1995). Buss (2008) argued that the desire for romantic relationships reflects an evolutionary adaptation because it motivates the reproductive process and relationship persistence. Being in a mutually satisfying committed relationship has proven to be associated with many positive outcomes including life satisfaction (Diener, Suh, Lucas, & Smith, 1999), physical well-being (McWilliams & Bailey, 2010), better coping with major illness (King & Reis, 2012), as well as longer life expectancy and career achievement (Waite & Gallagher, 2002).

These positive outcomes of a satisfying romantic relationship, however, were conclusions based on Western populations. For the Chinese population, the majority of limited existing studies focus on the negative psychological outcomes of intimate relationships with domestic violence (e.g., Xu, et al., 2005; Zhang, Zou, Cao, & Zhang, 2012). However, two recent studies with male young military officers (Wang, 2012) and female young doctors (Zhou, 2013) in mainland China focused on the positive outcomes

of satisfying romantic relationships. The results indicated that for both populations, their marital quality, measured by the Chinese version of Olson Marital Quality Questionnaire (Olson & Olson, 1999), was positively correlated with their subjective psychological well-being, measured by Subjective Well-Being Index (Campbell, 1976).

Despite the benefits of committed relationships, sustaining healthy and satisfying committed relationships is a challenge for young adults. Although most committed relationships start with high satisfaction, many couples in Western studies report that positive feelings decline with time (Bradbury & Karney, 2004). In Western countries, between one-third and one-half of marriages end in divorce or separation (Stevenson & Wolfers, 2007). In a most recent study, Gottman (2014) analyzed couple-conflict types in the US and was able to predict which couples would divorce with 85-95% accuracy. A recent study with 297 urban married couples in mainland China (Chi, Epstein, Fang, Lam, & Li, 2013) also suggested that perceived communication patterns served as the mediating variable in affecting marital satisfaction.

### **Romantic Relationships of College Students**

For a college student population, romantic relationships have been described as experiencing a new stage in lifespan development known as “emerging adulthood” (Arnett, 2000; Roisman, Masten, Coatsworth, & Tellegen, 2004). Erikson’s (1982) psychosocial theory defines these emerging adults as facing the developmental crisis of intimacy against isolation. Among different types of relationships for college students, research indicates that romantic relationships are more salient than friendships for achieving the developmental task of emerging adulthood based on western populations (Barry, Madsen, Nelson, Carroll, & Badger, 2009).

Indeed, surveys of western college students indicate that emerging adults perceive finding a romantic partner and developing intimate relationships as very important (Arnett, 2006). In a sample of 1,621 United States (US) college students, Braithwaite, Delevi, and Fincham (2010) examined the effects of romantic relationships on college students' physical and mental health, and the results indicated that individuals in committed relationships experienced fewer mental health problems and were less likely to be overweight. Another US study (Whitton, Weitbrecht, Kuryluk, & Bruner, 2013) examined whether involvement in committed dating relationships is associated with college students' mental health (depressive symptoms and problem alcohol use). The results indicated that involvement in a committed relationship, compared with being single, was associated with fewer depressive symptoms for college women but not for men. Committed relationship involvement was also associated with less problematic alcohol use for both genders.

Similar to the general lack of intimate relationship research in China, studies on Chinese college students' romantic relationships (in mainland China) are much fewer than in Western countries. However, one study (Liang, Ye, & Hu, 2010) used a sample of 220 college students in mainland China and examined the relationship between romantic relationship experience and self-concept. The researchers suggested that students who described their romantic relationship attachment style as secure, as well as students who have been in a committed relationship longer (more than 12 months, 6-12 months, 3-6 months, and less than 3 months), have a more positive self-concept. Another study (Shi & Jia, 2013) investigated the relationship between romantic relationship and psychological outcome among 762 college students at two universities in mainland China. The results

indicated that students who are in a committed romantic relationship experienced fewer depressive and anxiety symptoms compared to those who never had a romantic relationship.

### **Couple Relationship Education (CRE): An Overview**

To help maintain a satisfying intimate relationship, prevention efforts (Halford, 2011; Markman, Stanley, & Blumberg, 2001; Olson & Olson, 2000) were made by psychologists in Western countries to develop Couple Relationship Education (CRE) programs before relationships reach crisis stage and couple therapy is needed. There is evidence for the effectiveness of these programs with relationship assessment and sufficient duration of 12 - 18 hours of workshops, group counseling or couples counseling (Halford & Bodenmann, 2013). However, most studies examining the effectiveness of the CRE programs were targeting engaged or married couples (Halford & Bodenmann, 2013).

There are only a few empirical studies (Braithwaite & Fincham, 2007; Braithwaite & Fincham, 2009; Busby, Ivey, Harris, & Ates, 2007) examining the effects on western college dating couples. These few studies indicated that students in CRE groups experienced improved mental health and relationship outcomes relative to those who were in control groups. However, these studies were limited by their small samples and their reliance on on-line training (vs. the traditional face-to-face programs).

For the college student population, attention has been focused on interventions, especially on dating violence among college dating couples in the US (Shorey, Stuart, & Cornelius, 2011), South Korea (e.g., Gover, Park, Tomsich, & Jennings, 2011), and China (He, Zhang, Wang, Li, & Zhang, 2012). Efforts to research prevention and CRE programs

are lacking for college student intimate relationships.

### **Purpose of the Study**

The rapid economic growth and urbanization in China since its opening up in the 1980s has greatly influenced intimate relationships in China (Xu, Li, & Yu, 2014). The socioeconomic change in mainland China is moving marriage toward being a voluntary union between partners, compared to a social arrangement shaped by circumstances such as an arranged marriage between two families in the past. In intimate relationships, sexuality has become more liberated and premarital sex more common (Chang, Wang, Shackelford, & Buss, 2011). At the same time, the implementation of a 'one-child' policy (enforced since 1979) also significantly altered the traditional extended family structure, moving towards a nuclear family structure similar to western countries. Since then, Chinese people and families have had to face many new changes and challenges. For example, in the 1970s, the divorce rate in China was virtually zero. Since then, China's divorce rate has increased greatly, especially in big cities such as Beijing and Shanghai. According to the China National Department of Statistics (2011), China's divorce-to-marriage rate in 2011 was 1:4.65 (one divorce for every 4.65 marriages), which had increased nearly 50% since 2002. In recent years, there has been a growing national concern about the increasing divorce rate, which may be fueled by the prevalence of extramarital affairs among middle-aged couples (Li, 2002). Moreover, domestic violence is increasing in China and has raised concerns as a social problem (Li, 2002).

This study aims to further efforts of promoting healthy intimate relationships by focusing research on Chinese college students in heterosexual exclusive dating relationships. According to the China National Department of Statistics (2012), there

were over 23 million undergraduate students enrolled in 2011 in mainland China.

Survey data indicate that over half of the undergraduate students either are currently in a romantic relationship or had experience of being in a romantic relationship (Liu & Shen, 2011). Based on first and second Chinese Family Panel Studies (CFPS) in 2010 and 2012, Xu, Li and Yu (2014) found that 91% of women who hold a college degree were married before the age of 28, and 92% of the male counterparts were married before the age of 30. However, couple relationship research in general is just starting in mainland China, and evidence-based culturally sensitive CRE program research is lacking (Deng, Lin, Lan & Fang, 2013). In addition, there is still a stigma about seeking professional help about personal issues like intimate relationships (Li, 2002). Moreover, Chinese culture is traditionally considered a collective culture (Chen, 2000) and CRE programs that developed in western cultures need to be examined for their applicability in different cultural contexts. This study will serve an important role in examining the effectiveness of PREPARE/ENRICH (PE; Olson & Olson, 2000), a well-established US-developed CRE program, in mainland China with Chinese college students.

### **Research Questions**

Although there is replicated evidence of the effects of PREPARE/ENRICH in enhancing healthy couple relationships in Western cultures (Hawkins, Blanchard, Baldwin, & Albright, 2008; Knutson & Olson, 2003; Futris, Allen, Aholou, & Seponski, 2011), there is currently no research evidence supporting its effectiveness in mainland China. In the present study, the research questions are:

1. Whether the PREPARE/ENRICH workshop was effective in improving the following relationship variables for Chinese college students who are in heterosexual

exclusive dating relationships: relationship satisfaction, communication, conflict resolution, leisure activities, partner style and habit, sex and affection, and couple closeness.

2. Whether male and female participants differed in the treatment outcomes.

3. Whether improvement in communication and conflict resolution can predict couples' improvement in relationship satisfaction.

### **Definition of Terms**

The major terms in this study are defined as

- **Intimate heterosexual relationship** refers to an exclusive romantic relationship between a man and woman, which involves physical and emotional intimacy.
- **Couple** is defined as two individuals, male and female, in an exclusive dating relationship. In this study, the sample is limited to heterosexual couples who are undergraduate college students in mainland China and who have been in the relationship for a 4-month duration or longer.
- **Healthy intimate relationship** refers to an overall satisfying relationship perceived by both partners in the relationship, and there is an absence of severe dysfunctional relationship symptoms such as domestic violence and severe individual psychological disorders.
- **Couple Relationship Education (CRE)** is a structured learning experience that helps couples in intimate relationships to develop their relationship knowledge, attitudes, and skills (Halford, 2011). CRE is an umbrella term for a class of programs developed by different researchers

or practitioners with preventive and enhancement purposes to strengthen couple relationships (Wadsworth & Markman, 2012).

- **PREPARE/ENRICH (PE)** is a well-established CRE program used in this study (Olson & Olson, 2000), including online assessment of an intimate relationship and the relationship skill-building exercises.

### **Summary of the Chapters that Follow**

In Chapter 2, literature on the outcomes of CRE in general, and PREPARE/ENRICH more specifically, will be critically reviewed. While there is a lack of systematic CRE research in mainland China, a literature review on cultural, social and political factors in China that may pertain to intimate heterosexual relationships will be presented.

The methodology for this study will be introduced in Chapter 3, including the selection and recruitment procedures, measures used in this study, intervention procedures and data analysis methods.

Results of this study are presented in Chapter 4. Chapter 5 will conclude with a summary and discussion of the results, limitations of the study, recommendations for future research, and conclusions.



## **Chapter Two**

### **Literature Review**

This literature review is divided into five sections. The first section is a brief discussion of the social and political contexts in mainland China that pertain to intimate heterosexual relationships. The second section reviews literature on cultural factors that could contribute to unique characteristics in Chinese intimate heterosexual relationships compared to those in the United States (US). The third section will focus on the introduction and examination of CRE in the US, considering that this study uses a US developed CRE program as the intervention tool. The fourth section reviews the literature on PREPARE/ENRICH, the CRE program used in this study. The fifth and final section is a summary of all the literature discussed in this chapter.

#### **Sociopolitical Context for Intimate Relationships in Mainland China**

China has a long history of valuing the stability of intimate relationships and the patriarchal and patrilineal heritage (Parish & Whyte, 1980). In traditional China, most couples entered marriage when they were teenagers, the majority of which were arranged by parents (Xu & Whyte, 1990). A primary purpose of an intimate relationship was to have offspring, especially sons, in order to pass down the family lineage (Chu & Yu, 2010). Divorce was to some extent prohibited, and premarital sex and cohabitation were banned because of potential threat to relationship stability and violation of the dominant Confucian culture (Zeng, 1995).

The traditional marriage and family structure in China have changed substantially since the founding of the People's Republic of China (PRC) (i.e. 1949). Free-choice marriages were legalized and wives' rights were defined as equal to those of husbands'

through the Marriage Law enforced by Chinese government in 1959 (Xie, 2013).

Moreover, the late marriage and birth control (one child policy) were introduced in the early 1970s to control population growth, which significantly increased the average age of first marriage for both men and women and altered the family structure that traditionally consisted of multiple children in an extended family (Li, 1996). Despite these changes in the decades since the founding of PRC, marriages in mainland China were still traditional; that is, divorce, premarital sex and cohabitation, and other nontraditional romantic relationship behaviors were still uncommon at the beginning of the 1980s (Zeng, 1995).

The dramatic sociopolitical reforms and urbanization that resulted from China's opening up to foreign investment in the 1980s marked another turning point in contemporary mainland China (Xie, 2013). Economically, the allocation of resources was increasingly conducted through the market instead of by means of administrative dictates in the Mao Zedong era (Zhang, 2004). Wages increased as a majority of businesses have shifted from being state to privately owned. In the dating domain, sexuality became less restricted and premarital sex and cohabitation became more common (Xu, Li, & Yu, 2014). For example, according to data from the second Chinese Family Panel Study conducted in 2012 with a sample of 10,715 heterosexual couples, 12% of all couples have at some time cohabited before their first marriage, and this number is higher in larger cities such as Shanghai (18.2%). Data also indicate that educated couples are more likely to cohabit before marriage (25% of couples with bachelor's degree or higher), compared to illiterate couples (4%-5%) (Xu, Li, & Yu, 2014). These changes have greatly influenced intimate relationships in mainland China, and Chinese people and families

have had to face many new changes and challenges. For example, in the 1970s, the divorce rate in mainland China was virtually zero. Since then, China's divorce rate has increased greatly, especially in cities like Beijing and Shanghai. According to the China National Department of Statistics (2011), China's divorce-to-marriage rate in 2011 was 1:4.65 (one divorce for every 4.65 marriages), which was an increase of nearly 50% since 2002. In recent years, there has been a growing national concern about the increasing divorce rate (Li, 2002). In addition, reported domestic violence is increasing in mainland China and it has raised concerns as a social problem (Li, 2002).

Despite urgent needs, due to increasing divorce rates, high quality couple relationship education and psychological service delivery systems in mainland China lag behind Western standards; and specialized training programs for marital counselors and educators are rare. The concept of family therapy and couple relationship education were not introduced to mainland China until the 1980s (Deng, Lin, Lan & Fan, 2013).

According to Deng and her colleagues, intimate relationship research and practice have gone through the introductory stage (1985-1994), "blooming" stage (1995-2004) and "fast growing" stage (2005 to present). Deng et al. argued that empirical studies and evidence-based practices are still lacking in China. In 1996, Dr. Xiaoyi Fang taught China's first family therapy course to graduate students at Beijing Normal University and initiated China's first family therapy training program in 1997. However, family therapy is not a separate professional field in Chinese universities. Thus, no university in mainland China offers a family therapy doctorate degree. In order to address the need for more high quality mental health services in couple and family relationships, Deng et al. further suggested that China should: (a) develop an indigenous family therapy theory and

practice model based on Chinese culture; (b) develop family therapy programs in university systems; (c) develop licensure standards for family therapists; (d) increase scientific research on Chinese couple relationships and family culture.

### **Cultural Considerations for Intimate Relationships in China**

Chinese culture is considered a collective culture (Chen, 2000). It values united and uniform social actions. Achieving and maintaining social stability are the primary concerns in collective Chinese societies. The Chinese conception of the self is fundamentally a social one. Hsu (1985) suggested that, whereas in the West, persons are defined by their uniqueness and separateness from others, in the East, they are defined by their similarity and connection with others. Chinese interpersonal connectedness tends to dominate their attitudes and consequent behavior. In this context, duty, obligation, conformity, reciprocity, and avoidance of conflict, disapproval, and shame are highly valued. Since ancient times in Chinese society, contrary to most western cultures, the family – not the individual – has been regarded as the basic social unit (Ho, 1998). Traditionally, Chinese marriages are not the union of two individuals, but two families (Lucas et al., 2008). Extended family is as important as nuclear family. In Chinese marriages, continuation of blood lineage is important, sometimes more critically important than love.

Next, I will review one recent empirical study that investigated the different relationship standards and communication patterns between mainland Chinese heterosexual married couples and their US counterparts. The study discussed how cultural factors might contribute to these differences.

Williamson and her colleagues (Williamson et. al., 2012) observed social support

behaviors of 50 newlywed US couples and 41 newlywed mainland Chinese couples (the Chinese couples resided in mainland China at the time of the study) who were within 9 months of their wedding, in their first marriage, and of the same ethnicity (Caucasian in the US sample, and Chinese in the Chinese sample). Couples were instructed to engage in two 8-min videotaped support-seeking discussions, and the interaction behaviors in those videos were then coded using the Iowa Family Interaction Rating Scales (Melby et al., 1998). Mean levels of positive and negative behaviors were calculated and these scores were then used to test the association between communication behavior and relationship satisfaction associations. Couples' relationship satisfaction was assessed with an 8-item inventory developed by the authors for this study. Results from ANOVA indicated that, after controlling for relationship satisfaction, Chinese couples were observed displaying significantly more negative interaction behaviors than US couples. There was, however, no significant difference in the level of positive interactions observed in US and Chinese couples. Results further indicated that observed level of positive interaction was significantly related to increased relationship satisfaction only for US couples, and observed level of negative interaction was significantly associated with decreased relationship satisfaction only for Chinese couples.

Williamson et al. (2012) further discussed how cultural factors might contribute to the different display and meaning of marital communication for Chinese and US couples. The authors suggested that Chinese couples' displays of more negativity in a social support task are consistent with the collective values that actively expressing individual needs may be considered as self-centered. For US couples, however, seeking support is often appropriate and functional behavior in the individualistic culture context. In their

discussion, the authors further explained the research findings by noting that the collectivist culture in China stresses the importance of social harmony, and consequently, encourages the use of indirect communication and discourages the expression of negative emotions such as anger toward in-group members. For US couples, the authors commented that the relatively individualistic culture in the US promotes uniqueness and personal expression, and therefore, direct communication is valued and expression of anger towards family members is acceptable. Because of these culture differences, the authors argued that the expression of direct negative emotions would be more disruptive if they occur in a collectivistic culture context like mainland China than in an individualistic context like US. Moreover, individualistic cultures value the expression of positivity more than collective cultures, and this is consistent with the research finding that negativity was significantly related to lower levels of relationship satisfaction in the Chinese couples, while positivity was associated to higher level of relationship satisfaction in US couples.

One limitation in Williamson et al. (2012) was a relatively small sample of newlywed couples, which may not be representative of couples in romantic relationships across mainland China or US. Second, due to the cross-sectional design of this research, only correlational conclusions can be drawn from the results. Longitudinal studies may provide more information about whether cultural factors continue to impact couple relationship patterns over the relationship's trajectory. Lastly, the measures and coding system used in this study were developed for US couples without being validated with a Chinese sample. Therefore, it is not clear if they accurately captured Chinese couples' interaction behaviors and relationship satisfaction.

Despite these limitations, Williamson et al. (2012) provided empirical evidence that the culture in which a relationship occurs may be an important factor in understanding how individuals behave toward their partner and how they assign meaning to certain behaviors. As a result, existing Couple Relationship Education (CRE) programs, which were developed in western countries, need to be examined for their applicability when used with Chinese couples.

The next section will focus on a literature review of CRE. No systematic empirical study on CRE has been conducted for couples in mainland China based on literature searches with multiple databases, including one database in mainland China. As a result, the literature reviewed next is based on western couples, except one study conducted with Iranian couples.

### **Literature on Couple Relationship Education**

A review of research literature suggests that the present study is unique in using an empirical Couple Relationship Education (CRE) program (i.e., PREPARE/ENRICH) to improve college students' heterosexual intimate relationship in mainland China. Literature searches with several different social science databases were conducted before reaching this conclusion. The databases that were used to search for related empirical articles included: PsycINFO, Social Sciences Citation Index, Academic Search Premier and China National Knowledge Infrastructure (for literature published in Chinese).

Couple Relationship Education (CRE) programs aim to help romantic couples form and maintain healthy relationships. The primary focus for CRE is to develop better communication and problem-solving skills that are critical to healthy and stable relationships (Gottman & Silver, 1999). A second core area of CRE includes presenting

knowledge that is important for high-quality relationships, such as trajectory of relationship development, commitment and forgiveness, money management and sexuality (Fincham, Stanley, & Beach, 2007). Evidence-based CRE usually consists of a 12 to 18 hours curriculum that covers key relationship knowledge and skills (Halford & Bodenmann, 2013). A major strength of the evidence-based CRE is its focus on potentially modifiable variables (e.g., couple communication skills, dyadic coping strategies) that predict relationship satisfaction.

In the Halford et al. (2003) review article, they identified seven key characteristics for best practices in CRE: (a) assessment and measurement of variables associated with risk for distress or relationship dissolution (e.g., having divorced parents, negative communication); (b) encouragement of high-risk couples to participate; (c) assessment and education about relationship aggression; (d) provision of relationship education at transition points (e.g., around the time of the birth of first baby); (e) provision of relationship education to “mildly distressed” couples early in the progression toward distress; (f) adaption of programs for couples from diverse populations; and (g) increased accessibility of evidence-based relationship education. Halford (2011) has argued that CRE is not effective for all couples. He identified some factors which will compromise the efficacy of CRE: (a) low relationship satisfaction; (b) individual psychological disorder; (c) violence in current relationship; and (d) sexual dysfunction. If one or both partners report low relationship satisfaction, the CRE educator can discuss the option of attending couple therapy. Psychological disorders should also be assessed to determine the suitability of CRE. The most common disorders that are likely to inhibit participation in CRE are severe depression, severe anxiety disorders, alcohol or drug abuse, and



problem gambling (Halford, 2011). CRE educators can provide alternative suggestions for how the couple may obtain assistance.

The intervention program used in this study, PREPARE/ENRICH, is one approach of many different CRE programs. The next section will focus on the literature review for CRE in general, including different approaches to CRE, empirical evidence to support CRE, and mechanism of change in CRE. This section will be followed by a specific review on PREPARE/ENRICH.

**Approaches to CRE.** There are two broad approaches to CRE that are often used by practitioners, and have been evaluated in randomized controlled trials: (a) CRE inventory-based relationship assessment and feedback; and (b) CRE curriculum-based teaching of relationship knowledge, skills, and attitudes (Halford, Markman, & Stanley, 2008).

Currently, the assessment with feedback approach uses one of three evidence-based inventories: PREmarital Preparation and Relationship Enhancement (PREPARE; Olson, Fournier, & Druckman, 1996), the Facilitating Open Couple Communication Understanding and Study (FOCCUS; Markey & Micheletto, 1997), or RELATionship Evaluation (RELATE; Busby, Holman, & Taniguchi, 2001). In the assessment, each partner separately completes the self-report inventory. The couple will be provided feedback about the results of the assessment (Larson, Newell, Topham, & Nichols, 2002). All three inventories assess a broad range of couple functioning dimensions (e.g., personality, current relationship satisfaction and functioning, activities, communication, shared religious and other values). Each inventory takes approximately one hour for each partner to complete. Manuals are also available which provide guidance to CRE

educators on how to interpret the reports and structure the provision of feedback to couples. Despite the strengths of the assessment approach (e.g., established psychometric properties, good predicting power of the trajectory of relationship satisfaction, information concerning risk and resilience factors in relationships), Halford (2011) argued that the fundamental weaknesses of inventories include lack of empirical evaluation of their effects on relationship outcomes and their exclusive reliance on self-report assessment. He further proposed that identification of partner differences or relationship weaknesses may be counterproductive unless couples are helped to deal effectively with the issues identified.

Curriculum-based CRE, on the other hand, is often referred to as a skill-training approach because it focuses on training couples on key relationship skills (e.g., communication). Most of these programs also promote relationship knowledge (e.g., realistic, shared relationship expectations) (Carroll & Doherty, 2003) and positive connections and commitment (Markman, Stanley, Jenkins, Petrella, & Wadsworth, 2006). Evidence-based CRE curricula typically involve participation of both partners in a relationship in a 10 to 12 hour program led by a CRE educator. The program includes modeling, rehearsal, and feedback of skills, as well as activities promoting beliefs and attitudes associated with healthy relationships (Halford, Markman, & Stanley, 2008). PREPARE/ENRICH, the CRE program used in this study, is a combination of a relationship assessment and a skill-training program.

**Empirical evidence to support CRE.** There is replicated evidence of the short-term benefits of CRE programs. A total of four empirical studies will be reviewed (Braithwaite & Fincham, 2009; Halford et al., 2010; Griffin & Apostol, 1993; Hahlweg,

Markman, Thurmaier, Engl, & Eckert, 1998), as well as one recent meta-analytic study of CRE programs effectiveness (Hawkins, Blanchard, Baldwin, & Fawcett, 2008).

First, Braithwaite and Fincham (2009) used randomized clinical trials to examine the efficacy of the CRE program, ePREP, which is a preventive intervention for mental health and relationship outcomes in a sample of 77 college heterosexual individual students in the US. ePREP is a computer based form of the Prevention and Relationship Enhancement Program (PREP; Markman, Stanley, & Blumberg, 2001). As one form of inventory-based relationship assessment, ePREP is used to give couples feedback about their relationship strengths and challenges. Participants were 77 introductory psychology students in romantic relationships of 4 months duration or longer who received course credit for their participation. They were randomly assigned to either the ePREP condition or the placebo condition. Dependent variables included measures of depression (Beck Depression Inventory; Beck, Steer, & Garbin, 1988) and anxiety (Beck Anxiety Inventory; Beck, Epstein, Brown, & Steer, 1988), intimate partner violence (Revised Conflict Tactics Scale; Straus, Hamby, Boney-McCoy, & Sugarman, 1996), communication patterns (Communication Patterns Questionnaire; Heavey, Larson, Zumtobel, & Christensen, 1996) and relationship satisfaction (Couple Satisfaction Index; Funk & Rogge, 2007). These variables were assessed at pre-, post-, and 10-month follow-up. The authors reported that the ePREP condition produced better outcomes in anxiety measure, psychological aggression, and physical assault compared to control group. Findings also suggest that the ePREP group displayed better relationship outcomes at 10-month follow-up. This study, however, is limited by the self-report nature of the data and a lack of statistical power due to a small sample (38 individuals in the treatment group

and 39 individuals in the control group). Moreover, all participants took part in this study without their partners, and there is limited evidence on how the intervention affected the couple as a dyad.

The second empirical study was conducted by Halford and his colleagues (2010). They examined the effective components of two CRE programs. In their study, they compared the effects of an inventory-based assessment called RELATE (Busby, Holman, & Taniguchi, 2001) versus a combination of RELATE and a curriculum-based Couple Commitment And Relationship Enhancement (Couple CARE; Halford, Moore, Wilson, Dyer, & Farrugia, 2004). The authors reported 59 newlywed couples being randomly assigned to one of the two CRE programs: (a) RELATE, which involved receiving feedback on their relationship based on the on-line RELATE assessment and (b) RELATE + Couple CARE, which was RELATE plus completing the 6 unit Couple CARE curriculum at home with self-help DVD and guidebook as well as weekly phone check-in with a CRE educator. Participants were recruited voluntarily through the Register of Marriages within the state of Queensland, Australia. Originally 67 couples responded to the study invitation (14.7% of the invitations sent), among whom 3 couples did not meet inclusion criteria and 5 couples refused to participate, which made a total of 59 couples participating in the study. The authors reported the mean age of participants was 36.3 years ( $SD=10.7$ ) for men ( $n=59$ ) and 34.2 years ( $SD=10.2$ ) for women ( $n=59$ ). A total of 20 men (34%) and 22 women (37%) had been married previously, and 17 men (29%) and 18 women (31%) had children from a previous relationship. Among these newlywed couples, 47 of them (80%) had cohabited before marriage, with the mean duration of premarital cohabitation of 35 months ( $SD=23.2$ ). The sample was predominantly (94%)

Caucasian and the participants took part in this study as couples.

RELATE is a 271-item online comprehensive assessment of a couple's relationship including 10 domains: relationship satisfaction, stability, relationship self-regulation, kindness and caring, effective communication, flexibility, conflict style, sexual intimacy, and problem areas. RELATE feedback includes a report that summarizes couple relationship strengths and challenges, and a conjoint telephone-based session with each couple led by a CRE educator to discuss the report and develop goals for relationship enhancement. RELATE + Couple CARE adds Couple CARE to the RELATE feedback. Couple CARE is a 6-unit curriculum covering topics: relationship self-change, communication, intimacy and caring, managing differences, sexuality, and managing life changes. While couples in the RELATE + Couple CARE group completed all 6 units from Couple CARE, the time and emphasis placed on each unit was tailored to address the specific needs of the couple identified from their RELATE assessment. Couples completed the six units by reading Couple CARE materials and having a regular weekly telephone call with the educator.

Dependent variables included self-reported relationship satisfaction measured by RELATE satisfaction scale, and communication assessed by coding couples' problem-discussion audio-recordings using the Rapid-KPI (Halford, Sanders, & Behrens, 2001), a modification of Katogoriensystem für Partnerschaftliche Interaktion (KPI; Hahlweg & Conrad, 1985). RELATE satisfaction scale (a subscale in RELATE assessment) is a 7-item scale in which satisfaction is rated on a 5-point Likert scale with seven areas of the relationship such as intimacy, communication, and how conflict is managed. This scale was reported to have high reliability ( $\alpha=0.85$ ). For the communication skill assessment

(Rapid-KPI), couples were asked to have a 10-min discussion of a topic about which they disagreed. Each 30-second time interval was coded for the occurrence of each of three classes of negative communication: (a) conflict (criticize, negative solution); (b) invalidate (disagree, justify); and (c) negative nonverbal affect in each interval. The derived score was the percentage of intervals in which the particular behavior occurred. Observed inter-coder agreement was high, with 0.94 for conflict, 0.93 for invalidate, and 0.97 for negative affect. The two dependent variables were assessed pre-, post-, and 12 months after interventions.

A two-level multilevel model (MLM) of intervention effects was conducted on each of the outcome measures. The results showed that RELATE and Couple CARE combined reduced couple negative communication more than RELATE alone. Relative to RELATE alone, combined RELATE and Couple CARE produced higher sustained female relationship satisfaction. Men sustained high and similar relationship satisfaction in either condition. The authors concluded that skill training CRE has additional benefits for couples beyond assessment and feedback. This study, however, did not have a no-intervention control group, making it impossible to evaluate whether RELATE assessment and feedback had a beneficial effect for couples. This study also had only approximately 15% response rate. The recruitment method used (mailing invitations through Register of Marriages) gave modest reach for CRE and provided no direct evidence on what influenced couple's decision whether or not to participate. Couples' motivation to participate may compound the outcome of CRE training.

Third, Griffin and Apostol (1993) examined the effectiveness of the Relationship Enhancement (RE) program (Guerney, 1977), a curriculum-based CRE program, in

increasing functional and basic levels of differentiation of self. Participants were twenty married US couples recruited through university and community advertisement channels. The authors did not report the sexual orientation of the couples, but given the year when this study was published, they are likely all heterosexuals. Their ages ranged from 22 to 53 years. The number of years married ranged from 5 months to 30 years, with an average of 8 years. Thirty-eight of the participants were European-Americans and two were Afro-Americans. Participants were assigned to their training group on a first-come-first-in basis with six different groups formed over time. The training included six 2.5-hour sessions.

Dependent variables included basic differentiation of self, measured by the Level of Differentiation of Self Scale (LDSS; Haber, 1984, 1990); the functional differentiation of self, measured by the Family Relationship Questionnaire (FRQ; Griffin, 1990); the quality of the relationship, assessed by the Interpersonal Relationship Scale (IRS; Guerney, 1977); and the level of state anxiety and trait anxiety, assessed by the State-Trait Anxiety Inventory (STAI; Spielberger, 1983). The authors reported using the participants themselves as their own control by having a no-treatment period of six weeks, followed immediately by a treatment period of six weeks using the same subjects. A 12-month follow-up was also performed. The measures were completed at four different times: pre-control, pre-treatment, post-treatment, and follow-up.

Repeated-measures ANOVA showed significant increases from pre-treatment to follow-up in the functional and basic levels of differentiation of self ( $F=5.76, p<.05$ ) and quality of relationship ( $F=35.42, p<.01$ ). Significant negative correlations were reported between differentiation of self and anxiety ( $p<.01$ ).

Although the authors claimed that the participants could act as their own control without setting up a separate control group, the fact that they were assessed for a different period of time could introduce confounding explanations (e.g., maturation and history) and this would therefore affect the validity of this study. Moreover, this study did not employ randomized true experimental designs, which will introduce several sources of invalidity (history, maturation, testing, selection, etc.) into the study. Nevertheless, authors did provide some evidence for the effectiveness of RE therapy for nonclinical married couples. Further research replicating the outcome with a sound research design will make these evidences more convincing.

The fourth CRE empirical study reviewed in this section was conducted by Hahlweg and his colleagues (1998). They evaluated the effects of the Ein Partnerschaftliches Lernprogramm (EPL, A Couples' Learning Program; Thurmaier et al., 1992), a German CRE program based on the US Premarital Relationship Enhancement Program (PREP; Markman, Floyd, Stanley, & Lewis, 1986). EPL program was delivered by CRE educators in the form of workshops, and consisted of communication and problem-solving training, couples' discussions about relationship expectations, and exercises to enhance couples' sensual/sexual relationship. A total of 77 heterosexual couples were recruited from Catholic churches in Munich, Germany to participate in the treatment group with an EPL program intervention. The control group ( $n=32$ ) in this study consisted of heterosexual couples recruited from two sources: (a) 18 couples participating in a conventional marital enrichment program in church; (b) 14 couples who responded to an advertisement in a newspaper and received no marital preparation. The authors reported no significant differences in main dependent variables between these



two sources of couples in the control group at all assessment points, and, therefore their data were analyzed together as a whole for the control group. The authors also reported that a randomized controlled trial was designed initially for this study but a random assignment of participants to treatment and control groups was not possible due to logistic constraints. Thus this study was quasi-experimental in design. Participants in both groups were asked to complete a 2.5-hour assessment at 5 time points: (a) pre-test; (b) post-test 6-8 weeks later when the intervention was over; (c) 1.5-year follow-up; (d) 3-year follow-up; and (e) 5-year follow-up. The authors noted that couples in the treatment group were offered an abbreviated booster EPL weekend workshop between the 3- and 5-year follow-ups. Given the introduction of this additional intervention and the reduced sample size at 5-year follow-up (the drop-out rate at 5-year follow-up was not reported in the article), the authors did not include the data from the 5-year follow-up in the analysis. All couples in the treatment group ( $n=77$ ) and the control group ( $n=32$ ) completed assessments at pre- and post- tests. At the 1.5-year assessment point, 3 couples (9.4%) in the control group dropped out of the study. At the 3-year assessment point, 3 couples (4.7%) in the treatment group and 8 couples (25%) in the control group dropped out.

Two measures were used in this study to assess outcome: (a) Marital Adjustment Test (MAT; Locke & Wallace, 1959), a self-report inventory to measure marital adjustment and satisfaction with good reliability and validity (Gottman, Markman, & Notarius, 1977); and (b) Kategoriensystem für Partnerschaftliche Interaktion (KPI, Coding System for Marital Interaction; Hahlweg et al., 1984), a coding system to assess videotaped communication and problem-solving couple interaction behaviors, both

verbal and non-verbal, with 73% to 94% inter-rater agreement and a Cohen's kappa coefficient of 0.84. The KPI was developed to code behaviors in self-disclosure, positive solution, acceptance of the other, agreement, problem description, meta-communication, criticism, negative solution, justification, and disagreement. For the KPI assessment, couples were asked to discuss one of their top three relationship problem areas for 10 minutes. The interaction was videotaped and coded and scored later, using the KPI.

Chi-square tests and repeated multivariate analyses of covariance (MANCOVA) were conducted for data analyses. Results indicated that couples' relationship dissolution (divorce or separation) rate in the treatment group was significantly lower than that of the control group at the 3-year follow-up. In addition, although no significant differences in reported relationship satisfaction, as measured by MAT, were found between the two groups at post-test and 1.5-year follow-up, couples in the treatment group reported significantly higher relationship satisfaction than did control group at the 3-year follow-up. Moreover, for videotaped communication tasks coded and scored by KPI, the couples in the treatment group displayed consistently more positive and less negative communication behaviors than the control group at post-, 1.5-year, and 3-year follow-ups. Thus, the authors concluded that the effectiveness of the EPL program in improving couples' relationship skills and satisfaction was evident.

Limitations in this study included (a) a lack of randomized controlled trial in research design, which could compromise the internal validity of this study; and (b) the preponderance of Catholic couples, which restricted the external generalizability of the results to other populations. A randomized controlled replication study is needed to further confirm the effectiveness of EPL.

Finally, a CRE meta-analysis by Hawkins, Blanchard, Baldwin, and Fawcett (2008) examined 117 CRE studies and more than 500 effect sizes (effect size was calculated for each outcome variable in every study) from 1975 to 2006. All studies reviewed in the meta-analysis assessed the effects of a psycho-educational intervention that included improving couple relationships or communication skills as a goal, and had both treatment and control groups. The authors excluded therapeutic interventions from the meta-analysis to provide a clear picture of psycho-educational interventions. The authors included studies that reported sufficient information to calculate effect sizes for the specific outcomes. Outcome measures included various aspects of relationships such as areas of agreement-disagreement and conflict, time together, areas of satisfaction-dissatisfaction and communication skills. Most participants in the studies were White, middle-class, married couples who were not experiencing significant relationship distress. Only 7 studies had more than 25% racial/ethnic diversity in their samples; only 4 of these 7 studies had samples that were predominantly non-White. Only 2 studies had primarily low-income samples. There were no reports of homosexual couples in any of these studies.

The authors reported medium effect size improvements in couple communication (effect sizes ranged from 0.36 to 0.54), and in relationship satisfaction (effect sizes ranged from 0.24 to 0.36). The authors also found that programs with moderate dosage of 9–20 hours (effect sizes ranged from 0.468 to 0.557) had substantially larger effect sizes than low dose programs of 1–8 hours (effect sized ranged from 0.179 to 0.212). The effect size in this meta-analysis was calculated as the standardized mean group difference (treatment versus control group). For example, if the effect size for a specific outcome

variable is 0.50, this indicated that the couples in the treatment group improved 0.5 standard deviation compared to couples in the control group for this outcome variable. Overall, this meta-analysis study indicated that CRE produced significant, moderate effect sizes on relationship quality and couple communication skills.

In summary, there is evidence that curriculum-based CRE produces moderate short-term improvement of relationship satisfaction and relationship skills, which is typically 3 to 6 months after the intervention. However, studies (e.g., Feinberg, Jones, Kan, & Goslin, 2010; Doss, Rhoades, Stanley, & Markman, 2009) examining long-term effects of CRE have provided a mixed pattern of positive and null findings. For example, a recent experimental study with curriculum-based CRE treatment among expectant parents showed no main effects on relationship satisfaction at the child's third birthday (Feinberg, Jones, Kan, & Goslin, 2010). Other findings indicated negligible effects of CRE in predicting relationship outcomes over 8 years (Doss, Rhoades, Stanley, & Markman, 2009). Additional experimental studies with long-term follow-up are needed. In addition, the majority of studies have been conducted with Caucasian, well educated, and heterosexual couples (with a small percentage of racial minority or low SES couples in these studies). There is limited evidence on the generalizability of findings to racial minorities, less educated couples, and same-sex couples. In a recent CRE review, Johnson (2012) raised similar concerns and emphasized the importance of examining non-Caucasian and economically disadvantaged populations in future CRE research.

Finally, given the goals of the current study, Huang (2005) discussed CRE in Asian countries, including mainland China. Huang (2005) noted that the governments and psychologists in Asia are starting to realize the importance of CRE as a measure to

prevent marital problems and relationship dissolution, and have taken various actions on the policy and practice levels to conduct CRE, but there was a lack of empirical studies to examine the effectiveness of CRE. This is consistent with the lack of empirical articles after a comprehensive literature search was conducted on multiple databases, including the major one for Chinese literature in mainland China. From the international perspective on CRE, both process and outcome empirical studies are needed in Asian countries.

**Mechanisms of change and common factors in CRE.** CRE is effective as both a universal prevention strategy for couples who are functioning well and as a selective prevention strategy for couples with elevated risk for relationship problems (Halford & Bodenmann, 2013). In this section, literature will be reviewed on why and how CRE works in general.

Kazdin (2009) argued that most research on the effectiveness of psychological interventions failed to establish strong evidence for mechanisms of change. Wadsworth and Markman (2012) further argued that identifying active ingredients in prevention is more complicated than in intervention because universal or primary prevention usually targets healthy individuals and couples before they show dysfunctional symptoms. Moreover, as many prevention outcomes often develop over time, longitudinal studies with large samples will have sufficient statistical power to detect the mechanisms of change.

Wadsworth and Markman (2012) proposed four key mechanisms of change underlying CRE programs: (a) Communication skills (reduction of negative communication patterns and improved ability to resolve conflicts effectively); (b) Self-

regulation (learning to regulate negative emotions, especially during interactions); (c) Dyadic coping (learning effective ways to cope with stress both as an individual and as a couple together); (d) Positive connection (fun, support, romance, sensuality, and friendship in couple relationships). Wadworth and Markman (2012) suggested that these four factors are likely to be the mediating variables in contributing to the relationship outcome.

Markman, Rhoades, Stanley, Whitton and Ragan (2010) further examined the correlation of long-term outcomes of CRE programs and changes of observed communication skills. In this study, participants were 208 married couples with an average age of 26.5 years old ( $SD=5.26$ ). These couples were followed in their first 5 years of marriage, and they were recruited through religious organizations that performed their wedding service. In this sample, 35 couples (16.8%) divorced within the first 5 years of marriage, and 173 couples (83.2%) remained married. All couples were randomly assigned to one of the three treatment groups: naturally occurring church premarital education, church delivered Prevention and Relationship Enhancement Program (PREP; Markman, Stanley, & Blumberg, 2001), or university delivered PREP. Participating couples completed assessments before premarital education and before marriage, 6 weeks following premarital education, and yearly thereafter for 5 consecutive years. Besides marital status, no longitudinal data from divorced couples were included in the data analyses in this study. These assessment visits lasted approximately 2 hours and couples were paid \$40 to \$100, depending on the time point. The authors did not report how many couples completed the assessments in each of the yearly follow-ups. At each assessment point, couples were asked to identify their top problem area in their

relationship and then discuss that identified issue for 10 to 15 minutes. Their interaction during this problem-discussion task was then videotaped and coded using the global Interactional Dimensions Coding System (Kline et al., 2004). Using this system, coders rated each partner on nine dimensions that included affective, behavioral, and content cues and they assigned a score to assess couples' observed negative and positive communication. A negative communication score included negative affect, denial, dominance, conflict, withdrawal, and negative escalation dimensions. A positive communication score included positive affect, problem-solving skills, support/validation, and communication. The authors reported inter-coder reliability to be high, ranging from 0.66 to 0.95. Marital adjustment was assessed using the Marital Adjustment Test (Locke & Wallace, 1959). Participants also rated the negativity of their marital communication outside of the lab using the Communication Danger Signs Scale (Markman, Stanley, & Blumberg, 2001).

The authors concluded that couples who reported high satisfaction 5 years after marriage declined more in negative communication than couples who reported low satisfaction, and distressed couples showed greater declines in positive communication. These results provided support for teaching skills through CRE to counteract negative and promote positive communications as key change mechanisms. One limitation of the study is that the couples were recruited through religious organizations. It is possible that they were more religious than other couples and therefore may not represent all couples. In addition, the authors did not include a self-report measure of positive communication. Future research can use such a scale to help better understand the roles of observed versus self-reported communication skills. Moreover, the drop-out rate at each

assessment point was not reported, and there was not an analysis based on the treatment group to which the couples were assigned. Moreover, a no-treatment control group was not included in the research design. Therefore, it was not clear about the effects of the treatment on the changes in couples' communication over the course of 5 years. Lastly, the participants in this study were mostly Caucasians and middle class; therefore the findings may not be generalizable to other groups.

Hawkins, Stanley, Blanchard and Albright (2012) conducted a meta-analysis to explore common factors of the effectiveness of CRE programs. They coded 148 studies (from 1975 to 2009) for potential common factors that were associated with greater intervention outcomes. The two most common outcomes evaluated in these studies were relationship quality or satisfaction and couple communication. All studies included in this meta-analysis examined the effects of a psycho-educational intervention designed to improve couple relationship quality and/or communication skills. As for methodology, the authors included both experimental and quasi-experiment studies. Sample modal age in these studies was between 30 and 35 years and modal education was "some college". Only a small number of studies had significant numbers of lower-income and non-White participants. Standardized mean group differences were calculated for control-group studies and standardized mean change score was computed for one-group pre/post studies. Each effect size was weighted by the squared standard error to account for the precision of the effect size estimates. Consistent with another study (Hawkins et al., 2008), authors found a positive effect for program dosage: moderate-dosage programs (9–20 contact hours) were associated with stronger effects compared to low-dosage programs (1–8 contact hours). In addition, an emphasis on communication skills was



associated with stronger effects on couple communication outcomes, but this difference did not reach statistical significance for the relationship satisfaction outcome. Authors also concluded that differences in program setting (university/laboratory vs. religious) and delivery format (formal manuals, ongoing presence, formal instructor training) were not predictive of intervention outcome. One limitation of this meta-analysis is the lack of program details provided in the research the authors reviewed. This limited the range of potential program moderators that the meta-analysis could examine. Also, empirical studies designed to test the effects of specific programmatic factors on CRE outcomes were lacking. Lastly, as with other studies reviewed in this paper, lack of diversity in participants' demographics imposes limits to the external validity.

A couple's risk factors are another moderator in the course of change with respect to CRE. Relationship problems that couples might experience probably exist alongside difficult personal histories and traits, and within stressful environments that are likely to worsen those problems and create relationship distress (Halford, 2011). The quality and longevity of intimate relationships are influenced by a set of interrelated risk factors. Halford and Bodenmann (2013) reviewed 17 recent CRE studies and found that couples with elevations of modifiable risk factors such as dysfunctional communication and conflict resolution benefit most from CRE, while benefits for low risk couples were not consistent across studies. Authors, however, argued that there is not a replicated association between a specific index of risk and intervention outcome. Authors suggested use of four risk domains (context, individual spouse characteristics, life events impinging on the couple and couple interaction process) proposed by Halford (2011) to examine the association of a specific risk index and CRE effects. Similarly, according to a meta-

analysis of more than 100 longitudinal studies of marital quality and stability (Karney & Bradbury, 1995), theoretical accounts of why couples achieve certain marital outcomes were highlighted by three primary domains of influence: personality traits and experiences prior to marriage (vulnerabilities), stressful events and circumstances that spouses encounter once they are married (stressors), and the emotions and communication skills spouses display while adapting to each other (adaptation). Studies also support the associations between and across these domains and relationship outcomes, for example: negative personality characteristics and marital quality (Kurdek, 1998), adverse prior family experiences and marital dissolution (Amato, 1996), external stress and marital quality and instability (Bodenmann, 1997), family-of-origin experiences predicts couples' negative interactional patterns (Story, Karney, Lawrence, & Bradbury, 2004), and negative affectivity predicts observed couple communication (Donnellan, Coger, & Bryant, 2004). One limitation to these studies is the lack of empirical research to test how CRE can modify a specific index. Future research needs to more rigorously test the proposition that specific indices of risk reliably moderate the effects of CRE.

Bradbury and Laver (2012) suggested that we need more systematic knowledge about how to work with at-risk couples with the following risk factors (e.g., difficult family backgrounds, aggressive behaviors, and/or stressful life circumstances), who are still functioning relatively well in their relationships. For example, for couples with maladaptive interactional patterns, who are at great risk for experiencing negative marital trajectories and ultimately divorce, containing their anger and contempt is still likely to be a valuable treatment goal for these couples, but failing to address partners' difficult

childhoods, negative personalities, aggressive behavior, and external stressors is likely to limit the changes. Authors further argued that the long-standing assumption that we can help couples simply by teaching skills and information, without knowing a lot more about who they are and the depth of their struggles, is likely to be a barrier to future progress in CRE. Authors also emphasized the reality that couples bring a wide range of risk to their relationships and to our interventions, and knowing more about those risks will push us to devise better interventions with stronger uptake.

In conclusion, while efforts have been made to explore the mechanism of change for CRE, the understanding of how relationships change is still incomplete and very complex. For example, the added value of a systematic scientific approach to relationship education is not yet apparent (Hawkins, Stanley, Blanchard, & Albright, 2012). Longer-term follow-up studies may reveal superior performance of more rigorously conceived and tested programs in the future. Basic research on the mechanisms that transform happy, well-functioning couples into distressed, disengaged, and destabilized couples may also inform us on how to refine our intervention models. More research is also needed in understanding how to address risk factors in CRE and tailor the service to specific audiences. In addition, the lack of demographic and cultural diversity in participants is a common limitation to the studies reviewed in this section.

### **Literature on PREPARE/ENRICH**

PREPARE/ENRICH (PE; Olson & Olson, 2000), developed by Life Innovation, Inc. located in Minnesota (US), is a CRE program to help premarital couples prepare for marriage (PREPARE), as well as to help committed couples enrich their relationship (ENRICH). According to Olson, Olson, and Larson (2012), over 3 million couples have

participated in the PREPARE/ENRICH program since it was developed 30 years ago. PREPARE/ENRICH is rooted in systematic and multidisciplinary theories of structural theory, personality, strengths, and communication (Olson & Olson, 2000). This program consists of both a couple's assessment and an oral feedback process facilitated by an educator or counselor with goals to increase couples' awareness of relationship strengths and growth areas and provide them with critical skills such as communication and conflict resolution to enhance their relationship quality.

Three empirical studies (Knutson & Olson, 2003; Futris, Allen, Aholou, & Seponski, 2011; Askari, Noah, Hassan, & Baba, 2013) are reviewed next about PE program's effectiveness in improving couples' intimate relationships. These three studies were chosen for review among over 10 empirical studies that have been conducted with PE because they were more recent (after the year 2000) and utilized research designs that were similar to this dissertation research. The third study by Askari, Noah, Hassan and Baba was selected for review here also because it was conducted in a country other than US.

First, Knutson and Olson (2003) evaluated the effectiveness of PE program with a sample of 153 premarital couples in a community setting in the US. These couples were assigned to three groups: one group took the PE assessment and had four feedback sessions (PE+ Feedback); the second group only took the assessment (PE only); and the third group was a wait list control group. Couples in all three groups completed the Couple Satisfaction Scale (Fowers & Olson, 1992) as the outcome measure at pre-test, and two months following the intervention at post-test. The results indicated that only couples in the PE + Feedback group increased their relationship satisfaction, while there

was no significant change in the PE only group or the waiting list control group.

Second, Futris, Barton, Aholou and Seponski (2011) examined the efficacy of PE and whether the effects vary by delivery format. A total of 53 engaged couples in the community were recruited and allowed to self-select into one of two program formats: six weekly conjoint sessions ( $n = 25$  couples) or a 1-day weekend workshop format ( $n = 28$  couples). All couples participated in this study completed the PE assessment before the sessions or workshop. The authors used several measures (both pre- and post-test) to assess the intervention outcome: (a) Confidence Scale (Stanley, Hoyer, & Trathen, 1994) measured participants' level of confidence that they can manage what is in their future and stay together; (b) Ineffective Arguing Inventory and Conflict Resolution Styles Inventory (Kurdek, 1994) measured how effectively participants managed conflicts in their relationship; (c) Relationship Assessment Scale (Hendrick, 1988) measured participants' current satisfaction with their relationship; and (d) Self-designed (for this study) five-item scale assessed participants' feelings of overall readiness as well as more specific areas of readiness in emotional maturity, communication skills, and compatibility. Results indicated that couples in both groups reported positive gains in relationship knowledge, felt more confident in their relationship, engaged in more effective conflict resolution behaviors, and felt more satisfied with their relationship. No significant difference, however, was found between participants who attended couple's counseling sessions versus a 1-day workshop. The authors concluded that group workshops can have similar effectiveness as the couple's counseling.

While these two studies demonstrated the effectiveness of PE, some limitations are shared. First, both only examined the short-term outcome of PE (pre- vs. post-test)

rather than a longitudinal design, and therefore the long-term effects of PE could not be determined. Second, neither of the two studies employed a randomized experimental design, which could introduce several sources of invalidity (history, maturation, testing, selection, etc.) into the study. Further research replicating the outcome with a sound research design will make these evidences more convincing. In addition, the participants were predominantly educated White couples in the US. This could compromise the generalizability of the results to other cultural groups. Despite these limitations, evidence was provided for the effectiveness of PE program in enhancing romantic relationships.

Askari, Noah, Hassan and Baba (2013) examined the effectiveness of PREPARE/ENRICH with a sample of heterosexual couples in Iran. After screening, a total of 54 Iranian heterosexual couples (108 individuals) were recruited through community counseling centers in Iran. The inclusion criteria were: (a) individuals being 18 years and above; (b) individuals having at least 5 years of education; and (c) couples currently reported as married. Exclusion criteria in this study were existence of the following conditions in the relationship: (a) physical aggression; (b) couples who had history of extramarital affairs; (c) substance abuse history; and (d) engagement concurrently in couple therapy. Couples were randomly assigned to PREPARE/ENRICH treatment group ( $n=27$  couples) and no-treatment control group ( $n=27$  couples).

Outcome variable was individuals' mental health. Mental health condition was measured by General Health Questionnaire (GHQ-28; Goldberg & Hillier, 1979), a 28-item questionnaire assessing somatic symptoms, anxiety/insomnia, social dysfunction and depression. A total score of these 28 items was calculated in this study as individuals' mental health condition. All participants ( $n=108$ ) completed this questionnaire at pre-test

and at 8-week post-test. Results indicated that couples in the PREPARE/ENRICH treatment group had a significant decrease in their mean score of mental health condition (better mental health) compared to those in the no-treatment control group.

The study by Askari et al. (2013) employed a randomized control trial research design and examined the effectiveness of PREPARE/ENRICH outside of the US. One limitation of this study was that it only examined one outcome variable and did not assess any relationship outcome (e.g., relationship satisfaction, communication skills, conflict resolution skills, etc.). Moreover, it was not clear if the positive mental health outcome would remain long-term because it was only assessed at an 8-week post-test.

### **Summary**

This chapter started with a brief introduction of the sociopolitical context of intimate relationship in mainland China, followed by a discussion of cultural factors that need to be considered when conducting research on couple relationship in mainland China. Since there is a lack of CRE empirical research with Chinese couples, an introduction and examination of the CRE program in the US were presented, followed by a section focused specifically on the PREPARE/ENRICH, the program that was used in this dissertation research.

While there is evidence for the effectiveness of CRE programs based on the research in the US, it is unclear if they will be equally effective for the couples in mainland China. Multiculturalism is a big challenge in CRE (Johnson, 2012). As discussed in this chapter, the majority of CRE had been conducted with Caucasian, well-educated couples. There is limited evidence on the generalizability of findings to minority and less educated couples, as well as couples from other nations and cultures. There does

not seem to be any empirical research regarding PREPARE/ENRICH effectiveness conducted in mainland China or with Chinese couples in other parts of the world, based on the literature search for this dissertation. This dissertation aims to contribute to CRE literature by examine PREPARE/ENRICH's effectiveness with the college heterosexual dating couples in mainland China.



## Chapter Three

### Methodology

#### Subjects

A total of 97 heterosexual couples in two universities (with enrollments of 35,000 and 30,000 undergraduate students respectively) at a southern major city in mainland China replied to the research invitation (see the Procedures section below for recruitment details) in this study, and 92 of them met the inclusion criteria (described in the Procedures section) for the study. A total of 73 couples completed the pre-test, and 70 of them completed the post-test 6 weeks after the completion of the intervention (PREPARE/ENRICH). All participants are native Mandarin speakers and were born and raised in mainland China. Data regarding participants' demographic information and participant drop out is presented in the Results chapter of this dissertation.

#### Design

The study employed an experimental between-groups design with random assignment. All participants ( $n=184$ , 92 couples) were asked to complete the PREPARE/ENRICH (PE) Assessment (Olson & Olson, 1999) and the Couples Satisfaction Index (CSI; Funk & Rogge, 2007) at pre-test and post-test (six weeks after treatment). A total of 22 couples dropped out of this study because they did not complete the inventories either at the pre-test or post-test. Therefore, the final sample for this study was 70 couples. Since the PE assessment was developed as a component of the PE program, the CSI served as an important external assessment to examine the effectiveness of PE. The intervention was carried out during summer, 2014.

## Procedures

Upon approval from the University of Minnesota Institutional Review Board, flyers (see Appendix A) were distributed in May 2014 through an online student forum and campus bulletin boards at two universities in a southern major city in mainland China. Inclusion criteria for this study included dating couples who have been in an exclusive romantic heterosexual relationship of 4-month duration or longer, and who would like to enhance their relationship and can participate in this study as a couple. Exclusion criteria included individuals who reported to be in an abusive relationship, in a dating relationship of less than 4-month, or in a non-exclusive romantic relationship.

Recruited couples (97 couples) were also screened in a short survey for severe individual psychological disorders, violence in the current relationship, or sexual dysfunction. In a previous study, Harold (2011) suggested that couples with these risk factors may not benefit from CRE. After screening, five couples who were excluded were referred to the university counseling center or community for therapy. The final participants (92 couples) were informed about the voluntary nature of the study, and that they could withdraw at any point in the study. The possibility of coercion or undue influence was minimized by recruiting participants through student on-line forum and campus bulletin board, where the students experience minimal levels of power differential. The researcher also asked the following open-ended questions to assess participants' understanding before an informed consent (see Appendix B) was signed: "What more would you like to know", "I want to make sure you understand what is expected of you. Would you explain to me what you think we are asking you to do and the associated benefits and risks?". Each couple who completed all parts of the study

received a \$10 gift card for their participation.

The participants were randomly assigned to be involved in either a 12-hour CRE training based on PREPARE/ENRICH (PE) program treatment group (31 couples), or a less invasive treatment condition with self-administered PE assessment and a reflection exercise (see Appendix C) only comparison group (30 couples), or a no-contact control group (31 couples). The couples in the comparison and control groups were given the option of a 50-min session to process their assessment reports after post-test assessments were completed, conducted by the research assistants in this study.

Data from the PE assessment were collected online through the Life Innovation, Inc. website (<https://www.prepare-enrich.com/>). Login keys were sent to each participating couple via email for completion of pre- and post-test respectively. Each individual signed up for a time slot and came to a reserved computer lab to complete the self-administered assessments, which took approximately 45 minutes. Each individual completed the assessments separately to protect confidentiality due to the sensitive nature of some questions (e.g., potential abuse, pornography use) and minimize influence brought by the relationship dynamic if completed together as a couple. Data sets were sent back to the researcher by Life Innovation, Inc. after all assessments were completed. The CSI and reflection exercise were completed on paper (for couples in the treatment group, these were completed and collected at the end of the workshop, for couples in the comparison and control group, these were completed at couples' convenience and were collected by the research assistants). A total of 70 couples completed both pre- and post-tests (see Table 1 below).

Table 1  
Study Research Design

	PE		CSI*		PE Report following pre- test	Reflection Exercise Worksheet	PE Training Workshop
	Assessment Pre	Post	Assessment Pre	Post			
Treatment Group (n=26 couples)	yes	yes	yes	yes	yes	yes	yes
Comparison Group (n=24 couples)	yes	yes	yes	yes	yes	yes	no
Control Group (n=20 couples)	yes	yes	yes	yes	no	no	no

\* *Couple Satisfaction Index*

The reasons for choosing PREPARE/ENRICH (PE) as this study's intervention included: (a) Its proved high reliability and validity as a relationship assessment tool, as well as its effectiveness as an intervention to improve relationship quality based on the US couple population (Olson, Olson, & Larson, 2012); and (b) The availability of a validated Chinese version of the assessment in PE (Li, 2013). After the self-administered PE pre-test, each couple in the treatment and comparison groups received a report on core assessment scales including communication, conflict resolution, partner style and habits, financial management, leisure activities, affection and sexuality, family and friends, and relationship roles. Couples' results also included couple typology, strength and growth areas, relationship dynamics, personal stress profile, couple map, family map and personality scales. The couples in the comparison group were asked to use the reflection exercise sheet (see Appendix C) to guide a minimum of 30-min self-monitored couple discussion of the PE pre-test report, and complete the reflection exercise sheet during their discussion. Couples were given the option of seeking professional consultation from the research assistants if they had any questions or concerns as a result of the discussion

after the post-test was completed. Couples in the treatment group were given options to participate in one of the two 12-hour weekend workshop sections (same content over the weekends of two consecutive weeks). A total of 12 and 14 couples participated in each of these two sections respectively. They also completed the reflection exercise sheet to facilitate couple discussions in the workshop.

The CRE workshop is based on the PE program (Olson & Olson, 1999). The program materials were translated to mandarin Chinese by the author and his research assistants, and the workshop was presented in Mandarin Chinese. The workshop consisted of the following exercises: sharing strength and growth areas, creating a wish list using assertiveness and active listening, identifying most critical issues, ten steps for resolving conflict, couple and family maps, and scope out your personality, leisure activity, sexuality and the expression of intimacy. Participants in the treatment group ( $n = 52$ ) were given an evaluation sheet (see Appendix E) at the end of the workshop with one 7-point Likert scale question (positively-keyed) to evaluate the helpfulness of the workshop in improving their relationship quality, as well as two open-ended questions about (a) the most important thing they learned from the workshop; and (b) any comments they had. Participants in all three groups completed the same assessments at post-test (six weeks after the intervention).

The leader of the training is the author of this study, and a PhD candidate in Counseling Psychology at the University of Minnesota. The author has training in individual and group counseling skills and has had clinical experience with college students. He also completed the PE program training from Life Innovations, Inc., the institute that developed the PE program. Two masters students who are native Chinese

and in their second year in Counseling Psychology assisted subject recruitment, workshop preparing and presentation, data analyses and follow-up with couples who would like to further discuss their PE report after the post-test data was collected. These two students were trained for 8 hours by the author about PREPARE/ENRICH.

### **Variables and Measures**

The independent variable in this study is the treatment each group received. Participants in the comparison and control groups were tested at the same time as those involved in the treatment group. The treatment group had 12-hour weekend relationship psycho-education and skill exercise workshop based on the format of PE program (Olson & Olson, 1999).

The dependent variables include six subscales (communication, conflict resolution, leisure activities, partner style and habits, sex and affection, couple closeness) of the PE assessment (Olson & Olson, 1999) inventory and the Couples Satisfaction Index (CSI; Funk & Rogge, 2007). Post-assessments were carried out six weeks after the intervention.

The Chinese version of PE (258 items) was originally translated and back translated by Dr. Simon Lee and his colleagues at the Hong Kong office of PREPARE/ENRICH (Li, 2013). The Chinese version was used by those whose native language is not English. There are minimal changes between the Chinese version and the US version to keep the essence of each item. Li (2013) used the Chinese version of PE in her dissertation exploring the typology of Chinese premarital couples and reported the alpha reliabilities ranging from .70-.89. For this study, the subscales of communication, conflict resolution, leisure activities, partner style and habits, sex and affection, couple

closeness were used. Each of these scales has 10 items. These subscales were chosen because these areas are the targets of the relationship enhancement in this study. Below are brief descriptions of each subscale.

*Communication.* This scale measures each individual's beliefs, feelings and attitudes toward the role of communication (both verbal and nonverbal) in the maintenance of the relationship. High scores (60 and above) reflect awareness and satisfaction with the level and type of communication existing in the relationship. Individuals with high scores tend to feel understood by their partner and see themselves as being able to adequately express their feelings and beliefs. Low scores (30 and below) reflect a deficiency in the level of communication essential to satisfactorily maintain a relationship and highlight the need to improve communication skills.

*Conflict Resolution.* This scale evaluates an individual's attitudes, feelings, and beliefs about the existence and resolution of conflicts in the relationship. High scores (60 and above) reflect realistic attitudes about the probability of conflict in the relationship as well as satisfaction with the way most problems are handled. Low scores (30 and below) suggest an ineffective and dissatisfying approach to relationship conflict. Partners may feel their issues are difficult to resolve and/or may have a tendency to avoid disagreements.

*Leisure Activities.* This scale evaluates each individual's preferences for using discretionary time. High scores (60 and above) reflect compatibility, flexibility, and/or consensus about the use of leisure time activities. Low scores (30 and below) indicate dissatisfaction with the use of leisure time.

*Partner Style and Habits.* This scale assessed each individual's perception and

satisfaction with the personality characteristics of their partner as expressed through their behavioral traits. High scores (60 and above) reflect approval of the personality characteristics of the partner and general satisfaction with their personal behavior. Low scores (30 and below) indicate a low level of acceptance and/or lack of comfort with their partner's behavior.

*Sex and Affection.* This scale assesses an individual's feelings and concerns about affection and the sexual relationship with his/her partner. Items reflect satisfaction with expressions of affection, level of comfort in discussing sexual issues, attitudes toward sexual behavior, birth control decisions and feelings about sexual fidelity. High scores (60 and above) indicate satisfaction with affectionate expressions and a positive attitude about the role of sexuality in their relationship. Low scores (30 and below) suggest dissatisfaction with the expression of affection and concern over the role of sexuality in the relationship.

*Couple Closeness.* This scale describes the level of emotional closeness experienced and the degree to which they balance togetherness and separateness. Items deal with couples helping each other, spending time together and feelings of emotional closeness. Couple closeness assesses a couple's current relationship.

The seventh outcome measure in this study was the Couples Satisfaction Index scales (CSI; Funk & Rogge, 2007). CSI is a 16-item self-report measure (see Appendix D) that assesses relationship satisfaction. The authors (Funk & Rogge, 2007) examined eight well-validated self-report measures of relationship satisfaction and used item response theory (Weiss & Yoes, 1991) to develop this new inventory. Their results indicated that CSI has higher precision of measurement and greater power for detecting



differences in levels of satisfaction ( $\alpha = .98$ ) compared to all eight measures they examined. The CSI scales also demonstrated strong convergent validity with other measures of relationship satisfaction ( $r > 0.85$ ). The scales are added up to provide a total score reflecting overall relationship satisfaction. This inventory was translated into Chinese by the researcher and piloted among a group of 10 master's students in psychology at one of the two universities where this study was conducted. Minor revisions were made to clarify the confusion and misunderstanding in the translated version of this inventory.

### **Statistical Hypothesis**

The null hypotheses to be tested in this study are:

Hypothesis 1: There are no significant differences between the treatment, comparison, and control groups on the pre and post-test measures of:

1a: Relationship Satisfaction

1b: Communication

1c: Conflict Resolution

1d: Leisure Activities

1e: Partner Style and Habit

1f: Sex and Affection

1g: Couple Closeness

Hypothesis 2: There are no significant interaction effects between gender and time for treatment, comparison and control groups on measures of:

2a: Relationship Satisfaction

2b: Communication

2c: Conflict Resolution

2d: Leisure Activities

2e: Partner Style and Habit

2f: Sex and Affection

2g: Couple Closeness

Hypothesis 3: Change from pre to post-test in the treatment group for relationship satisfaction was not affected by the change in communication or conflict resolution.

### **Analysis**

Linear mixed effects models were built for each dependent variable to investigate the main effects of time (pre-test, post-test), gender (male, female) and group (treatment, comparison and control), as well as their interaction effects, using the R quantitative analysis software (R Core Team, 2014). Post hoc analyses were conducted if contrasting between different groups was needed with the significance level of the tests ( $p$ -value) set at 0.05. Evaluation given by participants in both treatment and comparison groups is described in Chapter 4 with descriptive statistics and summary of their answers to open questions.

## **Chapter Four**

### **Results**

In this Chapter, I present results of quantitative data analyses from the study described in previous chapters. I first report the demographic characteristics of the participants, as well as their relationship characteristics at pre-test. I then examine the effectiveness of the PREPARE/ENRICH (PE) intervention by building repeated measures linear mixed effects models for each of the 7 dependent variables (relationship satisfaction, communication, conflict resolution, leisure activities, partner style and habits, sex and affection, and couple closeness). Next, I explore the mechanism of change in couple relationship satisfaction, measured by the Couples Satisfaction Index scales (CSI; Funk & Rogge, 2007), by running multiple regression analysis with communication and conflict resolution skills as predictors. Lastly, I summarize data from the treatment and comparison group's evaluation of the helpfulness of the PE workshop or PE assessment on a 7-point Likert scale, and their responses to two open ended questions.

#### **Participants Characteristics**

A total of 92 couples participated in this study, and were randomly assigned to treatment group (31 couples), comparison group (30 couples) or control group (31 couples). A total of 22 couples either did not complete pre-test or post-test (drop-out rate was 24%), and therefore data sets from 70 couples were included in the data analyses (26 in treatment group, 24 in comparison group, and 20 in control group).

All participants were full-time undergraduate students at two universities in a major southern city in China. Participant demographic information is presented in Table 2 with breakdowns based on the group assignments and their gender. The average age for

all participants was 19.4 years ( $SD=1.0$ ). The majority (69%) of the participants were either sophomore or junior year university students at the time of the study, and most couples were in a relationship of 4 months to 1 year (77%). The other 23% of the couples were in a relationship of 1-4 years. Additionally, the majority (93%) of the couples were not cohabitating at the time of the research.

Table 2. *Participants Demographics*

Couple Demographics ( $N=70$ )	Treatment Group ( $n=26$ couples)		Comparison Group ( $n=24$ couples)		Control Group ( $n=20$ couples)	
Lengths of Relationship						
4-6 months	13		10		9	
7-12 months	8		7		7	
1-2 years	3		5		3	
3-4 years	2		2		1	
Cohabiting at the Time of Research						
Individual Demographics ( $N=140$ )						
	Treatment Group		Comparison Group		Control Group	
	Male ( $n=26$ )	Female ( $n=26$ )	Male ( $n=24$ )	Female ( $n=24$ )	Male ( $n=20$ )	Female ( $n=20$ )
Age (years) $M$ ( $SD$ )	19.7(1.5)	19.2(0.8)	20.1(0.9)	18.9(0.7)	19.5(1.1)	19.0(0.7)
Year in University						
Freshman	1	5	1	7	2	6
Sophomore	8	9	6	8	4	8
Junior	13	9	10	5	11	5
Senior	4	3	7	4	3	1

*Note.* Numbers presented in this table are the counts in each category except for the age where mean ( $M$ ) and standard deviation ( $SD$ ) were reported.

Chi-square analyses indicated that there were no statistically significant differences between treatment, comparison and control groups in terms of couples' lengths of relationship [ $\chi^2(6) = 1.20, p = 0.98$ ] and cohabitation status [ $\chi^2(2) = 0.58, p = 0.75$ ]. Independent samples *t*-tests suggested that males were significantly older than females in the treatment group [ $t(102) = 2.12, p < .05$ ], comparison group [ $t(94) = 7.29, p < .001$ ], and control group [ $t(78) = 2.43, p < .05$ ].

Table 3 presents the correlations, internal reliability (Cronbach's alpha), as well as means and standard deviations of the 7 outcome measures at pre-test. The alpha levels for the measures in this study ranged from 0.72 to 0.85, which indicated good internal consistency for all the measures (Howell, 2013). Moderate positive correlations emerged between relationship satisfaction, communication, conflict resolution, and couple closeness (correlation coefficients ranged from 0.43 to 0.69).

Table 4 shows breakdowns of means and standard deviations for males and females on the 7 outcome measures for treatment, comparison and control groups at pre and post-test. At pre-test, paired sample *t*-tests were conducted on each of the outcome measures to examine gender differences. The results indicated that males had significantly higher scores on relationship satisfaction than their female partner [ $d = 4.8, t(138) = 2.86, p < .05$ ]. There were, however, no significant differences between males and females on communication [ $t(138) = 0.89, p = 0.37$ ], conflict resolution [ $t(138) = 1.08, p = 0.28$ ], leisure activities [ $t(138) = 1.87, p = 0.06$ ], partner style and habits [ $t(138) = 1.02, p = 0.31$ ], sex and affection [ $t(138) = 0.25, p = 0.80$ ], and couple closeness [ $t(138) = 1.15, p = 0.25$ ].

Table 3. Correlation Table, Internal Reliability (Cronbach's Alpha), and Means (SDs) for the Outcome Measures at Pre-test

	1	2	3	4	5	6	7
	$\alpha=.82$	$\alpha=.85$	$\alpha=.76$	$\alpha=.80$	$\alpha=.78$	$\alpha=.72$	$\alpha=.82$
Measures <i>M (SD)</i>							
1. Relationship Satisfaction 40.0 (10.2)	1.00						
2. Communication 44.9 (20.5)	.54***	1.00					
3. Conflict Resolution 37.6 (21.7)	.62***	.69***	1.00				
4. Leisure Activities 41.7 (12.1)	.25**	.21*	.19*	1.00			
5. Partner Style and Habits 41.9 (19.7)	.23**	.34***	.38***	.52***	1.00		
6. Sex and Affection 41.8 (27.1)	.30***	.44***	.24**	.28*	.17*	1.00	
7. Couple Closeness 47.9 (22.3)	.62***	.59***	.43***	.32***	.26**	.24**	1.00

Note. \* $p < .05$  \*\* $p < .01$  \*\*\* $p < .001$  (Use this significant level hereafter)

Table 4  
*Means and Standard Deviations (in parenthesis) on Pre and Post-Test Measures*

	Treatment Group ( <i>n</i> =26 couples)				Comparison Group ( <i>n</i> =24 couples)				Control Group ( <i>n</i> =20 couples)			
	Pre				Pre		Post		Pre		Post	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Relationship Satisfaction	42.3 (10.3)	38.6 (8.2)	48.2 (9.2)	49.7 (11.3)	40.7 (8.8)	36.5 (11.0)	42.3 (9.4)	40.6 (12.2)	44.6 (7.6)	37.7 (13.2)	43.3 (8.2)	38.2 (11.9)
Communication	43.2 (22.7)	46.7 (20.6)	45.7 (18.7)	56.9 (21.5)	45.7 (19.8)	48.2 (17.7)	44.3 (20.9)	50.3 (18.8)	40.5 (23.0)	44.1 (21.2)	39.8 (21.9)	43.7 (22.6)
Conflict Resolution	37.8 (19.3)	40.0 (22.3)	41.2 (17.9)	52.8 (24.1)	33.9 (20.5)	38.7 (23.4)	34.8 (21.1)	37.9 (25.2)	35.1 (18.3)	39.9 (24.8)	36.0 (17.3)	38.3 (22.2)
Leisure Activities	45.2 (11.7)	41.5 (13.8)	50.3 (13.5)	52.9 (15.7)	44.1 (12.0)	39.8 (15.4)	47.8 (10.7)	44.3 (17.3)	40.7 (9.8)	37.7 (8.1)	41.1 (12.1)	36.9 (9.2)
Partner Style and Habits	42.7 (17.3)	39.7 (18.6)	49.7 (19.1)	50.1 (20.7)	44.3 (19.2)	41.6 (21.5)	45.0 (17.8)	40.8 (19.5)	43.8 (18.8)	39.1 (22.1)	42.6 (19.3)	37.1 (20.9)
Sex and Affection	39.1 (27.8)	42.6 (29.5)	41.8 (24.3)	43.1 (30.1)	41.2 (25.9)	43.7 (22.8)	40.5 (26.3)	41.9 (20.0)	44.1 (31.1)	40.5 (26.7)	42.9 (29.0)	41.8 (28.8)
Couple Closeness	50.7 (21.9)	46.3 (17.3)	55.1 (19.0)	58.3 (20.5)	48.1 (24.1)	43.8 (20.0)	52.9 (26.3)	50.0 (22.5)	51.3 (25.2)	47.7 (19.3)	50.8 (23.9)	45.1 (20.9)

### **Effectiveness of PREPARE/ENRICH (PE)**

Each outcome variable was measured at pre- and post- test, and therefore a repeated measures design was used. A repeated measures design can eliminate the influence caused by pre-test differences among different treatment groups (Howell, 2013). A modern approach to analyze repeated measures data is linear mixed effects modeling (Pinheiro, Bates, DebRoy, & Sarkar, 2014). The reason for choosing a linear mixed effects model over the traditional Repeated Measures ANOVA is that Repeated Measures ANOVA has an important statistical assumption, sphericity (variances of differences between all pairs of groups are equal), which is rarely met, versus the linear mixed effects modeling does not require the sphericity assumption and it has higher statistical power.

A series of linear mixed effects models were built for each dependent variable with time (pre-test, post-test) as within-subjects factor, and gender (male, female) and group (treatment, comparison and control) as between-subjects factors. Main effects of time, gender and group, as well as their interaction effects, were tested for each dependent variable.

The main effects of time, gender and group on each dependent variable are presented in Table 5. When a main effect is statistically significant, it indicates that there is a significant mean difference among different levels of that factor after averaging over the other two factors. The results suggested that the main effects for all three fixed factors (time, gender, group) were statistically significant on every dependent variable except for the variable of sex and affection.

Next, the interaction effects were examined on each dependent variable, and post



hoc analyses were conducted as needed. For the contrasting post hoc analysis in linear mixed effects model, if the  $t$ -value is greater than 2, it suggests that the mean difference is statistically significant between different levels of a factor. For the contrasting statistical procedure in linear mixed effects model,  $p$ -values are not reported because  $t$ -values based on a linear mixed model do not follow a true  $t$ -distribution, and the distribution that they do follow has not been determined. However, there is a consensus among researchers to consider  $t$  values greater than 2.00 to indicate a statistically significant effect (MacKenzie, & Peng, 2014).

Table 5  
*Main Effects of Time, Gender and Group on Each Dependent Variable*

Dependent Variable	Main Effects					
	<u>Time</u>		<u>Gender</u>		<u>Group</u>	
	$\chi^2(1)$	$p$	$\chi^2(1)$	$p$	$\chi^2(2)$	$p$
Relationship Satisfaction	17.4***	<.001	5.6*	0.018	19.4***	<.001
Communication	11.9***	<.001	7.1**	0.0077	13.2**	0.0014
Conflict Resolution	13.4***	<.001	8.5**	0.0036	14.5***	<.001
Leisure Activities	12.1***	<.001	4.7*	0.030	11.3**	0.0035
Partner Style and Habit	9.6**	0.0019	4.4*	0.036	8.8**	0.012
Sex and Affection	1.2	0.27	2.6	0.11	3.3	0.19
Couple Closeness	16.6***	<.001	5.5*	0.019	15.3***	<.001

**Null Hypotheses Tested.** The following null hypotheses were tested for each dependent variable in order to examine the effectiveness of PREPARE/ENRICH and

potential gender effects on the outcomes:

Hypothesis 1: There are no significant differences between the treatment, comparison, and control groups on the pre and post-test measures of:

1a: Relationship Satisfaction

1b: Communication

1c: Conflict Resolution

1d: Leisure Activities

1e: Partner Style and Habit

1f: Sex and Affection

1g: Couple Closeness

Hypothesis 2: There are no significant interaction effects between gender and time for treatment, comparison and control groups on measures of:

2a: Relationship Satisfaction

2b: Communication

2c: Conflict Resolution

2d: Leisure Activities

2e: Partner Style and Habit

2f: Sex and Affection

2g: Couple Closeness

**Relationship satisfaction.** The linear mixed effects model with repeated measures indicated that the main effects for time, gender and group were all statistically significant (see Table 5). The main effect for time suggested that participants' post-test scores (44.0) on relationship satisfaction were significantly higher than pre-test scores

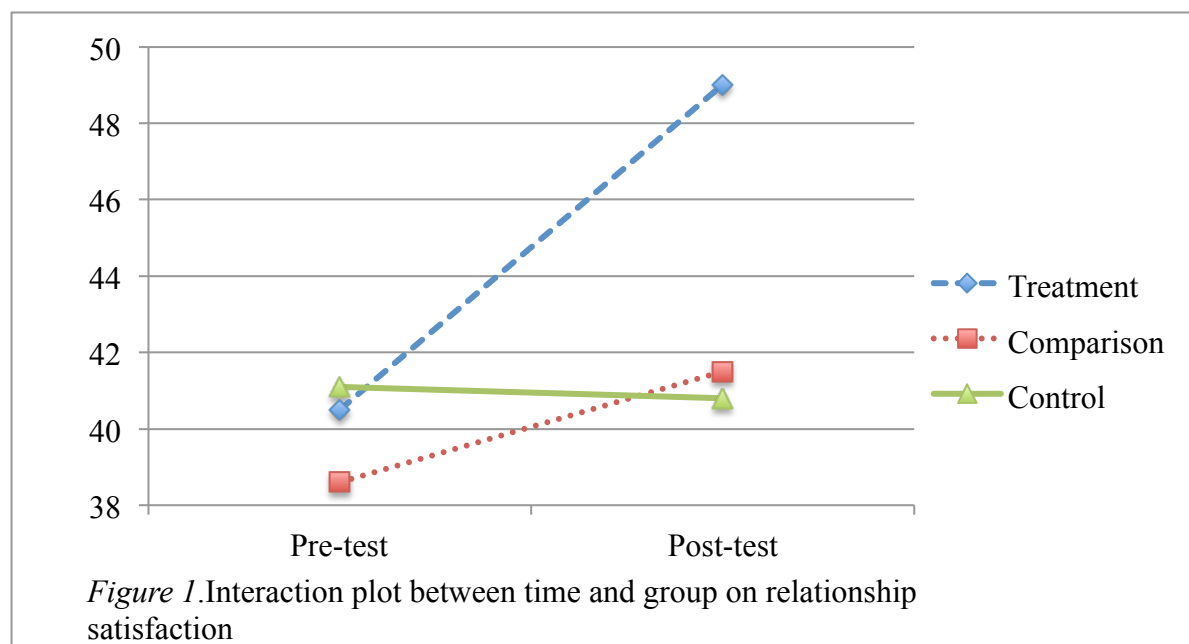
(40.0) after averaging over the other two factors ( $p < .001$ ). The main effect for gender suggested that male participants' scores (43.6) on relationship satisfaction were significantly higher than female participants' scores (40.5) after averaging over the other two factors ( $p = .018$ ). For the main effect for group, since there were more than two levels for this fixed factor, post hoc analyses using contrasts were conducted. The results indicated that the participants in the treatment group scored (44.7) significantly higher than both the comparison group (40.0) and the control group (41.0) after averaging over the other two fixed factors ( $t = 3.47$ ). There were, however, no significant mean differences between the comparison and control group ( $t = 0.83$ ).

Interaction effects between the three fixed factors were also examined. The results indicated that the interactions between time and group ( $\chi^2(2) = 20.1, p < .001$ ), as well as between time, gender and group ( $\chi^2(2) = 12.8, p < .01$ ) were statistically significant.

For the interaction between time and group (see Figure 1), post hoc analyses suggested that the mean difference between pre and post-test for the treatment group ( $d = 8.5$ ) was significantly higher than that for the comparison ( $d = 2.9$ ) and control group ( $d = -0.4$ ) after averaging over two genders ( $t = 4.71$ ). Comparison group also had a significantly higher mean difference between pre and post-test than the control group ( $t = 2.7$ ). Therefore, it can be concluded that treatment and comparison groups improved on relationship satisfaction from pre to post-test, with a more significant increase for the treatment group. There was no significant change for the control group.

For the interaction between time, gender and group, post hoc analyses suggested that the mean difference between pre and post-test in the treatment group for females ( $d = 11.1$ ) was significantly more than that for the males ( $d = 5.9$ ),  $t = 3.82$ . These results

indicated that females' mean score on relationship satisfaction increased significantly more than males from pre to post-test after attending PE workshop. This gender effect, however, was not significant for the comparison ( $t = 1.23$ ) or control group ( $t = 0.39$ ).



Based on the above analyses, hypothesis 1a was rejected because there were significant differences between the treatment, comparison, and control groups on the pre and post-test ( $d_{\text{treatment}} > d_{\text{comparison}} > d_{\text{control}}$ ). Hypothesis 2a was rejected. There was a significant interaction effect between gender and time for the treatment group ( $d_{\text{female}} > d_{\text{male}}$ ), but not for the comparison or control group ( $d_{\text{female}} = d_{\text{male}}$ ).

**Communication.** The linear mixed effects model with repeated measures indicated that the main effects for time, gender and group were all statistically significant (see Table 5). The main effect for time suggested that participants' post-test scores (47.2) on communication were significantly higher than pre-test scores (44.9) after averaging over the other two factors ( $p < .001$ ). The main effect for gender suggested that female participants' scores (48.7) on communication were significantly higher than male

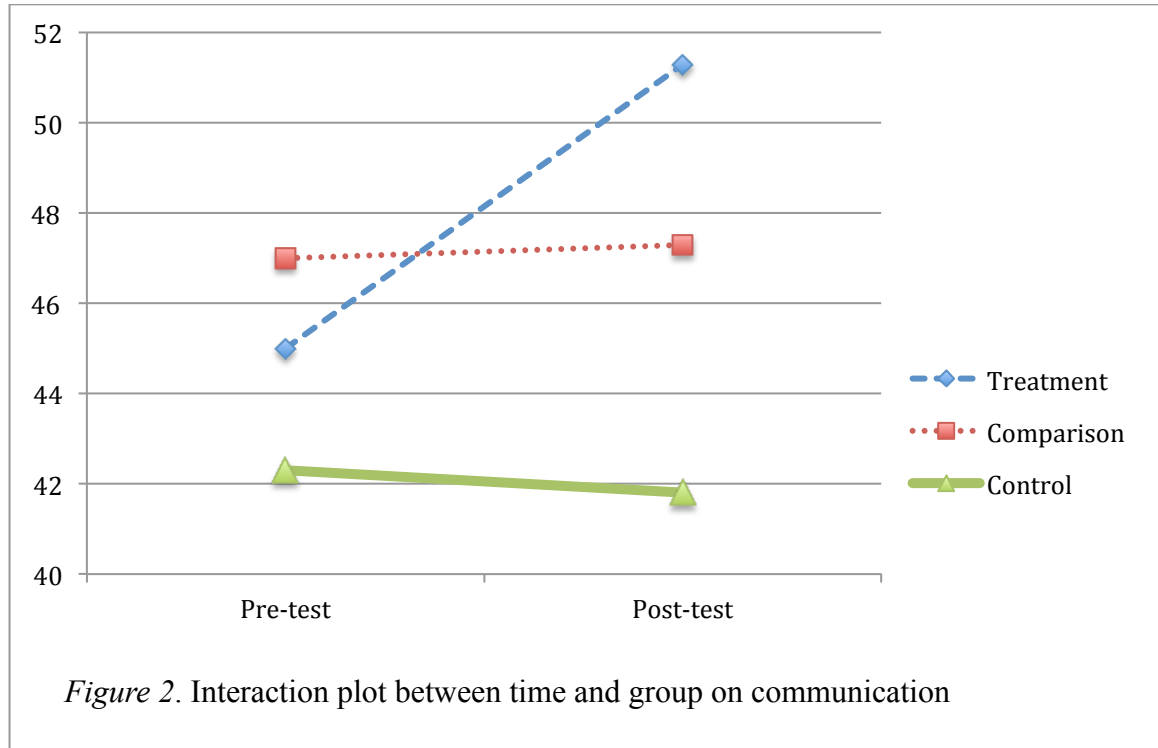
participants' scores (43.4) after averaging over the other two factors ( $p = .0077$ ). For the main effect for group, since there were more than two levels for this fixed factor, post hoc analyses using contrasts were conducted. The results indicated that the participants in the treatment (48.1) and comparison group (47.1) scored significantly higher than the control group (42.0) after averaging over the other two fixed factors ( $t = 2.89$ ). There were, however, no significant mean differences between the treatment and comparison group ( $t = 0.69$ ).

Interaction effects between the three fixed factors were also examined. The results indicated that the interactions between time and group ( $\chi^2(2) = 16.3, p < .001$ ), as well as between time, gender and group ( $\chi^2(2) = 14.9, p < .001$ ) were statistically significant.

For the interaction between time and group (see Figure 2), post hoc analyses suggested that the mean difference between pre and post-test for the treatment group ( $d = 6.3$ ) was significantly higher than that for the comparison ( $d = 0.3$ ) and control group ( $d = -1.5$ ) after averaging over two genders ( $t = 5.65$ ). The change from pre to post-test, however, was not significant for the comparison and control group. Therefore, it can be concluded that the PE significantly improved participants' communication skills while participants in the comparison and control group did not change their communication skills from pre to post-test.

For the interaction between time, gender and group, post hoc analyses suggested that the mean difference between pre and post-test in the treatment group for females ( $d = 10.2$ ) was statistically more than that for the males ( $d = 2.5$ ),  $t = 5.42$ . These results indicated that females' mean score on communication increased significantly more than males from pre to post-test after attending PE workshop. This gender effect, however,

was not significant for the comparison ( $t = 0.31$ ) and control ( $t = 0.58$ ) group.



Based on the above analyses, hypothesis 1b was rejected because there were significant differences between the treatment, comparison, and control groups on the pre and post-test ( $d_{\text{treatment}} > d_{\text{comparison}} = d_{\text{control}}$ ). Hypothesis 2b was rejected. There was a significant interaction effect between gender and time for the treatment group ( $d_{\text{female}} > d_{\text{male}}$ ), but not for the comparison or control group ( $d_{\text{female}} = d_{\text{male}}$ ).

**Conflict resolution.** The linear mixed effects model with repeated measures indicated that the main effects for time, gender and group were all statistically significant (see Table 5). The main effect for time suggested that participants' post-test scores (40.5) on conflict resolution were significantly higher than pre-test scores (37.6) after averaging over the other two factors ( $p < .001$ ). The main effect for gender suggested that female participants' scores (41.5) on conflict resolution were significantly higher than male

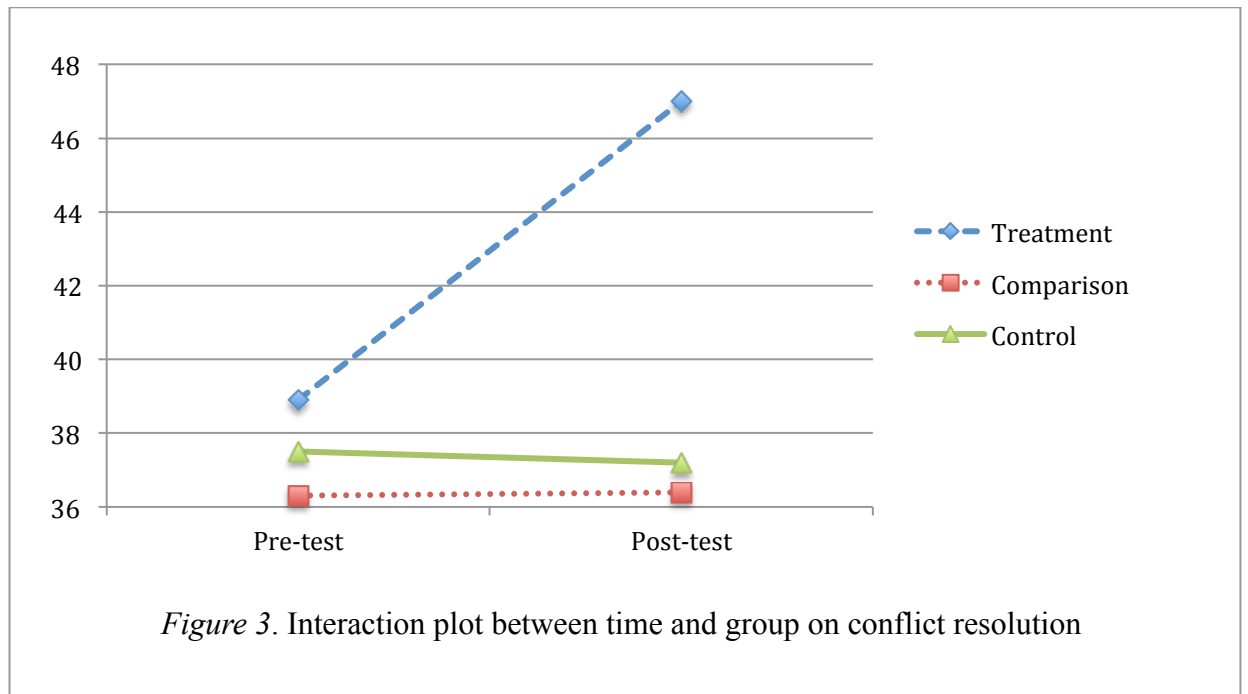
participants' scores (36.6) after averaging over the other two factors ( $p = .0036$ ). For the main effect for group, since there were more than two levels for this fixed factor, post hoc analyses using contrasts were conducted. The results indicated that the participants in the treatment scored (43.0) significantly higher than the comparison group (36.3) and the control group (37.3) after averaging over the other two fixed factors ( $t = 3.17$ ). There were, however, no significant mean differences between the comparison and control group ( $t = 0.72$ ).

Interaction effects between the three fixed factors were also examined. The results indicated that the interactions between time and group [ $\chi^2(2) = 18.0, p < .001$ ], as well as between time, gender and group [ $\chi^2(2) = 9.9, p < .01$ ] were statistically significant.

For the interaction between time and group (see Figure 3), post hoc analyses suggested that the mean difference between pre and post-test for the treatment group ( $d = 8.1$ ) was significantly higher than that for the comparison ( $d = 0.1$ ) and control group ( $d = -0.3$ ) after averaging over two genders ( $t = 7.13$ ). The change from pre to post test, however, was not statistically significant for the comparison and control group. Therefore, it can be concluded that the PE significantly improved participants' conflict resolution skills in the treatment group while participants in the comparison and control group did not change their conflict resolution skills from pre to post test.

For the interaction between time, gender and group, post hoc analyses suggested that the mean difference between pre and post-test in the treatment group for females ( $d = 12.8$ ) was statistically more than that for the males ( $d = 3.4$ ),  $t = 7.10$ . These results indicated that females' mean score on conflict resolution increased more than males from pre to post test after attending PE workshop. This gender effect, however, was not

significant for the comparison ( $t = 0.18$ ) and control ( $t = 0.21$ ) group.



Based on the above analyses, hypothesis 1c was rejected because there were significant differences between the treatment, comparison, and control groups on the pre and post-test ( $d_{\text{treatment}} > d_{\text{comparison}} = d_{\text{control}}$ ). Hypothesis 2c was rejected. There was a significant interaction effect between gender and time for the treatment group ( $d_{\text{female}} > d_{\text{male}}$ ), but not for the comparison or control group ( $d_{\text{female}} = d_{\text{male}}$ ).

**Leisure activities.** The linear mixed effects model with repeated measures indicated that the main effects for time, gender and group were all statistically significant (see Table 5). The main effect for time suggested that participants' post-test scores (46.1) on leisure activities were significantly higher than pre-test scores (41.7) after averaging over the other two factors ( $p < .001$ ). The main effect for gender suggested that male participants' scores (45.2) on leisure activities were statistically higher than female participants' scores (42.6) after averaging over the other two factors ( $p = .03$ ). For the

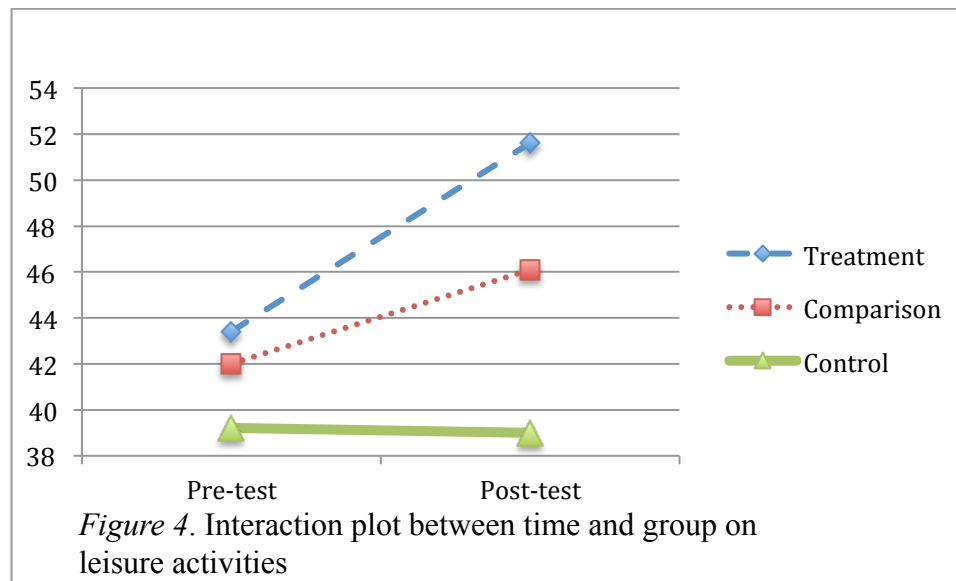


main effect for group, since there were more than two levels for this fixed factor, post hoc analyses using contrasts were conducted. The results indicated that the participants in the treatment (47.5) and comparison group (44.0) scored significantly higher than the control group (39.1) after averaging over the other two fixed factors ( $t = 2.88$ ). There were, however, no significant mean differences between the treatment and comparison group ( $t = 1.38$ ).

Interaction effects between the three fixed factors were also examined. The results indicated that the interactions between time and group ( $\chi^2(2) = 18.0, p < .001$ ) was statistically significant.

For the interaction between time and group (see Figure 4), post hoc analyses suggested that the mean difference between pre and post-test for the treatment group ( $d = 8.2$ ) was statistically higher than that for the comparison ( $d = 4.1$ ) and control group ( $d = -0.2$ ) after averaging over two genders ( $t = 3.23$ ). Comparison group also had a statistically significant higher mean difference between pre and post-test than the control group ( $t = 2.29$ ). Therefore, it can be concluded that treatment and comparison groups improved on leisure activities from pre to post test, with a more significant increase for the treatment group. There was no significant change for the control group.

There was no significant interaction involving the fixed factor gender. This suggested that the effect of PE workshop or assessment on improving participants' scores on leisure activities for the treatment or comparison group did not differ for male and female participants.



Based on the above analyses, hypothesis 1d was rejected because there were significant differences between the treatment, comparison, and control groups on the pre and post-test ( $d_{\text{treatment}} > d_{\text{comparison}} > d_{\text{control}}$ ). Hypothesis 2d was not rejected. There were no significant interaction effects between gender and time for the treatment, comparison or control group ( $d_{\text{female}} = d_{\text{male}}$ ).

**Partner style and habit.** The linear mixed effects model with repeated measures indicated that the main effects for time, gender and group were all statistically significant (see Table 5). The main effect for time suggested that participants' post-test scores (44.6) on partner style and habit were significantly higher than pre-test scores (41.9) after averaging over the other two factors ( $p = .0019$ ). The main effect for gender suggested that male participants' scores (44.8) on partner style and habit were significantly higher than female participants' scores (41.7) after averaging over the other two factors ( $p = .036$ ). For the main effect for group, since there were more than two levels for this fixed factor, post hoc analyses using contrasts were conducted. The results indicated that

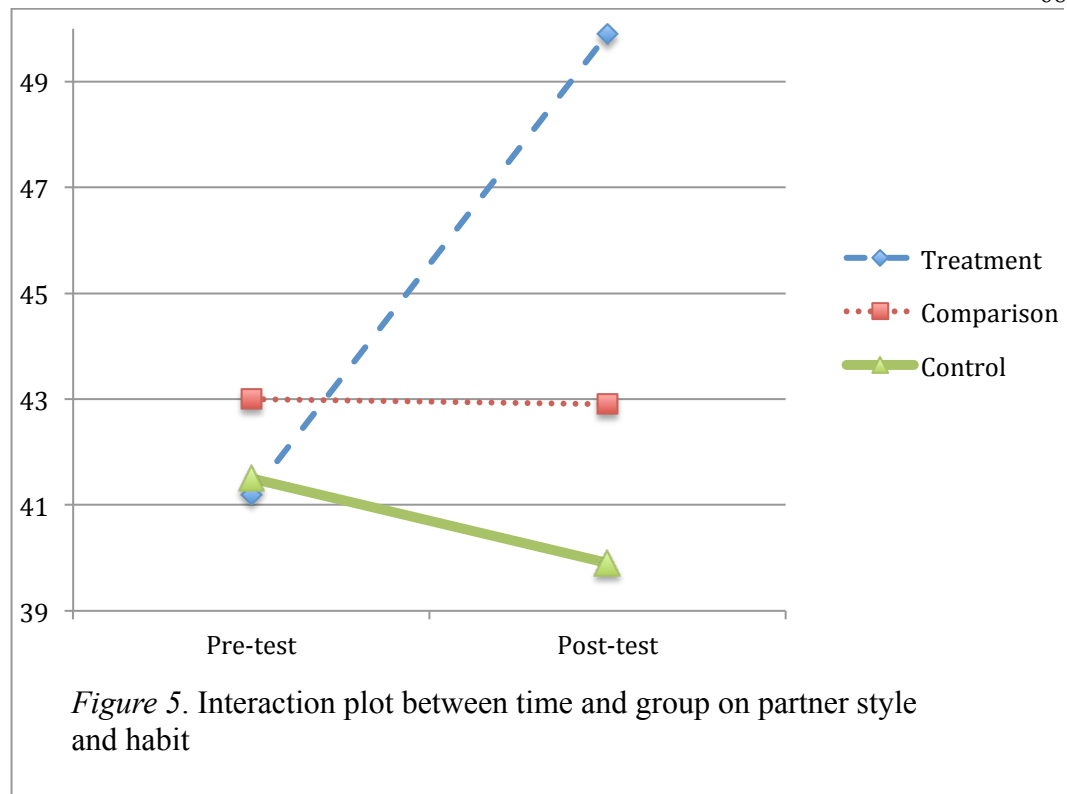
the participants in the treatment (45.6) and comparison group (43.0) scored significantly higher than the control group (40.7) after averaging over the other two fixed factors ( $t = 2.20$ ). There were, however, no significant mean differences between the treatment and comparison group ( $t = 0.98$ ).

Interaction effects between the three fixed factors were also examined. The results indicated that the interactions between time and group ( $\chi^2(2) = 18.0, p < .001$ ) was statistically significant.

For the interaction between time and group (see Figure 5), post hoc analyses suggested that the mean difference between pre and post-test for the treatment group ( $d = 8.7$ ) was significantly higher than that for the comparison ( $d = -0.1$ ) and control group ( $d = -1.6$ ) after averaging over two genders ( $t = 5.62$ ). Therefore, it can be concluded that treatment group improved on partner style and habit from pre to post-test. There was no significant change for the comparison or control group.

There was no significant interaction involving the fixed factor gender. This suggested that the effect of PE workshop on improving participants' scores on partner style and habit for the treatment group did not differ for male and female participants.

Based on the above analyses, hypothesis 1e was rejected because there were significant differences between the treatment, comparison, and control groups on the pre and post-test ( $d_{\text{treatment}} > d_{\text{comparison}} = d_{\text{control}}$ ). Hypothesis 2e was not rejected. There were no significant interaction effects between gender and time for the treatment, comparison or control group ( $d_{\text{female}} = d_{\text{male}}$ ).



**Sex and affection.** The linear mixed effects model with repeated measures indicated that none of the main effect for time, gender and group was statistically significant (see Table 5). This suggested that the mean differences for male and female participants, pre- and post- test, as well as for treatment, comparison, and control group were not statistically significant.

None of the interaction effects in the linear mixed effects model was statistically significant. This indicated that the PE workshop did not improve participants' sex and affection area, for both males and females.

Based on the above analyses, hypothesis 1f was not rejected because there were no significant differences between the treatment, comparison, and control groups on the pre and post-test ( $d_{\text{treatment}} = d_{\text{comparison}} = d_{\text{control}}$ ). Hypothesis 2f was not rejected. There

were no significant interaction effects between gender and time for the treatment, comparison or control group ( $d_{\text{female}} = d_{\text{male}}$ ).

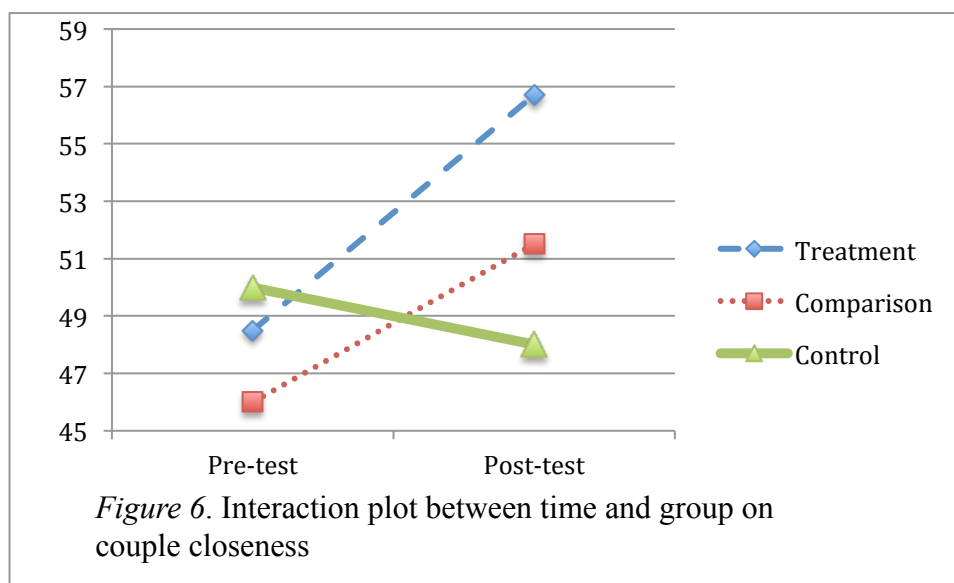
**Couple closeness.** The linear mixed effects model with repeated measures indicated that the main effects for time, gender and group were all statistically significant (see Table 5). The main effect for time suggested that participants' post-test scores (52.4) on couple closeness were statistically higher than pre-test scores (47.9) after averaging over the other two factors ( $p < .001$ ). The main effect for gender suggested that male participants' scores (51.5) on couple closeness were significantly higher than female participants' scores (48.8) after averaging over the other two factors ( $p = .019$ ). For the main effect for group, since there were more than two levels for this fixed factor, post hoc analyses using contrasts were conducted. The results indicated that the participants in the treatment group scored (52.6) significantly higher than both the comparison group (48.7) and the control group (48.7) after averaging over the other two fixed factors ( $t = 3.91$ ). There were, however, no significant mean differences between the comparison and control group ( $t = 0.13$ ).

Interaction effects between the three fixed factors were also examined. The results indicated that the interactions between time and group ( $\chi^2(2) = 28.2, p < .001$ ), as well as between time, gender and group ( $\chi^2(2) = 9.1, p < .01$ ) were statistically significant.

For the interaction between time and group (see Figure 6), post hoc analyses suggested that the mean difference between pre and post-test for the treatment group ( $d = 8.2$ ) was significantly higher than that for the comparison ( $d = 5.5$ ) and control group ( $d = -1.55$ ) after averaging over two genders ( $t = 3.06$ ). Comparison group also had a significant higher mean difference between pre and post-test than the control group ( $t =$

2.89). Therefore, it can be concluded that treatment and comparison groups improved on couple closeness from pre to post test, with a more significant increase for the treatment group. There was no significant change for the control group.

For the interaction between time, gender and group, post hoc analyses suggested that the mean difference between pre and post test in the treatment group for females ( $d = 12.0$ ) was significantly more than that for the males ( $d = 4.4$ ),  $t = 4.36$ . These results indicated that females' mean score on couple closeness increased significantly more than males from pre to post test after attending PE workshop. This gender effect, however, was not significant for the comparison ( $t = 1.66$ ) and control group ( $t = 0.88$ ).



Based on the above analyses, hypothesis 1g was rejected because there were significant differences between the treatment, comparison, and control groups on the pre and post-test ( $d_{\text{treatment}} > d_{\text{comparison}} > d_{\text{control}}$ ). Hypothesis 2g was rejected. There was a significant interaction effect between gender and time for the treatment group ( $d_{\text{female}} > d_{\text{male}}$ ), but not for the comparison or control group ( $d_{\text{female}} = d_{\text{male}}$ ).

### **Mechanism of Change in Relationship Satisfaction**

Previous literature (Wadsworth & Markman, 2012) indicated communication and conflict resolution as two common factors that contributed to CRE outcome. Correlation analyses (see Table 3) suggested that the correlations between relationship satisfaction, communication and conflict resolution were moderate (correlation coefficients ranging from 0.43 to 0.69). Null hypothesis 3 in this study was: change from pre to post test in the treatment group for relationship satisfaction was not affected by the change in communication or conflict resolution.

A regression analysis was conducted with relationship satisfaction as the dependent variable, and communication and conflict resolution as predictors (see Table 6). Since the PE treatment group received training in communication and conflict resolution skills and the scores for these two variables changed significantly from pre to post-test, the mean differences between pre and post-test were entered as predictors for regression analysis. Treatment group's mean differences between pre and post-test for relationship satisfaction were entered as the dependent variable for the regression analysis.

Table 6 presents the unstandardized coefficient (*B*) and *t* value of each predictor, as well as the adjusted  $R^2$  and *F* value of the regression model. The results indicated that 18% (adjusted  $R^2$ ) of the variance in the change between pre and post test for relationship satisfaction can be accounted for by communication and conflict resolution. The *F* value suggested that this variance contribution was statistically significant ( $p = .03$ ).

Table 6. *Regression Table for Relationship Satisfaction with Communication and Conflict Resolution as Predictors*

Predictor	B	<i>t</i>	Adjusted $R^2$	<i>F</i>
Communication	.34	9.84***	.18	4.08*
Conflict Resolution	.18	3.21**		

Based on the above analysis, hypothesis 3 was rejected.

### **Treatment and Comparison Group End of Program Evaluation**

In this section, I will summarize the evaluation given by participants in both treatment and comparison groups at the end of the PE workshop (see Appendix E) or at the end of their reflection exercise (see Appendix C) regarding their PE assessment report. Couples were instructed to complete the evaluation independently from their partners.

**Treatment group.** Participants in the treatment group ( $n = 52$ ) were given an evaluation sheet (see Appendix E) at the end of the workshop with one 7-point Likert scale question (positively-keyed) to evaluate the helpfulness of the workshop in improving their relationship quality, as well as two open-ended questions about (a) the most important thing they learned from the workshop; and (b) any comments they had. A total of 50 participants (response rate was 96.2%) rated the helpfulness of the workshop on the 7-point Likert scale question. The average of rating was 6.1 with a standard deviation of 0.8. Independent samples t-tests indicated that female participants ( $n = 25$ ,  $M = 6.5$ ,  $SD = 0.5$ ) gave significant higher ratings than male participants ( $n = 25$ ,  $M = 5.7$ ,  $SD = 1.1$ ),  $t(48) = 3.3$ ,  $p < .01$ . This suggested that female participants in the treatment group perceived the PE workshop as more helpful than male participants.

For the first open question (the most important thing they learned from the

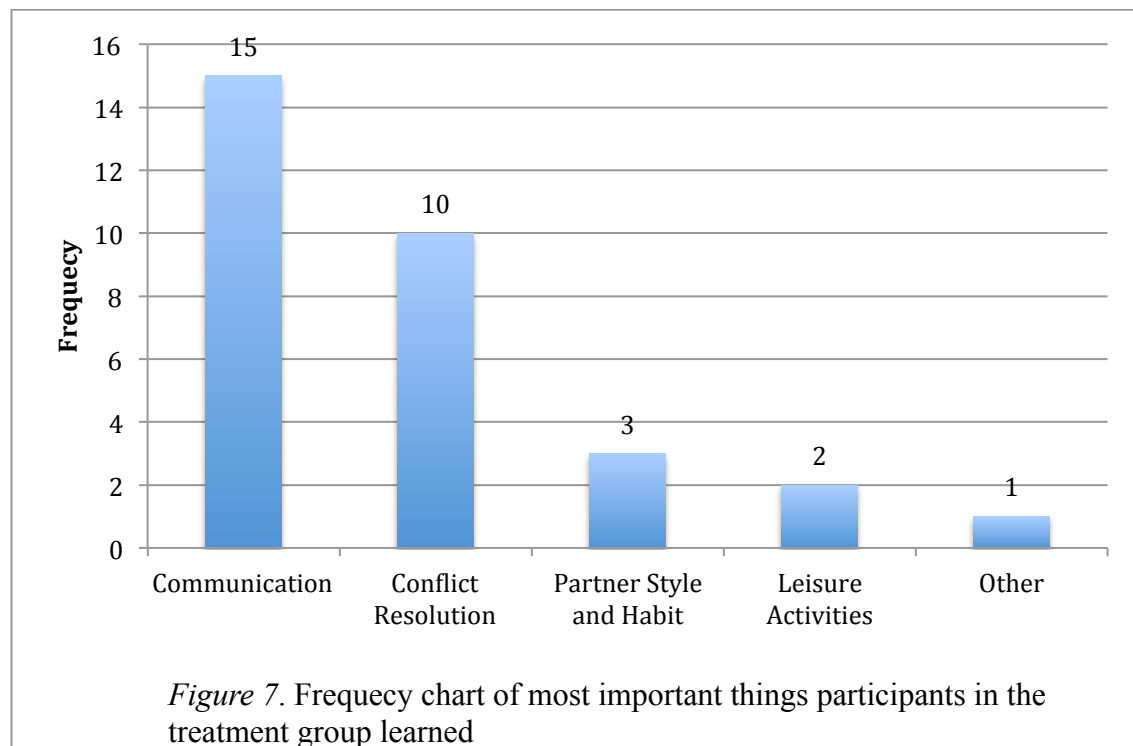


workshop), a total of 32 participants responded (response rate was 61.5%). Their answers were grouped into different areas based on the topics addressed in the workshop (see Figure 7). The mostly commonly mentioned areas were communication ( $n = 15$ ) and conflict resolution skills ( $n = 10$ ). Examples included:

*“I used to be passive aggressive when conflict occurred in my relationship because I did not know how to address conflict. The workshop helped me cope with relationship conflict in a healthier way. Thank you.” (Male)*

*“I thought the love at first sight was all what it takes to have a happy relationship. I now understand the importance of effective communication in maintaining a satisfying relationship, and I will keep practicing the skills with my partner.” (Female)*

*“It felt so good to talk about our ongoing conflict areas during the workshop, and use the skills introduced to talk them through rather than having a fight like what we did before.” (Female)*



For the second open question (any other comments they had about the workshop), a total of 20 participants responded (response rate was 38.5%). The majority of the

respondents ( $n = 13$ , 65%) commented about their positive experience at the workshop. The other 7 respondents commented on the following areas for improvement (a) lack of depth in content and discussion ( $n = 2$ , e.g., “I knew most of the content discussed in the workshop. It was nice to refresh my knowledge, but I wish there was something more in-depth.”); (b) too fast paced and lack of time for reflection ( $n = 3$ , e.g., “It felt a little overwhelming to address all these topics in a 2-day workshop. It would be nice to have more time so that I can digest, practice and get feedback.”); and (c) the awkwardness of the exercise on sex and affection ( $n = 2$ ; e.g., “my boyfriend and I have not had sex yet since dating. It was kind of awkward to talk about it in the workshop. Moreover, I do not think I have much sex knowledge in the first place. Some sex education in the workshop would be nice”).

**Comparison group.** Participants in the comparison group ( $n = 48$ ) were asked to answer the same 7-point Likert scale question and two open-ended questions to evaluate the PREPARE/ENRICH assessment as well as the discussion they had while completing the reflection exercise worksheet (see Appendix C). A total of 40 participants (response rate was 83.3%) rated the helpfulness of the assessment and discussion facilitated by the reflection exercise worksheet on the 7-point Likert scale question. The average of rating was 5.2 with a standard deviation of 1.7. Independent samples t-tests indicated no significant difference between male and female participants’ perceived helpfulness ( $t(38) = 1.49, p = 0.15$ ).

For the first open question (the most important thing they learned from the assessment report), a total of 15 participants responded (response rate was 31.3%). Answers were grouped into different areas based on the topics assessed in the

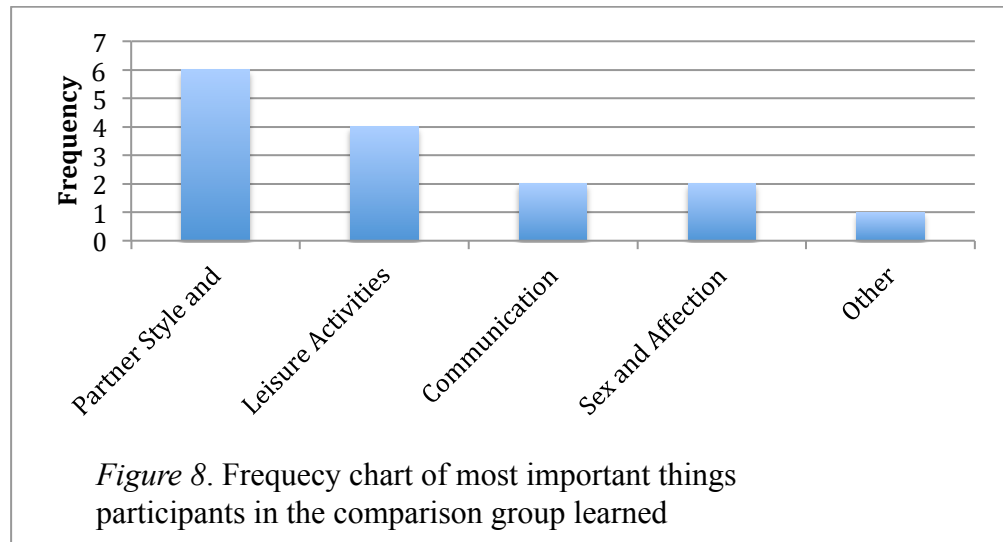
PREPARE/ENRICH inventory (see Figure 8). The mostly commonly mentioned areas were partner style and habit ( $n = 6$ ) and leisure activities ( $n = 4$ ). Examples included:

*“The inventory made me more aware of the lack of leisure activities in our relationship. We were able to come up with a plan to have more fun together while completing the reflection exercise worksheet. I am happy about this change in our relationship.”(Female)*

*“I often got annoyed at some of my girlfriend’s habits, and the inventory helped us pinpoint our personality and habit differences. We were able to have a conversation about these differences and developed a better understanding of how to make compromises.”(Male)*

*“I liked the report I was given after taking the inventory. It helped us better articulate our individual differences in the relationship. Before, we just got pissed off at each other when differences arose. We discussed these differences in the reflection exercise and I feel more confident in handling these differences in the future.”(Male)*

For the second open question (any other comments they had), a total of 11 participants responded (response rate was 22.9%). The majority of the respondents ( $n = 7$ , 64%) commented about their positive experience with taking the PREPARE/ENRICH inventory and discussing the report. The other 4 respondents commented on the lack of facilitation when discussing the report with their partner (e.g., “We almost got into a fight while discussing our assessment report. I wish there were a professional to guide us through the discussion”).



### Summary of Results

The null hypotheses in this study were examined in this chapter (see Table 7 for a summary of hypotheses 1 and 2 testing). The analyses indicated the follow results:

1. Hypotheses 1a – 1e, and 1g were rejected. The pre and post test score differences for the PREPARE/ENRICH treatment group were significantly higher than comparison and control groups on all dependent variables except for sex and affection. Comparison group reported significantly higher pre and post-test differences than control group in relationship satisfaction, leisure activities and couple closeness. Hypothesis 1f was not rejected. There was no significant pre and post-test difference among treatment, comparison and control group in sex and affection.

2. Hypotheses 2a – 2c and 2g were rejected. Female participants' pre and post-test score differences were significantly higher than males in relationship satisfaction, communication, conflict resolution and couple closeness. Hypotheses 2d – 2f were not rejected. Female and male participants' pre and post-test scores were not significantly different in leisure activities, partner style and habit, and sex and affection.

3. Hypothesis 3 was rejected. A multiple regression analysis indicated that 18% ( $p = .026$ ) of the variance in the change between pre and post-test for relationship satisfaction can be accounted for by changes in communication and conflict resolution.

4. On a subjective evaluation questionnaire given at the end of the experience, participants in the treatment and comparison groups gave an average rating of 6.1 and 5.2 (7-point positively-keyed Likert scale) respectively on the helpfulness of the PREPARE/ENRICH workshop or assessment report. This indicated an overall positive experience for participants in both the treatment and control groups. Qualitative information collected from participants at the end of the experienced showed most respondents (78%,  $n = 25$ ) in the treatment group perceived the workshop's units on communication and conflict resolution as the most helpful parts, while most respondents (67%,  $n = 10$ ) in the comparison group identified partner style and habit and leisure activities as the most important information they learned about their partner from discussing their assessment report.

Table 7  
*Summary of Null Hypotheses 1 and 2 Testing*

Null Hypotheses		Rejected	Results
			Comparison Outcome
1. There are no significant differences between the treatment, comparison, and control groups on the pre and post-test measures of	1a. Relationship Satisfaction	Yes	$d_{\text{treatment}} > d_{\text{comparison}} > d_{\text{control}}$
	1b. Communication	Yes	$d_{\text{treatment}} > d_{\text{comparison}} = d_{\text{control}}$
	1c. Conflict Resolution	Yes	$d_{\text{treatment}} > d_{\text{comparison}} = d_{\text{control}}$
	1d. Leisure Activities	Yes	$d_{\text{treatment}} > d_{\text{comparison}} > d_{\text{control}}$
	1e. Partner Style and Habit	Yes	$d_{\text{treatment}} > d_{\text{comparison}} = d_{\text{control}}$
	1f. Sex and Affection	No	$d_{\text{treatment}} = d_{\text{comparison}} = d_{\text{control}}$
	1g. Couple Closeness	Yes	$d_{\text{treatment}} > d_{\text{comparison}} > d_{\text{control}}$
2. There are no significant interaction effects between gender and time for treatment, comparison and control groups on measures of	2a. Relationship Satisfaction	Yes	Treatment Group: $d_{\text{female}} > d_{\text{male}}$ Comparison Group: $d_{\text{female}} = d_{\text{male}}$ Control Group: $d_{\text{female}} = d_{\text{male}}$
	2b. Communication	Yes	
	2c. Conflict Resolution	Yes	
	2d. Leisure Activities	No	$d_{\text{female}} = d_{\text{male}}$ for Treatment, Comparison and Control Group
	2e. Partner Style and Habit	No	
	2f. Sex and Affection	No	
	2g. Couple Closeness	Yes	
			Same Comparison Results as in Hypotheses 2a - 2c.

## Chapter Five

### Summary, Discussion, and Conclusions

This chapter summarizes the results of the study, discusses the implications of the results, describes limitations of the study, and offers recommendations for future research. This chapter also suggests its major contributions, and ends with a conclusion.

#### Summary

Forming and maintaining a satisfying intimate relationship is an important goal for most people (Coontz, 2006). Being in a mutually satisfying committed relationship is also associated with many positive psychological and physical outcomes (e.g., Diener, Suh, Lucas, & Smith, 1999; McWilliams & Bailey, 2010). College students are facing the developmental crisis of intimacy against isolation and are in the critical stage of exploring the developmental task of forming an intimate relationship (Erikson, 1982). Prevention efforts to help college students enhance their intimate relationships, however, are lacking. The purpose of this study was to further efforts of promoting satisfying intimate relationships by focusing on Chinese-based college students in heterosexual exclusive dating relationships.

To examine the effectiveness of a psycho-educational preventive intervention to assist Chinese college students in promoting positive intimate relationships, a Couple Relationship Education (CRE) program was used. PREPARE/ENRICH (PE) is a well-established US-developed CRE program, and it was used as the treatment condition in this study. A total of 92 recruited college couples in mainland China were randomly assigned to one of three groups: (a) treatment (PE assessment report + workshop; 31 couples), (b) comparison (PE assessment report only; 30 couples), and (c) no-contact

control group (31 couples). After the self-administered PE pre-test, each couple in the treatment and comparison groups received a report on core assessment scales including communication, conflict resolution, partner style and habits, financial management, leisure activities, affection and sexuality, family and friends, and relationship roles. Results also included couple typology, strength and growth areas, relationship dynamics, personal stress profile, couple map, family map and personality scales. The couples in the comparison group were asked to use the reflection exercise sheet (see Appendix C) to guide a minimum of 30-min self-monitored couple discussion of the PE pre-test report, and complete the reflection exercise sheet during their discussion. Couples in the treatment group participated in a 12-hour weekend workshop. The workshop consisted of the following exercises: sharing strength and growth areas, creating a wish list using assertiveness and active listening, identifying most critical issues, ten steps for resolving conflict, couple and family maps and scope out your personality, leisure activity, sexuality and the expression of intimacy.

Seven pre and post-test measures were used: (a) Couples Satisfaction Index (Funk & Rogge, 2007) to measure couple satisfaction; and (b) six subscales (communication, conflict resolution, leisure activities, partner style and habits, sex and affection, and couple closeness) from PE assessment (Olson & Olson, 1999). A total of 70 couples completed both pre and post assessments (26, 24 and 20 couples in treatment, comparison and control group respectively). For the 70 couples included in the final data analyses, the average age was 19.4 years and the majority of the participants (69%) were either sophomore or junior year college students at the time of the study. Most of the couples (77%) were in a relationship of 4 months to 1 year, and the other 23% were in a



relationship of 1-4 years.

The study had three major research questions:

1. Whether the PREPARE/ENRICH workshop was effective in improving the following relationship variables for Chinese college students who are in heterosexual exclusive dating relationships: relationship satisfaction, communication, conflict resolution, leisure activities, partner style and habit, sex and affection, and couple closeness?
2. Whether male and female participants differed in the treatment outcomes?
3. Whether improvement in communication and conflict resolution can predict couples' improvement in relationship satisfaction?

To answer the first research question, a total of 7 null hypotheses (each for one of the 7 dependent variables) were proposed and a series of linear mixed effects models were built with time (pre-test, post-test) as within-subjects factor, and gender (male, female) and group (treatment, comparison and control) as between-subjects factors. The results suggested that couples in the PE treatment group improved significantly more than couples in comparison and control groups on all dependent variables except for the variable of sex and affection. Moreover, the comparison group reported significantly more improvement than the control group in relationship satisfaction, leisure activities and couple closeness. There was no significant pre and post-test difference among treatment, comparison and control group on the variable of sex and affection.

In summary, the PE workshop was effective in improving all relationship variables except for the variable of sex and affection. The results also indicated that couples in the comparison group, who discussed their PE assessment report facilitated by

a reflection exercise worksheet (see Appendix C), improved in relationship satisfaction, leisure activities and couple closeness. These improvements, however, were less in magnitude compared to the treatment group.

To answer the second research question, interaction effects between time (pre vs. post-test), gender (male vs. female) and group (treatment vs. comparison vs. control group) were examined. The results suggested that the PE treatment had more significant effects on female participants than on male participants on the dependent variables of relationship satisfaction, communication, conflict resolution and couple closeness. This gender effect, however, was not found on the dependent variables of leisure activities, partner style and habit, and sex and affection for participants in the treatment group. It is worth noting that this gender effect did not exist on any of the dependent variables for the comparison or control group.

To answer the third research question, a multiple regression analysis was conducted with treatment group's mean differences between pre and post-test for relationship satisfaction as the dependent variable, and the differences in communication and conflict resolution as predicting variables. The results indicated that the multiple regression model was statistically significant ( $p = .026$ ), and 18% (adjusted  $R^2$ ) of the variance in the change between pre and post-test for relationship satisfaction can be accounted for by the two predictors.

This study also collected treatment and comparison group end-of-program evaluations. Participants were asked to complete one 7-point Likert scale question (positively-keyed) to evaluate the helpfulness of the PE workshop or discussion on their PE assessment report, as well as two open questions regarding the impact on their

relationships. The results suggested an overall positive experience for participants both in the treatment ( $M = 6.1, SD = 0.8$ ) and the comparison ( $M = 5.2, SD = 1.7$ ) groups, with the treatment group having a significantly more positive perception of the helpfulness than the comparison group [ $t(88) = 3.32, p < .01$ ]. Moreover, female participants in the treatment group perceived the PE workshop as more helpful than male participants [ $t(48) = 3.3, p < .01$ ].

Answers collected from the two open questions suggested that most respondents (78%,  $n = 25$ ) in the treatment group perceived the workshop's units on communication and conflict resolution as the most helpful parts. Most respondents (67%,  $n = 10$ ) in the comparison group identified partner style and habit and leisure activities as the most important information they learned about their partner from discussing their assessment report.

## **Discussion**

This section discusses the implications of the findings with regard to (a) the effectiveness of PE intervention; (b) the gender differences on intervention effects; and (c) the mechanisms of change in relationship satisfaction.

**PE effectiveness.** The results indicated that the PE workshop was effective for the treatment group in improving relationship satisfaction, communication, conflict resolution, leisure activities, partner style and habit, and couple closeness. This is consistent with the evidence of curriculum-based Couple Relationship Education (CRE) effectiveness in Western countries (Hawkins, Blanchard, Baldwin, & Fawcett, 2008). More specifically, previous literature has suggested the effectiveness of the PE program in improving heterosexual couples' intimate relationships (Knutson & Olson, 2003;

Futris, Allen, Aholou, & Seponski, 2011; Askari, Noah, Hassan, & Baba, 2013); the present study replicated this result in the sample of Chinese college undergraduate dating couples in mainland China.

The PE treatment group, however, did not change the dependent variable of sex and affection. This is consistent with two outcome studies (conducted in US and Iran respectively) on PE effectiveness in which the changes in this area (sex and affection) were also reported as insignificant (Knutson & Olson, 2003; Askari, Noah, Hassan, & Baba, 2013). These authors did not discuss the reasons that the PE intervention was not effective in improving sex and affection. In the present study, one possible explanation was that dating couples in mainland China may not be ready to have in-depth conversations and make changes accordingly in sex and affection. Although sexuality has become less restricted, and premarital sex and cohabitation more common in mainland China since the country's opening up in the 1980s (Xu, Li, & Yu, 2014), school sex education is lagging behind in addressing these changes in sexuality information and mores (Shang et al., 2012). Two participants provided comments about the “awkwardness” of the sex and affection unit in the workshop [e.g., *“my boyfriend and I have not had sex yet since dating. It was kind of awkward to talk about it in the workshop. Moreover, I do not think I have much sex knowledge in the first place. Some sex education in the workshop would be nice” (female)*].

Additionally, couples in the comparison group improved in relationship satisfaction, leisure activities, and couple closeness compared to the no-contact control group. This indicated that taking the PE assessment only and having a discussion about the assessment report contributed to improvements in these relationship areas, although

the magnitudes of these changes were significantly less than the treatment group. The comparison group, however, did not show improvement in communication, conflict resolution, and partner style and habit. One possible explanation for these findings was that the assessment report helped couples in the comparison group identify areas for growth in leisure activities, and as a result increased their relationship satisfaction. Couples' discussions about the assessment report (by completing the reflection exercise worksheet) may have facilitated action plans to address these areas for growth, and the discussion about these topics may increase the couple closeness. For example, one female participant commented in the open question "*The inventory made me more aware of the lack of leisure activities in our relationship. We were able to come up with a plan to have more fun together while completing the reflection exercise worksheet. I am happy about this change in our relationship.*" Another male participant wrote in the open question "*I liked the report I was given after taking the inventory. It helped us better articulate our individual differences in the relationship. Before, we just got pissed off at each other when differences arose. We discussed these differences in the reflection exercise and I feel more confident in handling these differences in the future.*"

The reason couples in the comparison group did not show changes in areas of communication, conflict resolution, and partner style and habit may possibly be that these areas need more intervention such as psycho-education and skill training provided in the PE workshop. Therefore, reviewing and discussing the assessment report alone did not produce significant changes in these areas, even if the couples were able to identify these areas for growth. For example, one male participant commented in the open question for feedback "*We almost got into a fight while discussing our assessment report. I wish there*

*were a professional to guide us through the discussion.”*

**Gender differences on intervention effects.** The results indicated gender differences on intervention effects for the treatment group in relationship satisfaction, communication and conflict resolution, with females improving significantly more than males in these areas. This is consistent with female participants' higher rating on the helpfulness of the PE workshop than male participants [ $t(48) = 3.3, p < .01$ ] on their evaluations. Previous research indicated mixed results about the gender difference on PE effects. For example, Futris, Barton, Aholou and Seponski (2011) found that females in a PE treatment group showed significant improvement in relationship satisfaction, whereas men did not. Knutson and Olson (2003), however, indicated an opposite pattern where males in the PE treatment group reported a significant increase in couple satisfaction, while the change in relationship satisfaction for females was not significant. Neither study provided explanations for their findings on gender differences.

While the reason for the gender differences in this study was not clear, one speculation was that because males had significantly higher relationship satisfaction than their female partners at pre-test, females might benefit more from the PE intervention because of their lower baseline level of relationship satisfaction and, therefore, more room for improvement in relationship satisfaction. There were, however, no significant gender differences in communication and conflict resolution at pre-test. One possibility for the gender differences in these two areas might be that the psycho-education and skill training in PE were better received by female participants, and they perceived themselves as being more capable of adequately communicating their feelings and beliefs and resolving relationship conflicts. Because the communication and conflict resolution

scales also assessed participants' perception of being understood by their partners and satisfaction with the way conflicts were handled as a dyadic in the relationship, it was also possible that male participants improved more in their communication and conflict resolution skills after attending the PE workshop, and therefore their female partners felt more satisfied with the changes in the communication and conflict resolution areas.

**Mechanisms of change and common factors in treatment effects.** The results suggested that a multiple regression model (treatment group's mean differences between pre and post test for relationship satisfaction as the dependent variable, and the differences in communication and conflict resolution as predicting variables) was statistically significant ( $p = .026$ ), and 18% (adjusted  $R^2$ ) of the variance in the change between pre and post test for relationship satisfaction can be accounted for by the two predictors. This is consistent with Wadworth and Markman (2012) who proposed that communication skills and dyadic coping for conflict and stress are two key mechanisms of change underlying CRE programs. A recent study with 297 urban married couples in mainland China (Chi, Epstein, Fang, Lam, & Li, 2013) also suggested that perceived communication patterns served as the mediating variable in affecting marital satisfaction. Therefore, couples' changes in communication and conflict resolution in this study may serve as two common factors in contributing to their increase in relationship satisfaction. Participants' answers to the open questions also demonstrated the helpfulness of the communication and conflict resolution parts of the PE workshop. For example, one male participant commented "*I used to be passive aggressive when conflict occurred in my relationship because I did not know how to address conflict. The workshop helped me cope with relationship conflict in a healthier way. Thank you.*" One female participant

noted *“I thought the love at first sight was all what it takes to have a happy relationship. I now understand the importance of effective communication in maintaining a satisfying relationship, and I will keep practicing the skills with my partner.”* Another female participant stated *“It felt so good to talk about our ongoing conflict areas during the workshop, and use the skills introduced to talk them through rather than having a fight like what we did before.”*

Changes in communication and conflict resolution, however, only accounted for 18% of the variance in changes in relationship satisfaction. There were three possible explanations for this relatively low predicting power of communication and conflict resolution as common factors:

1. Communication and conflict resolution were examined by self-report measures in this study. Therefore, the measures may not have captured the actual changes in communication and conflict resolution compared to behavioral observations of couple interactions. For example, the Interactional Dimensions Coding System (Kline et al., 2004), a coding system to assess videotaped communication and problem-solving couple interaction behaviors, may evaluate couples' communication and conflict resolution skills more accurately, and potentially increase the predicting power of these variables for changes in relationship satisfaction.

2. There may be other common factors contributing to the changes in relationship satisfaction. For example, Wadsworth and Markman (2013) suggested (a) self-regulation (learning to regulate negative emotions, especially during interactions); and (b) positive connection (fun, support, romance, sensuality, and friendship in couple relationships) as two other key mechanisms of change in CRE programs.



3. Halford and Bodenmann (2013) reviewed 17 recent CRE studies and indicated that couples with elevations of modifiable risk factors (e.g., personal histories, individual spouse characteristics, stressful events and circumstances) benefit most from CRE, while benefits for low risk couples were not consistent across studies. In the present study, high-risk couples were excluded, and the participating couples reported overall positive relationship satisfaction at pre-test. Therefore, the low predicting power of communication and conflict resolution may be due to the initial high relationship satisfaction and the consequent limited room for further improvement.

### **Limitations of the Study and Recommendations for Future Research**

Although this study obtained interesting results, it is important to acknowledge the following limitations, along with recommendations for future research to address these limitations:

1. The present study was a cross-sectional examination of a relatively small sample (70 couples) of dating college couples in mainland China, and participants may not have been representative of the whole college dating couple population in mainland China. Additionally, due to the cross-sectional nature of the research design, only short-term (six weeks after the intervention ended) effects were confirmed and it was not clear if the effects of the PE intervention would maintain or change over a longer period of time. Future research can be conducted with a larger sample to increase the external validity of the results, and with a longitudinal design to examine the long-term effects of the PE intervention.

2. The present study only focused on examining the PE effectiveness for a specific subsample of couples in intimate relationships (college heterosexual dating

couples) in mainland China. It is not clear if the PE intervention is effective for Chinese couples (in mainland China) in other intimate relationship dynamic such as engaged couples, married couples, couples with children, couples with low socioeconomic status or same-sex couples. Future research can extend efforts in studying the PE effectiveness on a variety of intimate relationship formats. This is important because intimate relationship research, primarily in western countries, suggested that couples in different stages of their relationships or couples from marginalized population groups might face unique challenges (Flecher, Simpson, Campbell, & Overall, 2012), and these couples may need tailored PE program to address their unique needs.

3. The present study relied only on participants' self-reported data on the 7 outcome measures, and therefore could potentially introduce artificially inflated relationships among variables, i.e., common method variance (Heppner, Wampold, & Kivlighan, 2007). Moreover, participants' independent self-report may not truly represent the relationship variables because researchers have suggested that relationship variables should be conceptualized "dyadically" due to the interdependent nature of intimate relationships (Flecher, Simpson, Campbell, & Overall, 2012). In previous CRE outcome studies (Halford et al., 2010; Hahlweg, Markman, Thurmaier, Engl, & Eckert, 1998; Markman, Rhoades, Stanley, Whitton & Ragan, 2010), participating couples were asked to perform communication tasks, which were videotaped and then analyzed by coding systems such as the Interactional Dimensions Coding System (Kline et al., 2004). These studies collected behavioral data for couples' communication and conflict resolution skills as a way to complement couples' self-reported data. For literature on PE outcome studies (Knutson & Olson, 2003; Futris, Allen, Aholou, & Seponski, 2011; Askari, Noah,

Hassan, & Baba, 2013), however, none of the existing studies utilized behavioral data, and the reliance on self-reported data may compromise the accuracy of participants' behavioral changes. Future research on examining the PE (or other CRE programs) effectiveness for couples in mainland China can collect behavioral data using a coding system and capture participants' behavioral changes multi-dimensionally and more accurately.

4. The present study examined 7 dependent variables with 7 different measures. Linear mixed effects models were built for each dependent variable to investigate the main effects of time (pre-test, post-test), gender (male, female) and group (treatment, comparison and control), as well as their interaction effects. Post hoc analyses were conducted, if contrasting between different groups was needed. These large number of comparisons may potentially increase Type I errors (when one rejects the null hypothesis when it is true) in this study's data analyses (Howell, 2013). Due to the complicated and multi-dimensional nature of intimate relationships, previous studies (e.g., Halford et al., 2010; Hahlweg, Markman, Thurmaier, Engl, & Eckert, 1998; Markman, Rhoades, Stanley, Whitton & Ragan, 2010) also included multiple dependent variables when evaluating intervention outcomes. These studies, however, did not discuss the limitation of the potential for increased Type I errors due to the large number of null hypothesis tests. Future research can identify statistical methods that can reduce the potential for Type I errors, or aggregate certain measures together to reduce the number of null hypotheses tests.

5. The six subscales (communication, conflict resolution, leisure activities, partner style and habits, sex and affection, and couple closeness) of the PE assessment used in

this study were translated and validated with Chinese couples (Li, 2013). The Couples Satisfaction Index (CSI; Funk & Rogge, 2007) in this study (to measure couple satisfaction) was translated into Chinese by the researcher and piloted among a group of 10 master's students in psychology at one of the two universities where this study was conducted. CSI demonstrated good internal reliability ( $\alpha = .82$ ) in this study but was not validated based on a large Chinese couple sample. Future research can further validate CSI with a larger Chinese couple sample and examine other psychometric properties (e.g., concurrent or convergent validity).

### **Major Contributions of the Study**

Notwithstanding the above limitations, the present study contributed to existing literature in the following major areas:

1. The present study supported the PE workshop effectiveness for college heterosexual couples in mainland China in all outcome measures except for the variable of sex and affection. Despite the replicated evidence of the PE effectiveness in enhancing healthy couple relationships in Western cultures (Hawkins, Blanchard, Baldwin, & Albright, 2008), there was no empirical evidence supporting its effectiveness in mainland China prior to the present study.

2. The present study employed a randomized controlled trial in its research design and used a statistical method (linear mixed effects model) that has proved to have higher statistical power for analyzing data from repeated measures (MacKenzie, & Peng, 2014). The randomized experimental research design in this study could prevent several sources of invalidity (history, maturation, testing, selection, etc.) from affecting the outcome (Heppner, Wampold, & Kivlighan, 2007). Previous studies on PE effectiveness (Knutson

& Olson, 2003; Futris, Allen, Aholou, & Seponski, 2011) failed to employ this randomized experimental design due to logistic constraints. Therefore, the present study contributed to existing PE outcome research by employing a more sound research design and statistical methods, and, therefore, producing more robust results with fewer confounding explanations for the treatment effects.

3. The present study supported the effectiveness of taking a self-administered PE assessment and having a self-monitored discussion about assessment reports in improving couples' relationship satisfaction, leisure activities, and couple closeness. Although these improvements were less in magnitude compared to those for the treatment group (PE workshop), it has important practical implications. Since attending workshops or individual counseling sessions following PE assessment requires more time and financial and human resources, the self-administered PE assessment and discussion may serve as a more cost-effective preventive tool to help couples in healthy relationships identify areas for growth and prevent relationship distress in the future.

4. The present study indicated that female participants benefited more from the PE workshop than males in improving relationship satisfaction, communication, conflict resolution and couple closeness. While the reason for this gender effect was not clear, it suggested that males and females may have unique needs in the CRE training. Future PE research can further identify the mechanism behind the gender differences and improve the current intervention program to tailor to needs of both genders.

5. The present study identified communication and conflict resolution skills as two common factors that contributed to couples' changes in relationship satisfaction. This replicated previous studies (Wadworth & Markman, 2012; Chi, Epstein, Fang, Lam, &

Li, 2013). However, the present study also suggested that these two variables (communication and conflict resolution) only accounted for 18% of the variance in improvement in relationship satisfaction. This low predicting power implied that future research and practice could further refine the assessment and training on communication and conflict resolution. For example, the Williamson et al. (2012) comparison of US and Chinese couples suggested that cultural factors might contribute to the different display and meaning of communication within an intimate relationship. Further research can investigate how to tailor the PE assessment and training to address the cultural differences in communication and conflict resolution for Chinese couples in mainland China.

## **Conclusions**

The rapid economic growth and urbanization in China since its opening up in the 1980s has greatly influenced intimate relationships in China (Xu, Li, & Yu, 2014), and there is a growing need for prevention efforts to help couples obtain skills and knowledge in order to sustain a satisfying intimate relationship (Li, 2002). Huang (2005) noted that the governments and psychologists in mainland China are starting to realize the importance of CRE as a measure to prevent marital problems and relationship dissolution. Governments and psychologists have taken various actions on the policy and practice level to conduct CRE, but there was a lack of empirical studies to examine the effectiveness of CRE. The present study examined PE effectiveness (as one example of a CRE program) on improving relationship quality by focusing on the college dating couples in mainland China; the study also addressed the issue of a lack of empirical evidence to support PE effectiveness in Chinese culture.

Results in the present study indicated that the PE workshop was effective in improving relationship outcomes including relationship satisfaction, communication, conflict resolution, leisure activities, partner style and habit, and couple closeness. It was also worth noting that couples in the comparison group (PE assessment only without workshop) also improved on relationship satisfaction, leisure activities and couple closeness. This improvement has implications for policy makers and practitioners to use PE assessment as a preventive and cost-effective tool to cover a large population of couples in mainland China, and to use PE workshop or individual counseling to target couples who need extra assistance.

In conclusion, this is the first study to examine the effectiveness of a US developed CRE program (PREPARE/ENRICH) for couples in mainland China. The results supported the short-term effectiveness for heterosexual dating college couples in mainland China. The present study can be seen as a first step in beginning to understand how to help heterosexual couples in mainland China develop and maintain satisfying romantic and intimate relationships.

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## APPENDIX A: PARTICIPANT RECRUITMENT FLYER

### **Couple Relationship Education Research Participants Wanted**

Are you 18 years old or above?

Are you currently in a heterosexual dating relationship of 4-month duration or longer?

Do you hope to enrich your understanding of your current dating relationship?

Are you willing to participate in this study together with you partner?

If you answer yes to all of the above, I invite you to participate in my research.

### **What to expect:**

Participants will be randomly assigned to be involved in either a 12-hour couple education workshop, or a group with only written report about their assessment, or a no-contact group. All participants will take couple relationship assessment and will be given feedback about the assessment results if desired.

### **About the researcher:**

The researcher is a doctoral candidate in Counseling Psychology at the University of Minnesota, US. He has extensive clinical experience in group psycho-education, and individual and group psychotherapy.

### **How to Register:**

Please send emails to [lix1220@umn.edu](mailto:lix1220@umn.edu), and I will follow up with your registration.

## APPENDIX B: INFORMED CONSENT FORM

**Title of Study:** Effects of PREPARE Couple Relationship Education for Chinese College Students in Heterosexual Exclusive Dating Relationships

**Investigators:** Ziqiu Li (PI), Dr. John L. Romano (Academic Advisor).

This is a research study. Please take your time in deciding if you would like to participate. You must be an undergraduate student (18 years old or above) currently in an exclusive romantic relationship of 4-month duration or longer in order to participate in this study. You can retain a copy of this informed consent form for your information and record.

### INTRODUCTION

The purpose of this study is to examine the effect of a couple relationship education program on enhancing couple relationship quality.

### DESCRIPTION OF PROCEDURES

Participants will be randomly assigned to be involved in either a 12-hour couple education workshop, or a group with only written report about their assessment, or a no-contact group. If you agree to participate in this study, it will take about 30 to 45 minutes to complete an inventory twice (before the workshop and six weeks after the workshop). A computer lab will be scheduled for the participants to complete the inventories online. Couples will do the inventory separately to protect confidentiality due to the sensitive nature of some questions (e.g., potential abuse, pornography use). You can skip any question in the inventory that you do not wish to answer or that makes you feel uncomfortable. For the information to be useful to us, we encourage you to complete all the items as best as you can.

### RISKS

While participating in this study you may experience some risk of mild personal discomfort. It is possible that you may experience some mild personal discomfort when responding to questions regarding your intimate relationship or when discussing your intimate relationship in the workshop if you are assigned to the workshop group. However, risks will be mild.

### BENEFITS

The inventory and couple education program used in this study are proven to enhance couples' relationship in the US. It is hoped that participating in this study will help you enrich your understanding of your relationship. Each couple who completes this study will also receive a 10 dollar value gift card.

**PARTICIPANT RIGHTS**

Your participation in this study is completely voluntary and you may refuse to participate or leave the study at any time. If you decide not to participate in the study or leave the study early, it will not result in any penalty or loss of benefits to which you are otherwise entitled.

**CONFIDENTIALITY:**

Records identifying participants will be kept confidential to the extent permitted by applicable laws and regulations and will not be made publicly available. If the results are published, your identity will remain confidential.

To ensure confidentiality to the extent permitted by law, the following measures will be taken: only PI and his academic advisor will have access to the data and the data will be stored on the primary investigator's computer with password protected computer files. An ID will be assigned to each participant, and therefore your name will not be associated with the data.

**QUESTIONS OR PROBLEMS**

For further information about the study contact the principal investigator, Ziqiu Li, at lixx1220@umn.edu, (+001) 612-868-9951, or his academic advisor, Dr. John Romano, at roman001@umn.edu, (+001) 612-624-1099, If you have any questions about the rights of research subjects or research-related injury, please contact the IRB at the University of Minnesota, at [irb@umn.edu](mailto:irb@umn.edu), (+001) 612-626-5654.

**STATEMENT OF AGREEMENT**

By signing below, both parties indicate that they have read and understand this document and agree to participate in this study according to the guidelines set forth in this consent.

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Participant Signature

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Date

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Principal Investigator Signature

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Date

## APPENDIX C: REFLECTION EXERCISE WORKSHEET

*This sheet is designed to help you reflect on your results from the PREPARE inventory. After each of you has spent time reviewing the results (30min – 1 hour), please reflect together on the following questions as a couple.*

What are 3 strongest areas in our relationship as a couple?

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

What are 3 areas that need the most improvement in our relationship as a couple?

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

### Relationship Awareness:

- ✓ As we review our PREPARE profile, we realize that the major characteristics of our relationship (e.g., strengths, weaknesses) are:

### Relationship Goal Setting:

- ✓ Areas that we as a couple need to work on or further develop are...

### Relationship Planning Strategies:

- ✓ The strengths and resources we have that can help us work on these areas include...

✓ Things we can do this week to begin working on these areas are...

✓ While we try to improve, the obstacles we anticipate include...

To what extent are the inventory and reflection exercises helpful in improving your relationship satisfaction as a couple? (Please circle the number that represents your opinion)

1	2	3	4	5	6	7
<i>not helpful</i>			<i>neutral</i>			<i>extremely</i>
<i>at all</i>						<i>helpful</i>

Open-ended Questions:

✓ What is the most important thing you learned as a couple about your relationship?

✓ Please comment on the usefulness of completing the inventory and doing this reflection of your relationship.



## APPENDIX D: COUPLE SATISFACTION INDEX (16-ITEM VERSION)

Funk, J. L., & Rogge, R. D. (2007). Testing the ruler with item response theory: increasing precision of measurement for relationship satisfaction with the Couples Satisfaction Index. *Journal of Family Psychology, 21*(4), 572-583.

1. Please indicate the degree of happiness, all things considered, of your relationship.

Extremely Unhappy	Fairly Unhappy	A little Unhappy	Happy	Very Happy	Extremely Happy	Perfect
0	1	2	3	4	5	6

	All the time	More often than not	Occasionally	Never
2. In general, how often do you think that things between you and your partner are going well?	3	2	1	0

	Not at all true	Somewhat True	Mostly True	Completely True
3. Our relationship is strong	0	1	2	3
4. My relationship with my partner makes me happy.	0	1	2	4
5. I have a warm and comfortable relationship with my partner	0	1	2	3
6. I really feel like part of a team with my partner	0	1	2	3

	Not at all	Somewhat	Mostly	Completely
7. How rewarding is your relationship with your partner?	0	1	2	3
8. How well does your partner meet your needs?	0	1	2	3
9. To what extent has your relationship met your original expectations?	0	1	2	3
10. In general, how satisfied are you with your relationship?	0	1	2	3

For each of the following items, select the answer that best describes how you feel about your relationship. Base your responses on your first impressions and immediate feelings about the item.

	Never	Less than once a month	Once or twice a month	Once or twice a week	Once a day	More often	
INTERESTING	5	4	3	2	1	0	BORING
BAD	0	1	2	3	4	5	GOOD
FULL	5	4	3	2	1	0	EMPTY
STURDY	5	4	3	2	1	0	FRAGILE
DISCOURAGING	0	1	2	3	4	5	HOPEFUL
ENJOYABLE	5	4	3	2	1	0	MISERABLE

APPENDIX E: EVALUATION SHEET FOR TREATMENT GROUP

To what extent are the inventory and workshop helpful in improving your relationship satisfaction as a couple? (Please circle the number that represents your opinion)

1	2	3	4	5	6	7
<u>not helpful</u>			<u>neutral</u>			<u>extremely</u>
<u>at all</u>						<u>helpful</u>

Open-ended Questions:

✓ What is the most important thing you learned as a couple about your relationship?

✓ Please leave any comments about your experience attending the workshop.