

ABSTRACT

Increasing Motivation to Use Internet-Based Relationship Enhancement Interventions

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This study investigated an Internet-based intervention designed by the principle investigator to increase motivation to engage in a provided relationship enhancement activity. It collected descriptive data to determine how participants engaged with the intervention, as well as to identify areas of improvement in future web-based couples work. The study also tested the effectiveness of this new intervention. Participants included 561 individuals who reported being in a romantic relationship, and were all recruited anonymously on-line through Mechanical Turk. All participants were randomly assigned to one of three conditions, including a motivational enhancement condition, a feedback-only condition, and a no-feedback control. The study results identified three areas of potential difficulty for intervention completion. These areas included 1) lack of a discrepancy between desired scores on outcome measures and actual scores, 2) inaccuracy in interpreting and/or reporting scores as provided on a visual chart, and 3) not providing responses to open-ended prompts, in some cases despite the stated desire to do so. The results did not reveal any significant group differences.

Keywords: Internet, romantic relationships, couples, motivation

Increasing Motivation to Use Internet-Based
Relationship Enhancement Intervention

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CHAPTER ONE

Introduction

Current relationship enhancement techniques yield promising results for many couples, including strengthened communication and increased understanding within romantic relationships (e.g., Beach, Hurt, Fincham, Franklin, McNair, & Stanley, 2011; Scuka, 2011). A recent meta-analysis of 117 relationship strengthening interventions found that most studies of these interventions yielded moderate effect sizes, with lasting effects at longitudinal follow-ups of up to five years (Hawkins, Blanchard, Baldwin, & Fawcett, 2008). The majority of studies within this meta-analysis included couples who were not reported as being distressed, yet who still experienced increased relationship satisfaction and improved communication and problem solving skills (Hawkins et al., 2008). This suggests that all couples, even those who are not currently experiencing distress, may benefit from engaging in relationship enhancement techniques.

Despite the strengths of relationship enhancement interventions, some limitations have been identified. It has been noted that not all individuals may perceive a need to engage in relationship strengthening activities, particularly those who are not currently experiencing distress (Cordova, Scott, Dorian, Mirgain, Yaeger, & Groot, 2005; Cordova, Warren, & Gee, 2001). Further, many couples who do express interest in relationship strengthening activities may be unable to attend these programs, due to geographical or financial limitations to access (e.g., Boddington, 1995; Davis & Dhillon, 1989). Even when individuals who do perceive problems begin to engage in couples therapy, attrition rates are often quite high, with estimates ranging from thirty-six to fifty percent (e.g., Boddington, 1995; Ward & McCollum, 2005). It is likely that high attrition rates are

likely even more problematic in relationship enhancement activities, as couples who do not experience themselves as having pressing problems may be even more hesitant to expend effort and financial resources in receiving relationship enhancement support. The existing support for the positive impacts of relationship enhancement techniques for all couples suggests that it is important to explore alternative ways of intervening with couples who may currently be unable or unwilling to engage in these interventions due to some of the above-listed limitations.

One promising alternative way to reach couples is through Internet-based interventions. Internet use has been shown to be steadily increasing and widespread, with nearly 80% of Americans now having regular on-line access (The World Bank, 2010), and over one quarter of annual Internet use occurring within lower socioeconomic populations (Taylor, Jobson, Winzelber, & Abascal, 2002). One of the major uses of the Internet has always been for the provision of information, with over eighty percent of people seeking general health information on-line (Taylor et al., 2002) and eighteen percent of people seeking mental health information on-line (Powell & Clarke, 2006). In addition to seeking mental health information, the use of on-line approaches to assessment and therapy has begun increasing over the past decades (e.g., Jencius & Sager, 2001; Miller, 2009; Pollock, 2006; Taylor et al., 2002). Given these recent increases in rates of access, on-line interventions appear to be a desirable means of promoting relationship enhancement activities to couples.

On-line interventions have been shown to have a number of benefits when compared with face-to-face techniques. Research has found that on-line approaches more easily reach a number of under-served populations, including clients in rural areas, clients from lower socioeconomic settings, clients who are seeking a specialized type of

provider, and clients who may be less likely to seek treatment in person (Taylor et al., 2002). E-therapy studies have found that a different demographic may be granted access by means of on-line interventions when compared with face-to-face interventions. For instance, one study of substance abusing individuals found that on-line respondents were older, more educated, more likely to be employed, and more often female than individuals seeking in-person interventions (Postel, de Jong, & de Haan, 2005). On-line interventions have also been found to be lower cost, more flexible and convenient for clients, and easier to individualize than face-to-face interventions (e.g., Alemi, Haack, Nemes, Aughburns, Sinkule, & Neuhauser, 2007; Buchanan, 2003; Miller, Neal, Roberts, Baer, Cressler, Metrik, et al., 2002; Newman, 2004; Silverstein, Berten, Olson, Paul, Williams, Cooper, et al., 2007; Taylor et al., 2002). Internet-based assessment also allows for immediate feedback to be provided to clients (Buchanan, 2003) and wider dissemination of interventions (Silverstein et al., 2007). Further, it should be noted that use of Internet-based assessment has been shown to have reliability and validity equal to or better than face-to-face interventions (Buchanan, 2003), and that the translation of pen-and-paper questionnaires to Internet-based interventions has also been found not to negatively impact the reliability or validity of the measure (Brock, Barry, Lawrence, Dey, & Rolffs, 2010).

When the strengths of Internet-based intervention are considered, it appears to be a practical alternative for couples who do not currently seek out or have access to face-to-face relationship enhancement activities, as it provides these activities in a more accessible, convenient, and affordable manner that may combat some of the current limitations to these interventions. However, many Internet-based studies have limitations similar to those in face-to-face studies, including estimated rates of attrition ranging from

twelve percent to seventy percent (e.g., McCabe & Price, 2009; McKay, Danaher, Seeley, Lichtenstein, & Gau, 2008; Richards, Klein, & Carlbring, 2003; Wantland, Portillo, Holzemer, Slaughter, & McGhee, 2004). As stated previously, attrition rates may be even higher in couples who do not experience themselves as having pressing problems, and thus experience lower motivation to engage in these relationship enhancement activities. Low client motivation has been noted as a major possible contributing factor for attrition by other researchers, as well (Linke, Murray, Butler, & Wallace, 2007). As Internet-based relationship enhancement activities have the potential to help all couples to strengthen their relationships, and have been shown to be an effective way to provide an intervention, it is important to find a way to address low rates of client motivation to engage in Internet-based relationship enhancement activities.

Common Motivational Approaches

One of the most frequently cited approaches for increasing client motivation is motivational interviewing, a therapeutic technique commonly used to help reduce ambivalence and increase motivation for treatment involvement and behavior change. Aspects of this approach have been shown to be helpful in Internet-based programs, as well (e.g., Alemi, Haack, Nemes, Aughtburns, Sinkule, & Neuhauser, 2007; Lieberman & Huang, 2008; Lieberman & Massey, 2008). Motivational interviewing is typically the recommended intervention for helping to resolve the ambivalence regarding behavior change and thus allowing clients to progress towards making behavior changes (DiClemente & Velasquez, 2002). The use of traditional motivational interviewing would be impractical for an on-line-based intervention, as motivational interviewing is intended to be a face-to-face intervention, dependent on the collaborative nature of a strong therapeutic alliance, and often lasting for multiple sessions (Miller & Rollnick,

2002). However, Miller and Rollnick (2002) do discuss the benefits of brief adaptations based upon the basic principles of motivational interviewing.

Some of the key components of traditional motivational interviewing can be seen within these brief adaptations, including the provision of individualized interventions, the provision of structured feedback to help highlight the discrepancy between the client's current status and where he or she would like to be, and working with the client to prepare an appropriate and realistic plan for change, including planning for potential problems (Cordova, Warren, & Gee, 2001; Miller & Rollnick, 2002). By involving the client in the development of these plans, the client's sense of personal responsibility and self-efficacy for making and maintaining the change is enhanced, as well (Cordova, Warren, & Gee, 2001). Research using these brief adaptations has revealed decreases in substance use in an adolescent population after even one session of motivational enhancement (Grenard, Ames, Pentz, Sussman, 2006).

A number of face-to-face couples motivational enhancement programs can be found that make use of these key motivational enhancement components (Burke, Vassilev, Kantchelov, & Zweben, 2002; Cordova, Scott, Dorian, Mirgain, Yaeger, & Groot, 2005; Cordova, Warren, & Gee, 2001). The Marriage Check-Up, the most commonly cited motivational intervention for couples, focuses on developing discrepancy between current behaviors and desired outcomes to help increase motivation for change (Cordova, Scott, Dorian, Mirgain, Yaeger, & Groot, 2005; Cordova, Warren, & Gee, 2001). Other motivational enhancement programs also highlight the importance of working with couples to come up with a realistic plan for change, and the possibly detrimental effects of simply pointing out weaknesses in the relationship without providing enhancement support are noted (Cordova, Scott, Dorian, Mirgain, Yaeger, &

Groot, 2005). Although a PsycInfo search for Internet-based couples' interventions revealed a number of web-based methods, none of these interventions included a motivational enhancement component or any comment on the couples' level of motivation (Graff & Hecker, 2010; Jencius & Sager, 2001; Pollack, 2006).

On-Line Motivational Enhancement

Numerous studies have been conducted to evaluate the possibility of utilizing different types of motivational enhancement interventions on-line. Three key aspects of motivational enhancement interventions have been found to be particularly important for on-line motivational enhancement, including (1) providing individualized feedback to clients about their current status, (2) helping clients to develop discrepancy between where they currently are and where they would like to be, and (3) encouraging clients to plan for the future, including possible relapses or problems that may arise as they attempt to make changes. The current literature regarding each of these components of on-line motivational enhancement will be reviewed briefly.

First, individualizing the intervention, often by providing individualized feedback based on the client's responses to prompts or questionnaires, has been shown to be a key part of on-line motivational enhancement. Providing this individualized feedback based upon the client's results has been shown to contribute to higher treatment completion rates and more positive outcomes, perhaps due to more personal relevance and ownership of the treatment plan (Lieberman & Huang, 2008; Lieberman & Massey, 2008). This benefit of individualized feedback suggests that perhaps just the provision of feedback, without the involvement of additional motivational enhancement techniques, can contribute to increased motivation. However, another study explored working with clients to create an individualized plan for changing problematic behaviors in addition to

providing individualized feedback, which was found to successfully contribute to increased participant motivation for change of substance use patterns (Alemi, Haack, Nemes, Aughburns, Sinkule, & Neuhauser, 2007). Therefore, it is likely that both providing individualized feedback and working with the client in developing an individualized treatment plan based upon this feedback may lead to increased motivation to engage in change behaviors when compared to simply providing the client with individualized feedback.

Second, some studies have led clients through the process of developing a discrepancy between where they currently are and where they would like to be (Alemi, Haack, Nemes, Aughburns, Sinkule, & Neuhauser, 2007). In order to develop discrepancy, the client is typically given an opportunity to examine the impact of his or her current behavior on a problematic situation (e.g., poor relationship communication), and explore how he or she would like things to be. The gap between where the client is currently and where he or she would like to be is highlighted, and means to begin to decrease this discrepancy are explored (Carpenter, Stoner, Mikko, Dhanak, & Parsons, 2010; Miller & Rollnick, 2002). Developing discrepancy through highlighting the differences between the client's current and desired status has been shown to positively impact behavior change when conducted on-line in a study of enhancing safe sexual behavior (Carpenter, Stoner, Mikko, Dhanak, & Parsons, 2010). As this has been shown to work effectively in previous online therapy interventions, it is likely that an Internet-based relationship enhancement program based upon these principles may also work to increase client motivation to engage in the intervention. Specifically, an intervention based on these principles would allow the client to describe or rate how things are in the relationship currently, as well as how he or she would like things to be, and then provide

the client with a summary of the discrepancy between the client's individual scores and desired outcome. This type of intervention would serve to further highlight this discrepancy and may begin to motivate the client to begin to think about changing his or her behaviors to lessen this discrepancy.

Finally, in the process of planning for the future, the client is then asked to explore ways to decrease the discrepancy between his current status and his desired outcome or goal. Planning ahead with the client for ways to execute these changes and planning for possible difficulties in making these changes were also linked with a more successful treatment outcome in a study examining ways to increase safe sexual behaviors (Carpenter, Stoner, Mikko, Dhanak, & Parsons, 2010). Asking the client to outline aspects that may impede making changes tends to increase client insight for potential problems, and has been linked with more successful treatment outcomes and better adherence to treatment planning when working with substance abusing clients (Alemi, Haack, Nemes, Aughtburns, Sinkule, & Neuhauser, 2007). It is possible that encouraging a client to explore different ways to decrease the discrepancy between his or her current and desired status would aid the client in considering potential problems and brainstorming realistic ways to move towards his or her goals. It may also increase the likelihood that the client would subsequently engage in the plan. Therefore, it follows that an Internet-based relationship enhancement intervention that allows the client to explore difficulties that may arise in executing changes in his or her relationship, and to begin planning for ways to overcome some of these potential problems, may also contribute to higher rates of positive relationship changes and higher rates of client efficacy to enact these changes.

In summary, there is a good deal of existing literature supporting the use of motivational enhancement techniques on the Internet. A number of benefits have been noted that make Internet interventions a practical alternative to face-to-face therapy, including the Internet's accessibility, flexibility, and lower financial requirements. Internet-based relationship enhancement interventions may be an especially useful way to provide support and interventions for couples who are ambivalent about seeking treatment and/or do not have the financial or local resources to seek face-to-face treatment. Internet-based interventions have a strong existing literature base, stemming from research with substance users (e.g., Alemi, Haack, Nemes, Aughburns, Sinkule, & Neuhauser, 2007; Houston & Ford, 2008; Grenard, Ames, Pentz, & Sussman, 2006; Lieberman & Huang, 2008), individuals with anxiety disorders (Richards, Klein, & Carlbring, 2003), and students (Kim & Keller, 2008). The success of these interventions with different populations suggests that Internet-based interventions could likely be useful in relationship enhancement work with couples, as well. As one of the major limitations of current Internet-based programs, high rates of attrition, may be negatively impacted by low motivation to engage in the intervention, it is important for Internet-based relationship enhancement programs to include a component designed to increase client motivation, as well.

At this point, few Internet-based couples interventions have been researched. The Prepare-Enrich program is an Internet-based assessment program that provides assistance for both distressed and non-distressed couples (Prepare-Enrich, 2011). Research about the Prepare-Enrich program supports the program's use for relationship enhancement, and longitudinal studies suggest that couples significantly increased their relationship satisfaction after participation in the intervention (Knutson & Olson, 2003). However,

the Prepare-Enrich program includes a face-to-face counseling component, has only been compared to no-feedback and control groups, and is designed for use with subsequent counseling (Knutson & Olson, 2003). Further, the Prepare-Enrich program does not appear to include any motivational enhancement aspects. Thus, it is difficult to assess how much of the reported increase in relationship satisfaction is linked with direct counselor contact, as opposed to being linked simply with the web-based component.

To the knowledge of the primary investigator, only one purely Internet-based relationship enhancement program is currently being researched (The Couples Conflict Consultant, 2011). The Couples Conflict Consultant is a website that allows an individual to log in, complete a number of surveys measuring different aspects of his or her relationship, and receive individualized feedback about his or her scores. Individuals are also provided with information about available resources, including options for therapy and continued relationship enhancement techniques available both on-line and face-to-face. Individuals are encouraged to continue returning to the Couples Conflict Consultant to continue receiving feedback. However, the author of the Couples Conflict Consultant stated that the majority of individuals who use the program make limited use of additional resources that are available there, and typically do not return to the website after completing an initial assessment (K. Sanford, personal communication, July 13, 2011). This suggests that the Couples Conflict Consultant site experiences some of the same difficulties of other interventions described above, including high rates of attrition. While the Couples Conflict Consultant does provide individualized feedback, it is possible that a more targeted motivational enhancement component would enhance the retention of clients. A third couples-specific web-based intervention is currently being developed out of the University of Miami, which will extend Integrative Behavioral

Couples Therapy for use online (DeAngelis, 2011; Department of Psychology, 2012).

However, this study is currently on-going as part of a five-year longitudinal study, and no outcome data are available at this point. No information about the possible use of motivational enhancement is available regarding this study at this time.

Taken together, it becomes clear that even currently used and empirically supported web-based relationship enhancement interventions would likely benefit from a means of increasing client motivation to engage in assessment and intervention activities. Therefore, the current study aimed to extend the existing literature about Internet-based motivational enhancement to use in relationship enhancement activities. Specifically, this study looked at increasing participant motivation to engage in an assessment and feedback system designed to provide information about romantic relationship enhancement techniques.

The Current Study

The aim of the current study was three-fold. First, the study involved the creation of an intervention targeted to increase participant motivation to engage in romantic relationship enhancement. The study guided participants through a website based on the Couples Conflict Consultant which conducted an assessment and provide individualized feedback, while also including various motivational enhancement techniques. These additional motivational aspects were based on the three key aspects of on-line motivational enhancement, and were designed to increase motivation to engage in relationship enhancement activities. To review, these three aspects include providing individualized feedback, developing discrepancy, and planning ways to decrease this discrepancy and address problems that may arise in implementing changes.

Second, this study collected descriptive data to help determine how participants engaged with the intervention, in order to help clarify potential areas for improvement in this intervention. Existing research has noted a number of concerns regarding Internet-based research, including difficulty enticing participants to fully engage due to the lack of therapeutic alliance (Yuen, Goetter, Herbert, & Forman, 2012), potential distractions available on the Internet (Bulger, Mayer, Almeroth, & Blau, 2008), or difficulty finding appropriate outcome measures for Internet-based research (Hrastinski, 2008). Many studies have found that, despite empirical support for the intervention, participants note room for improvement (Hurling, Fairley, & Dias, 2006). The current study examined engagement in a number of ways, including checking whether participants completed a free-response section with appropriate responses, whether participants appeared to understand provided instructions, and how long participants spent engaging with the intervention and provided relationship enhancement activities. Analyses of these areas in the current design allowed the primary investigator to determine areas of strength and limitations in the website and study design.

The third and final aim of the study was to evaluate the impact of motivational enhancement activities on an individual's motivation for engaging in relationship enhancement during the study. Three conditions were compared: one in which the participants both received feedback and engaged in motivational enhancement techniques, one in which the participants simply received individualized feedback, and a control condition in which the participants received no feedback. The presence of these three groups allowed the researcher not only to test for the impact of the motivational enhancement intervention, but also to explore the possibility that feedback alone increased one's motivation for making relationship change. Participant motivation was

measured multiple ways, due to the above-noted difficulty of measuring participation online. These methods included numerous self-report measures, as well as measuring the duration of time spent reviewing relationship enhancement materials provided at the end of the intervention.

Two hypotheses were tested in the current study. The first hypothesis pertained to group differences. As is consistent with existing research regarding motivational enhancement techniques (e.g., Burke, Vassilev, Kantchelov, & Zweben, 2002; Cordova, Scott, Dorian, Mirgain, Yaeger, & Groot, 2005; Cordova, Warren, & Gee, 2001; Miller & Rollnick, 2002), all hypotheses regarding group differences hypothesized that individuals in the motivational enhancement group would have higher scores on outcome measures than those in the other two groups, and participants in the feedback-only condition would have higher scores on outcome measures than those in the control group. The outcome measures calculated in the study included motivational outcome questionnaires, self-reported helpfulness of the website, self-reported likelihood and confidence in continuing to use relationship enhancement, and time spent engaged in a provided relationship enhancement activity. The second hypothesis pertained only to the motivational enhancement condition. Specifically, it was hypothesized that the level of engagement with the motivational intervention, as measured by the number of responses given to open-ended prompts and the length of time spent responding to prompts, would be positively correlated with the participant's level of motivation on the above-described outcome measures.

CHAPTER TWO

Methods

Participants

Participants included a sample of 561 adults (35.7% married), drawn from a total pool of 594. From this pool, 30 participants' data were deemed unusable due to providing invalid conflict examples, such as typing random letters or characters into text boxes, and an additional three participants' data were deemed unusable due to their report of having been in the romantic relationship for less than one month. After removing the invalid data, this yielded 177 participants in the motivational enhancement group, 186 in the feedback-only group, and 198 in the no-feedback control group. All participants were randomly assigned to groups. For a full report of demographic data collected, see Table 1. As can be seen, the majority of the sample was young, female, and Caucasian, although there was diversity within every demographic variable collected. While only 17% of participants described themselves as “not at all,” “only slightly,” or “somewhat” committed to their relationship, only about half of the total sample (54%) described themselves as “strongly committed” to their relationship. It is possible that the motivational aspect of this intervention may have been less effective with participants who report being less committed to their relationship.

Table 1
Demographic Information

Category	n	%	Category	N	%
Condition			Relationship Status		
Motivational	177	31.6	Dating	187	33.3
Feedback Only	186	33.2	Cohabiting	122	21.7
No-Feedback	198	35.3	Engaged	52	9.3
Gender			Married	200	35.7
Male	201	35.8	Household Income		
Female	360	64.2	<\$20K/year	143	25.5
Partner Gender			\$20K-\$30K/yr	83	14.8
Male	352	62.7	\$30K-\$50K/yr	129	23.0
Female	209	37.3	\$50K-\$100K/yr	164	29.2
Orientation			>\$100K/yr	42	7.5
Heterosexual	517	92.7	Commitment Level		
Homosexual	41	7.3	Not at all	8	1.4
Age			Only slightly	30	5.3
18-25 y/o	218	38.9	Somewhat	53	9.4
26-35 y/o	202	36.0	Committed	163	29.1
36-45 y/o	81	14.4	Strongly committed	307	54.7
46-55 y/o	46	8.2	Living area		
Over 55 y/o	14	2.5	Rural	66	11.8
Race			Suburban	233	41.5
Caucasian	450	80.2	Urban	158	28.2
African American	35	6.2	Metro	61	10.9
Hispanic	33	5.9	Major Metro	43	7.7
Asian American	28	5.0			
Native American	8	1.4			
Other	7	1.2			
Relationship Length					
2 wks-2 mo.	12	2.1			
2 mo.-6 mo.	48	8.6			
6 mo.-12 mo.hs	63	11.2			
1 year – 2 years	112	20.0			
2 years – 5 years	127	22.6			
5 years – 10 years	109	19.4			
Over 10 years	90	16.0			

All participants were recruited using Amazon.com's Mechanical Turk (MTurk) program, to allow for the collection of a large, diverse, and representative yet fully anonymous and self-referred sample (Buhrmester, Kwang, & Gosling, 2011; Paolacci, Chandler, & Ipeirotis, 2010). This program allows individuals (termed workers) to earn

money on-line through completing Internet-based tasks posted by other individuals (termed requesters). In the current study, participants were each paid \$0.50 for their participation. Only participants who had at least ninety percent of their previous MTurk work approved by the requester were allowed to participate in this study. Participants were also restricted to English speakers currently living in the United States. This restriction was made in order to allow for an initial examination of the intervention to be conducted without concern about language barriers during questionnaire completion.

Procedure

Overview

All participants chose to participate in the study after viewing it on MTurk. After agreeing to participate, participants were randomly assigned to one of three conditions: motivational enhancement condition, feedback only condition, and no-feedback control group. In each of these conditions, the participant was asked to describe a recent conflict within his or her romantic relationship and to complete a number of questionnaires regarding that conflict. Responses to these questionnaires were used to provide feedback to participants in some of the treatment conditions. All participants were then asked to complete a number of motivational outcome measures.

All Participants

When potential participants viewed this study on MTurk, they were provided with information about the required qualifications (e.g., U.S. location, previous approval rate), a brief description of the task (“Please complete some questionnaires about your current romantic relationship.”), and keywords (e.g., “questionnaire, research, couples, relationship”). If they were interested, they went on to preview the task. On this

preview page, workers were provided with these instructions: “Please open this website in a new window or tab and complete some questionnaires about your current romantic relationship. You must be at least **18 years old**, and in a relationship of at least **one month’s duration**. Your responses will be stored anonymously, and used for a dissertation research project. After completing these questionnaires, return to this (MTurk hosted) site and enter the code number you are provided with at the end of our study into the space provided below.” There was a textbox in which participants entered the verifying code provided to them upon completion of the tasks on the study website. Any worker who chose to accept the task then became a study participant, and was provided with a link to the website hosting the study (www.kara.psybu.com), where he or she was provided with an informed consent document and, upon agreeing, was randomly assigned to one of the three conditions.

After being randomly assigned to a condition, all participants were asked to complete a number of questionnaires. Each participant was first instructed to think of a specific relationship conflict, and to briefly describe the conflict in a text box, including when and where the conflict occurred. By asking participants to report on the conflict, they are more likely to identify a specific conflict and keep that conflict in mind while responding to the prompts. All participants were then asked to complete a Relationship Conflict Questionnaire that asked a number of questions about their experience of their own and their partner’s reaction to the conflict they had previously described.

Participants also completed a demographic form, requesting information about gender, age, partner gender, race/ethnicity, socioeconomic status, length of relationship, status of relationship, commitment level, and geographic area. Throughout the length of the

questionnaire, the “next” button was not functional until a response was provided for every question, to help participants avoid accidentally leaving a prompt blank.¹

At this point, each participant engaged in the activities specific to his or her randomized condition. For more information about this step, see the specific condition descriptions below. After completing the condition-specific aspects, all participants were directed to click “next,” to access the remaining questionnaires, which were the same for all conditions.

All participants were then asked to complete an additional set of questionnaires designed to measure their motivation to engage in relationship enhancement activities, including the Motivation Questionnaire, the Couples’ Contemplation Ladder, and the Couples’ Stages of Change Questionnaire. After completing all questionnaires, participants were provided with additional information from the Couples Conflict Consultant website regarding each of the six different scales of the Relationship Conflict Questionnaire, as well as information about different resources to continue engaging in relationship enhancement activities if they so choose. Each of the six scales’ information was provided on a separate page, and the amount of time spent on each of these pages was timed in seconds. Instructions for this section read:

We have some information that might be interesting to couples, and want your feedback on whether people are likely to find this topic interesting. Please look over this information and evaluate how interesting it would be to couples. Each area of information relates to an area in which you previously received feedback. **You don’t need to read all of the information**, just enough to know if it looks interesting to you. When you have finished looking, please scroll to the bottom of the webpage, and click on the next button. You will be asked to look over six pages of information. NOTE: All information on this page is reproduced with permission from The Couple Conflict Consultant. (Emery, 2012).

¹ Non-functionality of the “next” buttons was dependent on the participant having Java Script enabled on the computer at which he or she completed the study. After data collection was completed, a few items were left blank, likely due to some participants not having Java Script enabled. However, these blank items were not on the questionnaires used for analyses and thus these participants were retained for all further analysis.

The duration of time spent on each page of information was recorded and used as an additional means of evaluating each participant's tendency to engage in a provided relationship enhancement activity. After each of the six pages, participants were asked to indicate how interesting they found the additional information about that particular topic, using a 5-point scale ranging from "Not at all interesting" to "Very interesting." Participant responses to these items were used to give face validity to the six pages of information, and were not used in analyses. After viewing all six pages and responding to all six prompts, participants were asked three final questions about the helpfulness of the website, their confidence in their ability to make changes in their relationship, and the likelihood of continuing to work to strengthen their relationship.

After completing these questionnaires, all participants were thanked for their participation and provided with an individualized identifier, consisting of "KEBU" followed by a number assigned in chronological order of access to the website. They were also provided with a link to the Couples Conflict Consultant page, as well as a link to find a local therapist in their area if they chose to do so. They were instructed to return to the MTurk website and enter their code to complete the study. Upon submission of their responses to MTurk, participants' responses were reviewed for validity (e.g., use of a code that starts with KEBU). All participants submitting valid codes were then paid for their participation.

Motivational Enhancement Condition

In addition to the above-mentioned requirements, participants in the motivational enhancement condition were required to engage in a motivational enhancement exercise. After completing the Relationship Conflict Questionnaire, as described above, participants in this condition viewed a page that provided information about the types of

feedback that they would be receiving from their responses to the Relationship Conflict Questionnaire. Specifically, participants were instructed about the nature of each of the six areas of their relationship that were assessed through their responses to the six scales of the Relationship Conflict Questionnaire. Each area was re-framed into a way that allowed high scores to be viewed positively (e.g., perceived threat was redefined as perceived equality). Participants were provided with the following information:

Using your scores from the previous questionnaire, you will be provided with feedback in the six different areas described below. Please read this information carefully, and answer the following prompts.

Calm engagement refers to a basic kind of communication behavior in which a person uses calm, gentle, and agreeable behavior in an attempt to relate positively with his or her partner.

Collaborative engagement refers to a basic kind of communication behavior in which a person expresses personal viewpoints while also carefully listening to and validating his or her partner. This type of communication helps couples to resolve conflicts. However, while useful, collaborative engagement is not easy and takes effort to make it work.

Positive attributions refers to when a person sees his or her partner as engaging in behavior for positive reasons even if something goes wrong, instead of blaming his or her partner for negative events or interactions.

Relationship satisfaction tells you how happy and satisfied you are with your relationship in general, as opposed to during a specific incident or conflict.

Perceived equality occurs when you feel that your partner is being supportive and inclusive, and is treating you as an equal in the relationship.

Perceived support occurs when you feel that your partner is committed and caring, and making a fair contribution to the relationship. (Emery, 2012).

After receiving each definition, participants were asked to respond to a prompt regarding where they would like their relationship to fall, by selecting a radio button ranging between “Above 20% of people” to “Above 95% of people.” Indicators were provided to clarify for participants what falls as below average, average, and above average, to help guide their selections. Participants were also asked to indicate how

important each area was to them, using a 5-point Likert scale. After making these indications, the participant was directed to a page on which he or she was provided with individualized scores in each of the six feedback areas, based upon responses to the Relationship Conflict Questionnaire. This feedback was provided along with the participant's desired score in that area, as indicated previously by the participant. This information was provided in a graph with a bar for both the actual and the desired scores, to allow for easy comparison of the two. To ensure participant attention, participants were asked to indicate whether the results for each of the six areas were lower, equal to, or higher than their desired scores.

The participant was then instructed to "Please look over the six areas listed below, and then select just one area that you would most like to target in order to enhance your relationship. You will be answering additional prompts regarding only this one area. If you do not wish to enhance any particular area in your relationship, please choose the area which you would choose if you were being forced to work on enhancing one of these areas. Refer to the definition listed below, if needed" (Emery, 2012). Participants made this selection using a radio button that allowed for the selection of only one area. By allowing the client to choose the area of focus, the feedback was more individualized. The participants were then directed to the next page, and asked to complete a number of additional questions regarding this feedback area.

Participants were instructed, "As you indicated that you would like to work to enhance the area of (FEEDBACK AREA) in your relationship, the remainder of this feedback will focus on that area" (Emery, 2012). Participants were then provided with directions that read: "What are some activities that you could engage in with your partner that may strengthen this area of your relationship? Please list activities that may

strengthen this area. If you find you are unable to answer this item and you have given it your best effort, you may type “I am unable to answer this” in the text box” (Emery, 2012). They were provided with a text area along with three set response options to choose from after completing the text area. The instructions for these response options read, “Which of the following best describes how you completed the text box?” Response options included, “I provided an answer.”; “I want to improve my relationship in this area but am unsure what to do.”; and “I am happy with my scores and do not wish to improve my relationship at this point in time.”

Participants were then directed to the next page, on which they were asked, “What are some potential roadblocks that might get in the way of making these changes?” and again provided with a text area and set responses. After completing this prompt, they were directed to another page and asked, “What could you do to help yourself and your partner to overcome these roadblocks?” and provided with another text area and set response options. Finally, participants were directed to another page and asked “How likely are you to engage in these behaviors?” and asked to respond on a 5-point Likert-style scale, with response options ranging from one (“Very Unlikely”) to five (“Very Likely”). They were then asked, “What might make you more likely to make these changes?” and provided with a final text area and set response options. The length of time that the participant spent on each of these four pages was measured in seconds.

Regarding, clinical utility of this intervention, a few notes can be made. The administration of this intervention (motivational enhancement condition) took an average of 22.4 minutes (SD = 17.1). The reading level of the assessments used within this study is estimated to be approximately 7.4, according to the Flesch-Kincaid grade level norms.

The reading level of the relationship enhancement activities provided to participants is estimated to be approximately 9.8, according to grade level norms.

Feedback-Only Condition

Participants in the feedback-only condition received feedback in a manner similar to the motivational enhancement condition, including receiving information about each of the six scales. After completing the Relationship Conflict Questionnaire, as described above, participants in this condition were also provided with their individualized feedback and a brief explanation of each area/scale. However, they were not provided with any of the prompts asking where they would like their scores to fall, how important each area is, or how they might be able to improve their relationship. They were simply educated about the types of feedback and provided with their scores.

No Feedback Condition

Participants in this condition were directed to the additional questionnaires immediately after completing the Relationship Conflict Questionnaire and demographics form, without being provided with any feedback about their scores.

Measures

Measures for Feedback Provision within the Study

All three groups completed a Relationship Conflict Questionnaire for the purpose of providing feedback to the motivational enhancement and feedback-only groups within the study. The scores from these questionnaires were calculated in order to provide individualized feedback, as described above. All questionnaires that were provided to participants can be seen in Appendices A-D.

Relationship Conflict Questionnaire (Appendix A). This questionnaire comprises four instruments: the Conflict Communication Inventory (CCI; Sanford, 2010a), the Negative Attributions scale (Sanford, 2010b), the Couples' Underlying Concerns Inventory (CUCI; Sanford, 2010b), and the Couples Satisfaction Index (Funk & Rogge, 2007). The instructions for each of the three Sanford measures are the same, and thus were only presented once. The instructions read, "All couples experience conflict from time to time. To complete this survey, you will need to think of the most recent single, specific episode conflict in your relationship. The conflict could be anything from a minor disagreement or simple misunderstanding to a big argument. This survey will ask you questions about the single, specific conflict that you select" (Sanford 2010a; Sanford 2010b). The four measures were always presented in the above-listed order for the Relationship Conflict Questionnaire.

The Conflict Communication Inventory is a 28-item self-report scale. The items comprise two fourteen-item scales, including adversarial engagement and collaborative engagement, with Likert-style response options ranging from "Disagree Strongly" to "Agree Strongly" (Sanford, 2010a). Participants are instructed to rate the extent to which their partner acted in certain ways during an interactions (e.g., "My partner said something mean" or "My partner argued") and the extent to which they did acted in certain ways during an interaction (e.g., "I said something kind" or "I agreed with my partner"). The internal consistency reliability of the adversarial engagement subscale was 0.85 in the current study. Internal consistency reliability of the collaborative engagement subscale was 0.90.

The Negative Attributions Scale is a 7-item self-report scale (Sanford, 2010b). All items have 5-point Likert-style response options ranging from "Disagree Strongly" to

“Agree Strongly.” The scale asks individuals to make attributions regarding a recent relationship conflict. Participants are instructed to rate the extent to which they agree with certain statements regarding their partner (e.g., “My partner deserves to be blamed”). The internal consistency reliability of the Negative Attributions Scale in the current study was 0.93.

The Couples’ Underlying Concerns Inventory is a 16-item self-report scale. The items comprise two eight-item scales, including perceived threat and perceived neglect, and have Likert-style response options ranging from “Disagree Strongly” to “Agree Strongly” (Sanford, 2010b). Participants are instructed to rate the extent to which they experienced certain feelings during an interaction (e.g., “I felt criticized.”) and the extent to which they perceived their partner in certain ways during an interaction (e.g., “My partner seemed judgmental.”). Internal consistency reliability of the threat subscale was 0.93 in the current study, while internal consistency reliability of the neglect subscale was 0.92.

The Couples Satisfaction Index is a 16-item self-report index scored on a six-point Likert scale (Funk & Rogge, 2007). The scale was created using item response theory to draw from existing relationship satisfaction scales and develop a more valid measure. On the Couples Satisfaction Index, participants are asked to rate the quality of their relationship in a number of different areas (e.g., “My relationship with my partner makes me happy”). Internal consistency reliability of the Couples Satisfaction Index in this study was 0.97.

Measures to Test Study Hypotheses

Four motivation outcome questionnaires (Motivation Questionnaire; Couples Contemplation Ladder; Couples Stages of Change Questionnaire; Experience of the

Study Questionnaire) were presented to the participants to help test hypotheses regarding study involvement and motivation to engage in relationship enhancement activities. An additional scale (Engagement in Relationship Enhancement Scale) was also created to assess how long the participants spent looking at relationship enhancement information which was provided to them. Two scales were created that were unique to participants in the motivational enhancement condition. One (Motivational Enhancement Length of Engagement Scale) measured how long participants in the motivational enhancement conditions spent responding to open-ended prompts, while the other (Motivational Enhancement Depth of Engagement Scale) measured the number of responses a participant gave to these open-ended prompts.

Four additional outcome measures were created to determine how participants had used the intervention. These outcomes included assessing the participant's reason for responding or not responding to open-ended prompts (e.g., not being able to think of anything versus being satisfied with their current relationship) (Motivational Enhancement Intention Scales), assessing whether or not the participant had a discrepancy between his or her desired and actual scores (Motivational Enhancement Discrepancy Score), assessing whether the participant recognized the presence of the discrepancy (Motivational Enhancement Perceived Discrepancy Score), and an overall score evaluating whether the participant was a "good fit" for the intervention. Being a "good fit" was defined to include having a discrepancy, recognizing the discrepancy, and being able to independently think of valid responses to all of the open-ended prompts, thus engaging with and being well-suited for the intervention. Each participant in the motivational enhancement condition was given a score between zero and four for their "good fit" score.

Motivation Questionnaire (Appendix B). The Motivation Questionnaire is a 21-item unpublished questionnaire developed by Sanford (2011) for use at the Couples' Conflict Consultant website. Items relate to willingness to engage in activities to enhance or improve one's romantic relationship and intention to engage in these activities within the next month. These items comprise three subscales, including importance of change, desire to change, and commitment to change (Sanford, 2011). Participants are instructed to rate the extent to which they see activities as helpful (e.g., "It would be beneficial for me to spend time examining my own actions to see how they affect my relationship."), hope to make certain changes over the next month (e.g., "This month, I want to do something for my relationship that will require a substantial effort on my part."), or are committed to engage in certain activities (e.g., "During the next month, how often will you spend time working to make changes in areas where you need the most improvement in your relationship?"). The responses for items range from "Disagree Strongly" to "Agree Strongly" or from "Never" to "Every Day," depending on the section. In the current study, internal consistency reliability of the scale as a whole was calculated to be 0.96. Due to moderate to large correlations between subscales (ranging from $r = 0.51$ to $r = 0.75$), results support the use of the single total scale score in this study.

Couples' Contemplation Ladder (Appendix C). The Couples' Contemplation Ladder is a one-question measure of readiness for change which was adapted for the current study from the contemplation ladder for smoking (Biener & Abrams, 1991) to assess readiness to make changes within one's romantic relationship to strengthen or enhance the relationship. The contemplation ladder is a measure of readiness to change based on the stages of change model (Prochaska & DiClemente, 1982). Research has yielded strong support for existing versions of the Contemplation Ladder (Hoague,

Dauber, & Morgenstern, 2010). Contemplation ladders have been found to be useful measures of readiness to consider change (Biener & Abrams, 1991) and in some cases have been found to be indicative of readiness to initiate change (Joseph, Lexau, Willnebring, Nugent, & Nelson, 2004).

The questionnaire is formulated to look like a ladder, and participants are instructed, “Each rung on this ladder represents where people are in their thinking about making changes in their relationship. Indicate the number that matches where you are now.” Participants are then asked to indicate a number between zero and ten. Specific anchors are used to help clients best rate their current thinking patterns and behavior on the ladder (Biener & Abrams, 1991). For this study, the anchors included: 0 = No thoughts of making changes to better my relationship; 2 = Think I would be interested in bettering my relationship someday; 5 = Think I am interested in making some positive changes in my relationship, but I’m not quite ready; 8 = Feeling ready to start making some changes to better my relationship; 10 = Taking action to change things for the better in my relationship.

Couples Stages of Change Questionnaire (Appendix D). The SCQ is a thirty-two question measure of an individual’s stage of change regarding making relationship changes due to current problems or difficulties in a relationship (Cordova, Scott, Dorian, Mirgain, Yaeger, & Groot, 2005). The SCQ has four subscales, reflecting the four stages of change: Precontemplation, Contemplation, Action, and Maintenance. It is scored on a one-to-five Likert-style scale, ranging from Strongly Disagree to Strongly Agree. The original SCQ was slightly modified by the primary investigator for use in this study by changing the words “marriage” and “marital” to “relationship.” This change makes the SCQ more applicable to the current study, as the modified measure is appropriate for

both married and dating couples. See Table 2 for the correlations between the SCQ subscales. As can be seen in the table, not all subscales were significantly correlated with one another. As a result, analyses for this study used each of the four subscales separately. Internal consistency reliability estimates of the four subscales were also calculated, and were found to be adequate (precontemplation, alpha = 0.79; contemplation, alpha = 0.88; action, alpha = 0.91; maintenance, alpha = 0.84).

Table 2
Stages of Change Questionnaire Subscale Intercorrelations

Stage of Change	Precontemplation	Contemplation	Action	Maintenance
Precontemplation	1	.26**	.22*	.02
Contemplation		1	.77**	.80**
Action			1	.73**
Maintenance				1

Note. **p < 0.01

Experience of the Study Questionnaire. All participants were asked to complete the Experience of the Study Questionnaire as the last part of the study. The three items in this questionnaire are: “How helpful did you find your time on this website today?” “How confident do you feel about your ability to strengthen your relationship, if you wanted to?” and “How likely are you to make changes to continue strengthening your relationship?” These items were included to briefly examine the clinical utility and face validity of the intervention offered. Each item was scored on a 5-point Likert-style scale, and each was considered independently for analyses.

Engagement in Relationship Enhancement Scale. The Engagement in Relationship Enhancement Scale is a six-item scale that measures the amount of time that the participant spent engaging with a relationship enhancement activity provided to them.

Specifically, it measures how long the participant spent reading the additional information provided at the end of the study about each of the six scales. As described earlier, after completing all motivational questionnaires, participants were provided with additional information from the Couples Conflict Consultant website regarding each of the six scales included in the Relationship Conflict Questionnaire. Each of the six scales was addressed on its own page, and the amount of time spent on each page was timed separately. The length of time that participants spent reviewing provided relationship enhancement information was used to assess for group differences in engagement in the activity.

Frequency counts were used to measure the amount of time, in seconds, that participants spent on these web pages, and to check for outliers. Outliers were defined as exceeding a cut-off point, which was determined individually for each page by examining the range of time that participants spent on the page. The cut-off point was set to be the point at which there were 100 seconds or more between two scores. After identifying the cut-off point, any scores above this 100 second gap were recoded to match the highest remaining score under the 100 second gap. Recoded ceiling values varied for each of the six items included on this scale (Page 1 = 1000 seconds, 10 recoded scores; Page 2 = 600 seconds, 8 recoded scores; Page 3 = 500 seconds, 6 recoded scores; Page 4 = 489 seconds, 4 recoded scores; Page 5 = 550 seconds, 5 recoded scores; Page 6 = 332 seconds, 7 recoded scores). After this recoding, the six items were found to be significantly correlated with one another, with correlations ranging from $r = 0.28$ to $r = 0.66$. One scale was then created by summing these six response times, to yield a measure of how much time the participant spent engaging with the relationship

enhancement activity. The internal consistency reliability of this scale was estimated to be 0.81.

Motivational Enhancement Length of Engagement Scale. The Motivational Enhancement Length of Engagement Scale is a four-item scale that measures how much time, in seconds, participants in this condition spent answering each of the four open-ended prompts (“What are some activities that you could engage in with your partner that may strengthen this area of your relationship?”; “What are some potential roadblocks that might get in the way of making these changes?”; “What could you do to help yourself and your partner to overcome these roadblocks?”; and “What might make you more likely to make these changes?”).

Frequency counts were used to review the amount of time, in seconds, that participants spent on these web pages, and to check for outliers. Outliers were determined in the same manner as previously described, but this time using a 40 second gap between scores. After identifying the cut-off point, any scores above this 40 second gap were recoded to match the highest remaining score below the 40 second gap. Recoded ceiling values varied for each of the four items included on this scale (Page 1 = 300 seconds, 4 recoded scores; Page 2 = 100 seconds, 6 recoded scores; Page 3 = 86 seconds, 6 recoded scores; Page 4 = 90 seconds, 4 recoded scores). After this alteration, the four items were found to be significantly correlated with one another, with correlations ranging from $r = 0.34$ to $r = 0.58$. One scale was then created by summing these four response times, to yield a measure of how much time the participant spent engaging with the motivational enhancement activity. The internal consistency reliability of this scale was estimated to be 0.65. An alpha of 0.65 is low, which is likely due to the scale only having four items.

Motivational Enhancement Depth of Engagement Scale. The Motivational Enhancement Depth of Engagement Scale is a four-item scale that measures how many valid responses participants in this condition gave to each of the four open-ended prompts (“What are some activities that you could engage in with your partner that may strengthen this area of your relationship?”; “What are some potential roadblocks that might get in the way of making these changes?”; “What could you do to help yourself and your partner to overcome these roadblocks?”; and “What might make you more likely to make these changes?”). The number of responses was summed manually by the primary investigator, and means and standard deviations are listed below in the results section. The four items of this scale were found to be significantly correlated with one another, with correlations ranging from $r = 0.34$ to $r = 0.50$. Results were summed to yield one scale indicating the total number of responses participants gave to the four questions. The internal consistency of this scale was estimated to be 0.71.

Motivational Enhancement Intention Scales. The Motivational Enhancement Intention Scales include three separate scales. Participants in the motivational enhancement condition were asked to respond to four open-ended questions, and in each of these four questions, participants were also provided with three pre-set options from which they chose one. Of these options, one indicated engagement (“I provided an answer.”), one indicated uncertainty (“I was unable to answer. I want to improve my relationship in this area but am unsure what to do.”), and one indicated disinterest (“I was unable to answer. I am happy with my scores and do not wish to improve my relationship at this point in time.”). The response options across these four questions were found to have moderate to large correlations (Engagement: $r = 0.76-0.83$; Uncertainty: $r = 0.54-0.63$; Disinterest: $r = 0.58-0.81$). These items were then summed

into three scales, each shown to have adequate internal consistency reliability (Engagement = 0.81; Uncertainty = 0.79; Disinterest = 0.79).

Motivational Enhancement Desired Score. A desired score was calculated for participants through their response to a prompt asking where they would prefer their scores to fall in each area. Participants were provided with set response options from which to choose, which included: “Above 20% of people” “Above 40% of people” “Above 50% of people (Average)” “Above 70% of people” “Above 80% of people (Above Average)” “Above 90% of people” and “Above 95% of people (Highly Above Average)”. Participants responded to these prompts by indicating a radio button next to the answer of their choosing. Each radio button corresponded to a certain standardized score with a mean of 150 and a standard deviation of 50, based upon the percentile indicated in the response option. Sanford (2012) calls this type of standardized score a “W” score, with “W” standing for “website.” The “W” score is well-suited for generating graphic displays on websites, given the average pixel dimensions of computer screens, and was used to produce appropriately sized graphical displays on the website. For example, if the participant selected “Above 95% of people,” this would correspond to a z score of 1.65, which would be converted into a “W” score of 232.5 using the above-reported mean and standard deviation. The calculated “W” score was then used to create the graphical representation of the response in order to provide the participant with a visual comparison of desired versus actual scores on the chart.

Motivational Enhancement Discrepancy Score. The Motivational Enhancement Discrepancy Score was calculated to determine whether participants had a significant discrepancy between their actual score on relationship conflict questionnaires and their

desired score in the area of their choosing. Desired scores were calculated using “W” scores, as described above. Actual scores were calculated by summing participant responses to the provided questionnaires and standardizing these responses into “W” scores using means and standard deviations from a previous study completed on the Couples Conflict Consultant. Discrepancy scores were calculated for each participant by subtracting the desired score from the actual score.

Motivational Enhancement Perceived Discrepancy Score. The Motivational Enhancement Perceived Discrepancy score was used to determine whether the participant was able to correctly identify the extent to which he or she had a discrepancy between the actual and desired scores, as described above. After reviewing actual and desired scores on each scale, each participant was asked to choose one of six areas to focus on: Adversarial Engagement, Collaborative Engagement, Threat, Neglect, Relationship Satisfaction, and Negative Attributions. He or she was then presented with a chart showing the actual and desire scores in the selected area, and highlighting the size of the discrepancy between scores. The participant was then asked to indicate the extent of the perceived discrepancy by responding to a Likert-style prompt asking how his or her actual score compared with the desired score. Response options ranged from “much lower than my desired score” to “much higher than my desired score.”

CHAPTER THREE

Results

After summing the items for each scale, the means and standard deviations of each scale were calculated. See Table 3 for a full report of scale descriptives.

Table 3.
Scale Means and Standard Deviations

Scale	N	Mean	SD	Range
<i>Scales Used for Within Study Feedback</i>				
Collaborative Engagement	558	2.72	0.76	1-5
Adversarial Engagement	558	3.16	0.72	1-5
Threat Subscale	558	2.86	1.11	1-5
Neglect Subscale	558	2.84	1.11	1-5
Couples Satisfaction Index	558	4.52	1.20	1-7
Negative Attributions	558	3.10	1.08	1-5
	N	Mean	SD	Range
<i>Scales Used in Data Analysis</i>				
Motivation Questionnaire	558	3.82	0.84	1-6
Contemplation Ladder	558	7.16	2.61	0-10
Stages of Change Questionnaire				
Precontemplation Subscale	558	3.47	0.78	1-5
Contemplation Subscale	558	3.21	0.87	1-5
Action Subscale	558	3.29	0.87	1-5
Maintenance Subscale	558	3.02	0.81	1-5
Perceived Helpfulness	558	3.31	1.03	1-5
Confidence to Change	558	3.75	0.99	1-5
Likelihood to Change	558	3.66	1.04	1-5
Enhancement Engagement	558	342.5	447.12	18-2969

Note. “Enhancement engagement” refers to the amount of time spent viewing the six pages of information offered, as measured in seconds.

It can be noted that all of the scales used for data analysis, presented in the second half of the table, provided appropriate ranges of responses, with the mean response

falling above the middle of response options for scales with a 5-point Likert-style response range (including the Motivation Questionnaire and the 4 subscales of the Stages of Change Questionnaire). On the Contemplation Ladder, the mean score of 7.16 corresponds to a response just below feeling ready to begin making changes. This suggests that many participants may not have felt quite ready to begin making changes in their relationships, and may have still been in a contemplation stage of change. This is consistent with many measures of relationship satisfaction, which often find a ceiling effect, in which the majority participants report that they are very satisfied with their current relationship (Bornstein et al., 1985). The engagement in relationship enhancement times suggest that participants spent an average of approximately 5 to 6 minutes reviewing the materials, although the large SD shows that there was a broad range of responses between participants.

As mentioned previously, existing literature supports a relationship between relationship enhancement and various demographic characteristics, including race and socioeconomic status. A number of demographic variables were collected in the current study, including reported level of relationship commitment, relationship length or status, gender, orientation, race, socioeconomic status, location, and age, to determine if these factors significantly relate to the results. To identify variables that may be related to results, correlations were calculated between the continuous demographic variables (relationship satisfaction, age, relationship length, income, and commitment level) and motivational outcome measures. For a full report of these correlations, see Table 4. Analyses of variance were conducted to assess group differences within each categorical demographic variable (gender, sexual orientation, relationship status, location, and race) on motivational outcome variables. All ANOVA results regarding relationships between

demographic variables and motivational outcome variables can be seen in Table 5. Of the 90 relationships examined across Tables 4 and 5, 28 were significant (31%). Some of the strongest relationships seen using categorical variables included gender and both the precontemplation subscale ($F(3, 557) = 25.94, p < 0.01, \eta^2 = 0.05$), and maintenance subscale ($F(3, 557) = 8.69, p < 0.01, \eta^2 = 0.02$), and relationship status with the precontemplation subscale ($F(3, 557) = 8.82, p < 0.01, \eta^2 = 0.05$). Some of the strongest relationships seen using continuous variables included those between commitment level and both confidence to change ($r = 0.35, p < 0.01$) and likelihood to change ($r = 0.32, p < 0.01$), and between age and enhancement engagement ($r = 0.21, p < 0.01$). As can be seen in the tables, with few exceptions, the effects ranged from small to non-significant.

Table 4
Correlations Between Demographic Variables and Outcome Measures

Outcome Measure	Age	Relationship Length	Income	Commitment Level
Motivation Questionnaire	-.08*	.02	-.03	.38**
Contemplation Ladder	-.09*	-.03	.02	.28**
Stages of Change Questionnaire				
Precontemplation Subscale	.13**	.23**	-.11**	.08
Contemplation Subscale	-.05	-.02	-.08	-.06
Action Subscale	-.07	-.04	-.13**	.11**
Maintenance Subscale	-.11*	-.07	-.11*	-.08
Perceived Helpfulness	-.07	-.00	-.04	.08
Confidence to Change	-.03	.08	.09*	.35**
Likelihood to Change	-.06	.01	.01	.32**
Enhancement Engagement	.21**	.19**	.05	.16**

Note. * $p < 0.05$, ** $p < 0.01$. “Enhancement engagement” refers to the amount of time spent viewing the six pages of information offered, as measured in seconds.

Table 5
Effect Sizes from ANOVA Analysis (η^2 values)
for Demographics and Motivational Outcome Measures

Outcome Measure	Gender	Orientation	Race	Relationship Status	Living Area
Motivation Questionnaire	.00	.00	.00	.01*	.02*
Contemplation Ladder	.00	.00	.00	.01	.01
Stages of Change Questionnaire					
Precontemplation Subscale	.05**	.01	.01	.05**	.01
Contemplation Subscale	.00	.01*	.01	.01	.01
Action Subscale	.00	.00	.00	.01	.02*
Maintenance Subscale	.02**	.00	.01	.00	.01
Perceived Helpfulness	.00	.00	.02	.00	.01
Confidence to Change	.00	.00	.02	.01	.01
Likelihood to Change	.00	.00	.00	.02**	.02*
Enhancement Engagement	.02**	.00	.00	.02*	.00

Note. * $p < 0.05$, ** $p < 0.01$. “Enhancement engagement” refers to the amount of time spent viewing the six pages of information offered, as measured in seconds.

One of the major purposes of this study was to examine how participants engaged with the intervention, in order to determine strengths and weaknesses of the current design. In examining engagement with the motivational enhancement intervention, this study revealed three key areas that may have posed difficulties for participants. These three areas include 1) having an area in which they wanted to improve, 2) understanding individualized feedback provided in the form of a graph, and 3) engaging in a motivational enhancement activity in which they provided answers to open-ended prompts to get them thinking about making a realistic plan for change in one area of their relationship. Each of these three areas will be examined in turn.

First, participants needed to have an area in which they wanted to improve. This was determined by asking participants to select one area on which to focus, after viewing their actual and desired scores. For this intervention to be effective, participants would need to actually have a discrepancy between their actual and desired score in the area of

their choosing. If they did not have any discrepancy, they may likely be less motivated to engage in relationship enhancement, as this could suggest they were satisfied with their current relationship. Motivational Enhancement Discrepancy Scores were calculated as described above, by subtracting desired scores from actual scores. Thus, negative scores indicate that the participant's desired score was higher than his or her actual score. As mentioned previously, the standard deviation of these scores was set to be 50; thus, a mean of -50 indicates that the desired scores are, on average, one standard deviation higher than actual scores. Further, it should be noted that the standard deviations used in these calculations were from a previous sample on the Couple's Conflict Consultant, and the current sample's SDs were slightly different. The mean discrepancy score for each area was calculated separately: Adversarial Engagement: $M = -47.59$, $SD = 66.28$; Collaborative Engagement: $M = -44.48$, $SD = 49.45$; Threat: $M = -51.79$, $SD = 67.85$; Negative Attributions: $M = -47.74$, $SD = 67.23$; Relationship Satisfaction: $M = -71.24$, $SD = 40.76$. Relationship Satisfaction had the largest discrepancy between actual and desired scores, indicating that participants had desired scores much larger than their actual scores. However, Relationship Satisfaction is typically a skewed variable, due to the majority of participants perceiving themselves as being satisfied in their relationship. This tendency leads to higher mean scores on this variable, and makes it less likely for a participant to score in a high percentile on his or her actual score for Relationship Satisfaction. This tendency appears to account for the larger discrepancy score seen on this variable. The remaining area, Neglect, showed smaller discrepancies between actual and desired scores ($M = -23.18$, $SD = 63.85$).

It is noteworthy that all of the mean discrepancy scores are negative, suggesting that, for the average participant, his or her desired score *was* higher than his or her actual

score. In fact, approximately seventy-seven percent of participants in the motivational enhancement condition ($n = 135$) yielded negative mean scores, resulting from their desired scores being higher than their actual scores. It should also be noted that fifty percent of participants in this condition ($n = 88$) yielded discrepancy scores of more than fifty points in the area on which they chose to focus, suggesting that a large portion of the sample did have a discrepancy between their actual and desired scores that was equal to or larger than one standard deviation. The presence of this discrepancy in the target area for half of the sample suggests that at least half of the current sample may have benefitted from the study as it was structured.

The second area of difficulty identified in the study involved participants' ability to identify the size of the discrepancy between actual and desired scores when shown the scores as depicted on a graph. For participants to understand the presence of a discrepancy between their scores, they would need to be able to successfully read the provided chart and identify the discrepancy. To determine whether participants were able to correctly identify the size of the discrepancy between their scores, a correlation was calculated between participant responses about the size of their discrepancy and their actual discrepancy score, calculated as described above. The correlation was not significant ($r = 0.10, p = 0.90$). This suggests that there is almost no relationship between participants' results and their perception of their results, and may indicate that many participants did not appropriately identify the size of the discrepancy between their actual and desired scores. This may be due to lack of ability to read the chart, rushing through the activity, or perhaps failing to integrate information that doesn't fit with a preexisting view of the relationship. Additionally, eighty-one percent of participants ($n = 142$) indicated that their actual score was "lower" or "much lower" than their desired

score, which appears consistent with the fact that only twenty-three percent of participants had actual scores equal to or higher than their desired scores. These additional results suggest that some participants may have exaggerated or minimized the size of their discrepancies, due to lack of a reference point for the subjective response options provided within the study. This may have led to participants with a small discrepancy exaggerating the size, or those with a large discrepancy minimizing this difference. Taken together, it becomes apparent that there are a number of possible explanations for the participants' inability to accurately perceive and report the discrepancy between their scores.

The final area of focus in the motivational enhancement intervention involved both the open-ended items on the Motivational Enhancement Depth of Engagement scale and the pre-set items on the Motivational Enhancement Intention scale. In these scales, participants were asked both to provide written responses to each of the four items (Strengthening, Roadblocks, Overcoming Roadblocks, and Increasing Change), and to select one of the pre-set response options (Engagement, Uncertainty, Disinterest). Both written response and pre-set options will be considered, with written responses considered first.

The number of written responses to each of the four open-ended Motivational Enhancement Depth of Engagement items varied (Strengthening: $M = 1.10$, $SD = 0.94$; Roadblocks: $M = 0.97$; $SD = 0.76$; Overcome Roadblocks: $M = 0.65$; $SD = 0.68$; Increasing Change: $M = 0.61$; $SD = 0.57$). This indicates that the average number of responses for most of these items was less than one, which may suggest that some participants were not fully engaged in the intervention. The percentage of participants to respond to each prompt and the reasons for lack of response, varied (Strengthening =

71% engagement, 25% uncertainty, 4% disinterest; Roadblocks = 74% engagement, 21% uncertainty, 5% disinterest; Overcoming roadblocks = 59% engagement, 32% uncertainty, 9% disinterest; Increasing Change = 61% engagement, 30% uncertainty, 9% disinterest). Regarding the open-ended prompts, forty-five percent of participants were able to respond to all four prompts, while ten percent indicated that they were uncertain about how to respond to all four prompts, and three percent indicated that they were disinterested in all four prompts. This indicates that less than half of participants responded to all four of the open-ended prompts and completed the entire intervention as intended.

In examining the pre-set options, however, it can be seen that over ninety percent of participants either responded to prompts or wished to respond to prompts, suggesting that with additional support around this part of the intervention, more participants may respond. The fact that a large percentage of participants (20-30%) indicated that they wanted to make a change but were uncertain what to do, coupled with the fact that the average participant provided less than one answer per item, suggests that participants may have struggled with generating responses to these prompts independently. It is possible that, given more support in this aspect of the intervention, participants may have responded more fully to the open-ended prompts.

The second major focus of this study was to evaluate whether the intervention was effective. The first hypotheses in this area regarded group differences, and stated that the motivational enhancement group would have higher scores and greater engagement when compared to both groups, and that the feedback-only condition would have higher scores and greater engagement when compared with the control group. Outcomes used to examine these hypotheses included the six motivational outcome

questionnaires, self-reported helpfulness of the website, self-reported confidence and likelihood of making changes, and the amount of time, in seconds, spent engaging with the relationship enhancement activity. To test these hypotheses, one-way analyses of variance were conducted. First, group differences on outcome questionnaires (e.g., the Motivation Questionnaire, Contemplation Ladder, and four subscales of the Stages of Change Questionnaire: Precontemplation, Contemplation, Action, and Maintenance) were examined. See Table 6 for a full report of ANOVA findings and effect sizes. Of the six outcome questionnaires tested, only the Contemplation subscale was statistically significant ($F(2,555) = 3.60, p = 0.03; \eta^2 = 0.01$). Post hoc comparisons using the Tukey HSD test indicated that the mean score for the motivational enhancement group ($M = 3.35, SD = 0.87$) was significantly higher than the feedback-only group ($M = 3.11, SD = 0.85$), although the effect was small ($d = 0.28$). However, the control group ($M = 3.19, SD = 0.88$) did not significantly differ from the feedback-only or motivational enhancement conditions.

Group differences were also examined on other outcome measures, including the amount of time spent on the relationship enhancement activity. This was again tested using a one-way analysis of variance to compare group scores on the Engagement in Relationship Enhancement Scale. The omnibus F from the overall analysis was not statistically significant ($F(2,555) = 0.58, p = 0.56; \eta^2 = 0.002$). As this ANOVA was not significant, exploratory follow-up analyses were then conducted to explore the possibility that time spent may be better considered as a categorical variable, instead of a continuous variable. It is possible that, as more time goes by, participants may have stepped away from their computer or experienced difficulties with the website, and that participants with the longest time of engagement may have actually experienced less benefit from the

intervention. Thus, the Engagement in Relationship Enhancement Scale scores were transformed into a categorical variable with four groups: less than ten minutes, ten to twenty minutes, twenty to thirty minutes, and more than thirty minutes. This would allow for an assessment of whether perhaps participants who spent a large yet still limited amount of time differed in any way from those who either spent a very short or very long amount of time on the task. A chi-square analysis was conducted between amount of time spent on the relationship enhancement activity and assigned group, and was again not statistically significant ($\chi^2(6) = 4.98, p = 0.55$).

Table 6
ANOVA Results for Group Differences in Motivational Outcomes

Outcome Measure	<i>F</i>	<i>p</i>	η^2
Motivation Questionnaire	0.30	.74	.00
Contemplation Ladder	0.12	.89	.00
Stages of Change Questionnaire			
Precontemplation Subscale	0.81	.44	.00
Contemplation Subscale	3.60	.03	.01
Action Subscale	0.93	.40	.00
Maintenance Subscale	1.57	.21	.01
Perceived Helpfulness	0.25	.78	.00
Confidence to Change	0.64	.53	.00
Likelihood to Change	1.35	.26	.00
Enhancement Engagement	0.58	.56	.00

Note. “Enhancement engagement” refers to the amount of time spent viewing the six pages of information offered, as measured in seconds.

Finally, reported helpfulness of the website, confidence, and likelihood to change were also examined for group differences using a one-way analysis of variance. This analysis revealed no statistically significant group differences on the question of helpfulness of the website ($F(2,555) = 0.26, p = 0.78; \eta^2 = 0.0009$), confidence in making

a change ($F(2,555) = 0.64, p = 0.53; \eta^2 = 0.002$), or likelihood of making a change ($F(2,555) = 1.35, p = 0.26; \eta^2 = 0.005$).

Second, a hypothesis was stated regarding only the participants in the motivational enhancement condition. This hypothesis stated that the participants' scores on intervention engagement variables regarding length and depth of engagement would be correlated with their motivation as measured by outcome questionnaires. This hypothesis was tested by calculating correlations between the intervention engagement variables and motivation outcome variables. For a full review of these correlations, see Table 7. The majority of correlations were not significant, suggesting that number of responses and length of time spent responding were not related to the majority of motivational outcomes. Of the 20 correlations calculated, four were statistically significant. First, the participants' reported likelihood to make changes had a moderate correlation with the number of responses provided ($r = 0.28, p < 0.001$) and a small correlation with the amount of time the participant spent responding to motivational enhancement prompts ($r = 0.15, p = 0.04$). The length of time spent engaging with relationship enhancement materials had a large correlation with the length of time spent responding to motivational prompts, although this may simply be a measure of processing speed ($r = 0.44, p < 0.001$). Finally, the Precontemplation subscale had a small correlation with the number of responses provided ($r = 0.19, p = 0.01$).

Table 7
*Correlation Coefficients Between Motivational
 Enhancement Engagement Measures and Outcome Measures*

Outcome Measure	Depth (# responses)	Length (time responses)
Motivation Questionnaire	.14	-.02
Contemplation Ladder	.12	-.00
Stages of Change Questionnaire		
Precontemplation Subscale	.19*	.14
Contemplation Subscale	.09	.04
Action Subscale	.11	.04
Maintenance Subscale	.10	.02
Perceived Helpfulness	.12	.12
Confidence to Change	.12	.08
Likelihood to Change	.28**	.15*
Enhancement Engagement	.07	.44*

Note. * $p < 0.05$, ** $p < 0.01$. “Enhancement engagement” refers to the amount of time spent viewing the six pages of information offered, as measured in seconds.

Correlations were calculated between the three Motivational Enhancement Intention scales and motivational outcome measures as an exploratory follow-up analysis to determine whether participants’ method of responding to open-ended prompts related to motivational outcome measures. For a full report of these correlations, see Table 8. Of the thirty correlations calculated, six were statistically significant. Participant report of engagement had a small correlation with self-reported likelihood of making changes in their relationship ($r = 0.24, p < .01$), and a small correlation with Precontemplation Subscale scores ($r = 0.17, p < .05$). Participant report of disinterest had a small negative correlation with four outcome measures, including Motivation Questionnaire scores ($r = -0.19, p < .05$), Contemplation Ladder scores ($r = -0.21, p < .01$), Precontemplation Subscale scores ($r = -0.27, p < .01$), and participants’ self-reported likelihood to make changes in their relationship ($r = -.23, p < .01$). No significant correlations were found between participant report of uncertainty and any outcome measures.

Table 8
*Correlations Between Set Responses
to Open-Ended Motivational Enhancement Questions and Outcomes*

Outcome Measure	Engagement ^a	Uncertainty ^b	Disinterest ^c
Motivation Questionnaire	.10	.02	-.19*
Contemplation Ladder	.13	-.01	-.21**
Stages of Change Questionnaire			
Precontemplation Subscale	.17*	-.01	-.27**
Contemplation Subscale	.02	.07	-.15
Action Subscale	.09	-.03	-.11
Maintenance Subscale	.06	-.04	-.03
Perceived Helpfulness	.09	-.06	-.07
Confidence to Change	.12	-.14	.02
Likelihood to Change	.24**	-.12	-.23**
Enhancement Engagement	.10	-.04	-.10

Note. * $p < 0.05$, ** $p < 0.01$. ^a = Engagement: participant reported giving a response to the open-ended prompt, ^b = Uncertainty: participant indicated that they hoped to improve but were unsure what to do, ^c = Disinterest: participant indicated that they were satisfied with their current scores. “Enhancement engagement” refers to the amount of time spent viewing the six pages of information offered, as measured in seconds.

It is also important to consider whether the outcome variables used are valid, and whether the aspects of motivation being considered are divergent. Correlations were conducted between all motivational outcome measures, to see whether the outcomes measured were related to one another. For a full report of these correlations, see Table 9. Of these 66 correlations, the majority of them are significant, yet many are small. This raises the question of whether the motivational outcome measures used in the study are measuring the desired construct. When examining the correlations, it is particularly noteworthy that the majority of correlations between motivational questionnaires and behavioral

Table 9
Correlation Coefficients Between All Motivational Outcome Measures

Outcome Measure	MQ	CL	PC	C	A	M	PH	CC	LC	NM	TM	TRE
Motivation Questionnaire (MQ)	1	.67**	.28**	.46**	.57**	.32**	.29**	.34**	.56**	.13	-.02	.04
Contemplation Ladder (CL)		1	.17**	.45**	.62**	.34**	.31**	.28**	.60**	.12	-.00	.04
Stages of Change Questionnaire												
Precontemplation Subscale (PC)			1	.26**	.22**	.02	.17**	.01	.24**	.19*	.14	.21**
Contemplation Subscale (C)				1	.77**	.80**	.31**	-.04	.38**	.01	.04	.08
Action Subscale (A)					1	.73**	.37**	.15**	.55**	.11	.04	.09*
Maintenance Subscale (M)						1	.28**	-.76	.29**	.10	.02	.32**
Perceived Helpfulness (PH)							1	.32**	.45**	.12	.12	.20**
Confidence to Change (CC)								1	.46**	.12	.08	.08
Likelihood to Change (LC)									1	.28**	.15*	.14**
Number responses to Motivation (total) (NM)										1	.31**	.07
Time on Motivation (total) (TM)											1	.44**
Time on Relationship Enhancement (TRE)												1

Note. * $p < 0.05$, ** $p < 0.01$.

outcomes (e.g., number of responses, time spent responding) are not significant. This suggests that perhaps the behavioral measures and questionnaire measures may not have been measuring the same aspect of motivation, or that some of these measures may not be valid measures of the construct of motivation. Further, some of the questionnaire measures are also not highly correlated with one another. For example, the Contemplation subscale has almost no correlation with the reported confidence to change, suggesting again that all questionnaire measures may not be measuring the same construct of “motivation.” It is noteworthy that the Motivation Questionnaire and Contemplation Ladder have significant correlations with all other questionnaire measures, suggesting that perhaps these two outcome measures may be the most widespread ways to measure the construct of motivation of those used in the study.

A number of follow-up analyses were conducted to further examine the results. Although analyses described previously revealed that most demographic variables were not significantly related to outcomes, further demographic analysis was conducted to determine whether controlling for those demographic variables that *were* found to be significant would impact findings regarding group differences. Specifically, an ANOVA was conducted for each motivational outcome variable which controlled for those demographic variables that had previously been found to be significantly related to the outcome variables. This was defined as any categorical demographic variable that yielded a significant omnibus F or continuous demographic variable that yielded a significant correlation coefficient. For full results of these ANOVAs, see Table 10. As would be expected, none of these analyses were significant, indicating that controlling for demographic variables led to similar findings as reported previously, with no statistically significant outcomes. It is important to note here that the previously significant findings

regarding the Contemplation subscale were no longer significant after accounting for relevant demographic variables.

Table 10
*ANOVA Results When Controlling for Demographic Variables
 Significantly Related to Outcome Variables.*

Outcome Measure	<i>F</i> *	<i>p</i> *	η^2	Number Covariates
Motivation Questionnaire	0.36	.70	.26	2 ^{b,c}
Contemplation Ladder	0.14	.86	.10	2 ^{d,e}
Stages of Change Questionnaire				
Precontemplation Subscale	0.10	.90	.16	3 ^{f,g,h}
Contemplation Subscale	0.28	.75	.09	3 ^{e,h,i}
Action Subscale	1.05	.35	.04	1 ^c
Maintenance Subscale	1.37	.25	.10	4 ^{e,f,i,j}
Perceived Helpfulness	N/A ^a	N/A ^a		
Confidence to Change	0.32	.73	.25	2 ^{d,e}
Likelihood to Change	0.08	.92	.22	4 ^{b,c,d,e}
Mot. Enhancement Time	0.31	.74	.11	5 ^{b,d,f,j,k}

Note. The *F* and *p* values included in this table pertain to the main effects of group membership, not the total effects of group membership plus the effects of the covariate.
^aNo demographic characteristics were significantly related to perceived helpfulness of the study, so no univariate analysis of variance was conducted for this demographic variable,
^bRelationship Status, ^cLiving Area, ^dCommitment Level, ^eCouples Satisfaction Index,
^fGender, ^gRace, ^hSexual Orientation, ⁱHousehold Income, ^jAge, ^kRelationship Length.

Given the short-comings noted above, regarding the areas of the intervention where participants appear to have had difficulty, it is less surprising that the hypotheses were not supported in this study. It may be beneficial to modify the intervention in the future, to address some of these short-comings. As previously noted, a “good fit” group was created using the participants who appear to have been well-suited to the intervention and did not have the above-described difficulties. Namely, this included those participants who had a discrepancy between their actual and desired scores in the area on which they chose to focus (45% of participants), who were able to recognize this

discrepancy (81% of participants), and who were able to generate ideas for a change plan to help decrease their discrepancy (45% of participants). In the current study, forty-four (25.1%) of the 175 respondents met all three of these criteria. This suggests that the current intervention may be most effective when provided to a certain subset of the population. To examine whether the intervention was effective within this “good fit” subset, an exploratory follow-up analysis was conducted. A one-way analysis of variance was used to compare this subset with the feedback-only and control groups on motivational outcome variables. It should be noted that, due to having only forty-four participants in the motivational enhancement group for this analysis, power of the ANOVA is reduced. For a full report of these results, see Table 11. Of the ten measured outcome variables, only the question of likelihood to make changes in one’s relationship was significant ($F(2,424) = 3.09, p = 0.05; \eta^2 = 0.014$). This suggests that even when only taking into account participants who appear to have understood and adhered to expectations of the study, the hypotheses regarding group differences were, for the most part, not supported.

Table 11
*ANOVA Results Assessing Group Differences Using
 “Good Fit” Motivational Enhancement Group.*

Outcome Measure	<i>F</i>	<i>p</i>	η^2
Motivation Questionnaire	0.85	.43	.00
Contemplation Ladder	1.44	.24	.00
Stages of Change Questionnaire			
Precontemplation Subscale	2.17	.12	.01
Contemplation Subscale	0.62	.54	.00
Action Subscale	1.45	.24	.01
Maintenance Subscale	0.92	.40	.00
Perceived Helpfulness	0.18	.83	.00
Confidence to Change	0.41	.67	.00
Likelihood to Change	3.09	.05	.01
Enhancement Engagement	0.10	.91	.00

Note. “Enhancement engagement” refers to the amount of time spent viewing the six pages of information offered, as measured in seconds.

CHAPTER FOUR

Discussion

This study examined an Internet-based intervention designed to increase motivation to engage in a provided relationship enhancement activity, as well as to allow for examination of patterns of participant use while completing the intervention. The study identified three areas that likely hindered the effectiveness of the intervention, including lack of a discrepancy between scores, difficulty identifying and reporting the score discrepancy, and difficulty independently responding to open-ended prompts about how to improve one's relationship. It was also found that many outcome measures had, at best, small correlations with one another, suggesting that all outcome measures may not have been assessing the same aspects of motivation. Given the extent of the problems identified, it is less surprising that few significant differences were found between groups. The areas of difficulty will each be discussed in turn, as well as examining possible contributing factors. This will be followed by a discussion of the lack of group differences and possible contributing factors. Comparisons with existing web-based studies will be made. Finally, limitations of this study and future directions for this line of research will be presented.

Areas of Participant Difficulty with the Intervention

As stated previously, the study results highlighted some areas in which participants appeared to have difficulty while completing the study, including having a lack of discrepancy between desired and actual scores, inaccuracy in perceiving and responding to the graph providing individual feedback, and lack of engagement with part

of the motivational enhancement condition in which participants were expected to respond to open-ended prompts regarding making changes due to conflict in their relationship. Each of these three points will be discussed in turn.

As noted previously, 50% of participants had a large discrepancy, defined as one standard deviation, between their actual and desired scores, while 50% of participants did not. It is possible that those participants who did not have a large discrepancy between their actual and desired scores may have been less motivated to engage in the intervention, as they may not have perceived any need to enhance their relationship. This possibility is consistent with previous research that has found that partners who are not currently experiencing distress tend not to experience a need to engage in relationship strengthening activities (Cordova, Scott, Dorian, Mirgain, Yaeger, & Groot, 2005; Cordova, Warren, & Gee, 2001). These previous findings suggest that perhaps those participants who do not have a discrepancy may not be well-suited to this intervention. However, the fact that 50% of participants did have a large discrepancy suggests that there is a group of individuals who indeed may have perceived a need to enhance their relationship and may have been well-suited to this intervention.

Many participants appeared to fail to accurately perceive the size of the discrepancy between their scores, suggesting that they may not have understood the graph-based feedback presented to them. A previous study investigated participants' abilities to correctly interpret an Internet-based graph, and found that the mean number of correct answers regarding graph interpretation was approximately seventy percent in an adult sample (Galesic & Garcia-Retamero, 2011). This suggests the possibility that a large percentage of participants in the current study may have had difficulty with interpreting the provided graphs. For those participants who struggled with reading the

graph, the discrepancy between scores would not have been highlighted, and discrepancy may not have been developed. This possibility may have resulted in the intervention being less effective with a subset of the sample who may not have understood the provided feedback.

Finally, a large minority of participants did not provide any responses to the open-ended prompts and a large minority of participants indicated that they did not know how to respond to these prompts. This suggests that some participants may not have engaged in the intervention in part because of uncertainty or desire for additional support. This lack of engagement may be due in part to lack of guidance provided in the current study. Previous research has found that encouraging participants to “discuss” their options with another person yielded larger effects than more passive interventions (Hurling, Fairley, & Dias, 2006; Newcombe, Dunn, Casey, Sheffield, Petsky, et al., 2012), while other studies have found that participants respond to interventions differently, with some participants preferring more support and some preferring more independence (Bendelin, Hesser, Dahl, Carlbring, Neson, & Andersson, 2011). Many studies of web-based interventions include web-based therapist interaction at some point during the intervention (e.g., Fiichter, Quadflieg, Nisslmuller, Lindner, Osen, Huber, et al., 2012; Jacobi, Volker, Trockel, & Taylor, 2012; Jones & McCabe, 2011; Kim & Keller, 2008; Wagner, Schulz, & Knaevelsrud, 2012; Tossmann, Jonas, Tensil, Lang, & Struber, 2011). Other studies provided participants with a menu of options, allowing participants to receive support in thinking of changes to make while encouraging ownership of specifically which changes they would attempt to make and how (Cordova, Scott, Dorian, Mirgain, Yaeger, et al., 2005; Cordova, Warren, & Gee, 2001). It is possible that providing more guidance, particularly in a manner that still allowed for the sense of self-efficacy and ownership key

to motivational enhancement, may have given the participants the support they needed to engage more fully with the intervention.

Taken together, these findings suggest that participants appear to have encountered a number of difficulties while completing the intervention. These areas include not having an area in which they would like to change, having difficulty understanding the provided feedback, and uncertainty about how to make the changes they desire. It is likely that these difficulties may have rendered the intervention less useful with some participants, and may have negatively impacted the overall treatment effectiveness. The identification of these areas is important for modification of this intervention in future studies.

Intervention Effectiveness

Multiple outcome measures were used to assess motivation and engagement with the intervention, including six self-report motivation questionnaires, time spent on various parts of the intervention, and self-reported helpfulness of the site and confidence in making future relationship changes. Group differences on these outcomes were used to assess overall effectiveness of the intervention. The only significant group difference was in the Contemplation scores between the motivational enhancement condition and the feedback-only condition. Given this, it is worth speculating about the possibility that this intervention may help move participants towards the contemplation stage of change. The contemplation stage of change is marked by acknowledgement of the existence of a problem, and considering of making changes (Miller & Rollnick, 2002). By highlighting potential problem areas and providing a space for participants to begin to brainstorm solutions, the study may have resulted in some movement in this area by raising

awareness or perhaps by creating a sense of self-efficacy as participants brainstormed ways to resolve their relationship concerns.

There were no other significant differences on outcome measures in the study. A number of contributing factors may play a role in this, in addition to the above-mentioned areas of difficulty with the intervention. Previous research has noted the importance of monitoring reading levels (Rau, Gao, & Wu, 2006; Taylor, Jobson, Winzelber, & Abascal, 2002), and recommends reading levels for materials intended for the general public to be at or below the fifth grade reading level, even when working with adults (Pizur-Barnekow, Patrick, Rhyner, Cashin, & Rentmeester, 2011; Weiss & Smith-Simone, 2010). As noted previously, the reading level of provided materials ranging from 7.4 to 9.8. Thus, it's possible that the text may have been slightly too complicated for the general public, which could have contributed to lack of interest in reading the provided relationship enhancement materials. Previous research has also noted that highly interactive interventions, including provision of goals, strategies, and vignettes tailored to the participant's interests, are especially well-received (Mauriello et al., 2012). The information in this study was provided identically to all participants, with no interaction, video, or images during the course of the relationship enhancement activity. This may have contributed to a lack of interest or engagement in the intervention, which may have also impacted the overall effectiveness of the intervention.

In reviewing the results, it becomes evident that the treatment was not highly effective with the current sample, as only one group difference was found. This difference, on Contemplation, may reflect either an impact of the intervention, in moving participants through the Stages of Change or may simply reflect a Type I error. Future research, including an initial assessment of stage of change, would help to clarify this

point. In addition to the previously highlighted areas of difficulty, aspects regarding the usability of the site including reading level and interactivity of the website were also acknowledged as potential factors in limiting the effectiveness of this intervention.

Differences Between the Current Study and Existing Literature

The lack of support of the hypotheses in the current study suggests that this study may differ in important ways from existing effective Internet-based interventions. These differences appear to include various aspects of the study, including type of interaction, type of feedback, data collection, and recruitment. Some authors endorsed providing highly interactive interventions (Mauriello et al., 2012). As discussed previously, this intervention was less interactive than previous studies, which is a key area of difference between this study and others reviewed.

In some studies, participants were given individualized feedback to problem-solve concerns as they arose (Cordova et al., 2001; Cordova et al., 2005; Mauriello et al., 2012). This provided some of the guidance participants appear to need, while still individualizing the process by providing targeted feedback. Other studies make purposeful use of decisional balance exercises to help increase change talk and motivation to change while also continuing to give individual responsibility over making the changes (Carpenter, Stoner, Mikko, Dhanak, & Parsons, 2010; Houston & Ford, 2008). A key component of motivational interviewing as described by Miller and Rollnick (2002) is engaging in change talk and selective reflection of comments and themes that will contribute to the development of this change talk, which can be done through decisional balances. In the current study, no individualized selective reflection or change talk was used, which may have resulting in participants struggling with open-ended responses.

Regarding data collection, some authors collected data over multiple sessions, allowing for more opportunities to teach skills and information to clients (Mauriello et al., 2012). In completing this intervention in just one session, any outside discussion, feelings, or thoughts were not captured by the study, which may have artificially limited the findings (Hrastinksi, 2008). Other studies used screening to help identify participants who may be particularly receptive to the intervention, based upon their stage of change or particular relationship concern (Funk, Stevens, Bauck, Brantley, Hornbrook, et al, 2011; Mauriello, Gokbayrak, Van Marter, Paiva, & Prochaska, 2012). This study did not pre-screen participants, other than assessing their age and relationship status, which may have contributed to the large group of participants who did not fall in the “good fit” category in this study. Pre-screening may have allowed the “good fit” group to be larger, and to have higher statistical power.

In many studies, recruitment was done through therapeutic settings or therapist websites, where self-selected participants may have already been motivated to seek help (Fiichter, Quadflieg, Nisslmuller, Lindner, Osen, Huber, et al., 2012; Iloabachie, Wells, Goodwin, Baldwin, Vanderplough-Booth, et al, 2011; Newcombe, Dunn, Casey, Sheffield, Petsky, et al., 2012; Tossmann, Jonas, Tensil, Lang, & Struber, 2011). The current study recruited through a general website, instead of a therapeutically oriented website, which likely led to participation by some individuals who may not have been experiencing concerns. It is possible that completing this study with participants recruited from a different setting may have led to different results.

Limitations

In addition to the points stated above, there are a number of limitations that should be noted. First, participants were paid for their involvement. Although some

authors have noted that this may change the demographic of the sample, it has also been stated that unless the amount of money is unduly coercive, it likely would not change the sample (Wertheimer & Miller, 2007). As participants were only paid \$0.50 for a study that took the average person just over twenty minutes, it seems unlikely that this was coercive enough to change the sample. The entire sample was also self-selected through Mechanical Turk, which limits the generalizability of the sample.

Second, the study was completed entirely on-line, which has some limitations. It is impossible to know where participants are completing the study. Completing questionnaires regarding material of a personal nature in a public place may have impacted response styles, despite the anonymity of the website (Miller, Neal, Roberts, Baer, Cressler, et al. 2002), and may have led to participants spending less time considering the information due to privacy concerns. It is also difficult to intervene to clarify concerns or answer questions during study completion, a point which has been shown to jeopardize results of Internet-based studies (Denissen, Neumann, & van Zalk, 2010; Lieberman & Huang, 2008; Taylor, Jobson, Winzelber, & Abascal, 2002; Van Mook, Muijtjens, Gorter, Zwaveling, Schuwirth, et al., 2012). It is important to note that participants may have had questions or difficulties arise that were unanswered, as there was no section for participants to report questions or concerns within the study, nor any way for them to get real-time feedback.

Third, the results of this study call attention to the potential difficulties inherent in measuring motivation outcomes. The different motivational outcome questionnaires used were found not to be highly correlated with one another, which suggests that these measures of “motivation” may have actually been measuring multiple constructs. In addition to questionnaires, behavioral outcome measures including frequency counts of

open-ended responses and time spent engaging in motivational enhancement activities were also used in this study. However, a recent review has found that these counts may not be the most accurate or valid ways to measure engagement and motivation, as some motivational changes may occur outside of or after the study (Hrastinski, 2008). A final outcome measure was self-reported likelihood to change after the study, ranging from “not at all likely” to “very likely.” Although participants did report that they were, on average, “likely” to change, existing research has found that participants in on-line research may often overstate their intentions due to social desirability, regardless of the anonymity of the website (Lieberman & Massey, 2008). Thus it is possible that these reports are overstated, and that the participants’ actual likelihood to engage in relationship enhancement activities may be lower than the self-reported likelihood. Taken together, these points draw attention to some of the difficulties in finding a valid way to assess the construct of “motivation” using currently available measures. As no other studies were found that examine the concerns with measuring motivation, it is possible that this may be the first study to directly explore the issues inherent in measuring participant motivation in an Internet-based study.

Future Directions

Many future directions can be noted for continued research into devising an effective and efficacious Internet-based relationship enhancement intervention. The study revealed three areas of potential difficulty for participants, including not having a discrepancy between desired and actual scores, struggling to correctly read the chart and identify their discrepancy, and not fully engaging with the intervention, or perceiving the intervention as not interesting. Given these limitations, a number of alterations may be helpful in future studies.

Screening and Recruitment

It was found that many participants did not have a large discrepancy between their actual and desired scores, which may have limited the relevance of the intervention. Thus, it may be beneficial to screen participants to ensure that they are experiencing a discrepancy, through screening for participants who endorse relationship distress. This could also be achieved through recruiting for the study on therapy websites, as has been found helpful in many other studies of web-based couples research.

As this lack of discrepancy for some participants suggests that perhaps not all participants are experiencing distress, it may be beneficial to focus on those participants who are experiencing distress, or who may be ready to begin making changes. As such, it may be helpful to assess stage of change and individualize the intervention accordingly, as has been done previously with other populations (Carpenter, Stoner, Mikko, Dhanak, & Parsons, 2010; Houston & Ford, 2008; Mauriello, Gokbayrak, Van Marter, Paiva, & Prochaska, 2012; Rau, Gao, & Wu, 2006; Walker, Roffman, Picciano, & Stephens, 2007

Real-Time Feedback

Many participants also appeared to struggle with reading the chart and correctly identifying the discrepancy between their scores. As previous research has suggested that many adults have difficulty with interpreting these charts, it may be beneficial to change the intervention in a way that provides real-time feedback to check for and clarify understanding of the graph, if needed, before proceeding with the intervention. Providing a means for real-time presentation of concerns and feedback may also allow for checking understanding of the text and questionnaires, as well as assessing concerns regarding the overall intervention.

Interactivity

The majority of participants were unable to respond to all four open-ended prompts, and a large minority indicated that they wanted to make changes but were unsure of what to try. Previous research has often used peer support, web-based therapist support, or providing a menu of options to give more structure and support to participants within these tasks. It may be helpful, in future studies, to have a menu of options, from which the participant can choose, as opposed to having him or her generate strategies. In order to be consistent with motivational interviewing's emphasis on self-efficacy, it may be especially helpful to first ask the participant to generate responses, and to provide a menu of options if and when requested by the participant, perhaps then following up with a prompt about how to implement the suggestions within one's own relationship.

Other studies have shown that highly interactive interventions get positive results. As many participants reported that the intervention was not interesting, it may be beneficial to change the structure of the website to become more engaging, perhaps through including pictures, vignettes, and individualized strategies. By providing individualized responses to the information, participants would have been expected to pay attention and engage, and may have become more interested in the information provided to them.

Measuring Motivation

In the current study, pre/post motivation was not measured, due to the lack of a pre/post questionnaire suited for this purpose. The development of a questionnaire to assess for this would allow for measurement of change in motivation level as a result of participant. Another aspect of motivation that would be helpful to assess is whether

participants have previously used methods to strengthen their relationship, to allow for consideration of this factor as well.

Logistical Improvements

Finally, some logistical improvements can be noted from the current study. First, reading levels should be better monitored, and all questionnaires, instructions, and activities should be altered to match the recommended reading level for the general public. Second, the means of measuring engagement should be reviewed. It is possible that length of time spent on an intervention is not a valid measure of engagement, and that others methods of assessing this outcome should be explored. It would be beneficial to spend time conducting validity and reliability assessments of the measures before using them in another study, to ensure that the constructs being measured were the desired constructs. Finally, given that previous studies have found that the impact of an intervention such as this one changes over time, it may be beneficial to conduct multiple sessions with participants, to better capture change that occurs over time as a result of the intervention.

Many previous studies found focus groups to be helpful. Before conducting this intervention again, it may be beneficial to make some of the above-mentioned user-friendliness changes (e.g., readability, interactivity of the website) and then run a focus group before conducting a second pilot study. These groups have been shown to be helpful in uncovering other usability concerns (Funk, Stevens, Bauck, Brantley, Hornbrook, et al, 2011; Mauriello, Gokbayrak, Van Marter, Paiva, & Prochaska, 2012; Yuen, Goetter, Herbert, & Forman, 2012), and may reveal additional areas of improvement for the current study.

Conclusion

Internet-based interventions have been found to be increasingly common in the last several decades, and the importance of effective web-based interventions with multiple populations will likely continue to grow (Denissen, Neumann, & van Zalk, 2010). Thus, while this study has a number of limitations, it serves as an important pilot study for beginning to explore how to translate current relationship enhancement techniques into Internet-based interventions. Continued research in this area will prove important in developing an effective early intervention strategy for couples who, while not experiencing high rates of distress, would likely nonetheless benefit from the ease, affordability, and flexibility that can be inherent in an Internet-based intervention.

APPENDICES

APPENDIX A

Relationship Conflict Questionnaire

All couples experience conflict from time to time. To complete this survey, you will need to think of the most recent single, specific episode conflict in your relationship. It could be something current or something from the past. The conflict could be anything from a minor disagreement or simple misunderstanding to a big argument. This survey will ask you questions about the single, specific conflict that you select.

Please describe the conflict that you have in mind, including when and where it took place.

Listed below are thoughts that people often have during a conflict.

To what extent were you thinking these thoughts at the time of the interaction?

Disagree Strongly = 1, Disagree = 2; Agree Somewhat= 3; Agree = 4; Agree Strongly = 5

My partner deserves to be blamed.	1	2	3	4	5
My partner is motivated by selfish concerns.	1	2	3	4	5
My partner did something on purpose that caused this conflict.	1	2	3	4	5
My partner is at fault.	1	2	3	4	5
My partner could have prevented this conflict.	1	2	3	4	5
My partner caused this conflict.	1	2	3	4	5
My partner knew it was wrong to do something, but did it anyway.	1	2	3	4	5

Listed below are things people often do when there is a conflict in a relationship.

To what extent did YOUR PARTNER do these things during the interaction?

Disagree Strongly = 1, Disagree = 2; Agree Somewhat= 3; Agree = 4; Agree Strongly = 5

My partner said something mean.	1	2	3	4	5
My partner made me feel that my viewpoint was valuable.	1	2	3	4	5
My partner raised his/her voice.	1	2	3	4	5
My partner was considerate toward me.	1	2	3	4	5
My partner told me I was doing something to cause the problem.	1	2	3	4	5
My partner said something kind.	1	2	3	4	5
My partner argued.	1	2	3	4	5
My partner agreed with me.	1	2	3	4	5

My partner defended his/her position.	1	2	3	4	5
My partner politely talked about his/her feelings.	1	2	3	4	5
My partner corrected my statements.	1	2	3	4	5
My partner carefully listened so he/she could understand me.	1	2	3	4	5
My partner criticized me.	1	2	3	4	5
My partner discussed the issue calmly.	1	2	3	4	5

To what extent did YOU do these things during the interaction?

Disagree Strongly = 1, Disagree = 2; Agree Somewhat= 3; Agree = 4; Agree Strongly = 5

I said something mean.	1	2	3	4	5
I made my partner feel that his/her viewpoint was valuable.	1	2	3	4	5
I raised my voice.	1	2	3	4	5
I was considerate toward my partner.	1	2	3	4	5
I told my partner he/she was doing something to cause the problem.	1	2	3	4	5
I said something kind.	1	2	3	4	5
I argued.	1	2	3	4	5
I agreed with my partner.	1	2	3	4	5
I defended my position.	1	2	3	4	5
I politely talked about my feelings.	1	2	3	4	5
I corrected my partner's statements that were not true.	1	2	3	4	5
I carefully listened so I could understand my partner.	1	2	3	4	5
I criticized my partner.	1	2	3	4	5
I discussed the issue calmly.	1	2	3	4	5

These questions ask about your own experience and about how you perceived your partner.

Rate the extent to which each statement describes YOUR experience during the interaction.

Disagree Strongly = 1, Disagree = 2; Agree Somewhat= 3; Agree = 4; Agree Strongly = 5

I felt <u>criticized</u> .	1	2	3	4	5
I felt <u>neglected</u> .	1	2	3	4	5
I felt <u>blamed</u> .	1	2	3	4	5
I felt <u>forgotten</u> .	1	2	3	4	5

Rate the extent to which each statement describes how you perceived YOUR PARTNER during the interaction.

Disagree Strongly = 1, Disagree = 2; Agree Somewhat= 3; Agree = 4; Agree Strongly = 5

My partner seemed <u>judgmental</u> .	1	2	3	4	5
My partner seemed <u>uncommitted</u> .	1	2	3	4	5
My partner seemed <u>demanding</u> .	1	2	3	4	5
My partner seemed <u>unconcerned</u> .	1	2	3	4	5

Rate the extent to which each statement describes YOUR experience during the interaction.

Disagree Strongly = 1, Disagree = 2; Agree Somewhat= 3; Agree = 4; Agree Strongly = 5

I felt <u>accused</u> .	1	2	3	4	5
I felt <u>invisible</u> .	1	2	3	4	5
I felt <u>misjudged</u> .	1	2	3	4	5
I felt <u>overlooked</u> .	1	2	3	4	5

Rate the extent to which each statement describes how you perceived YOUR PARTNER during the interaction.

Disagree Strongly = 1, Disagree = 2; Agree Somewhat= 3; Agree = 4; Agree Strongly = 5

My partner seemed <u>controlling</u> .	1	2	3	4	5
My partner seemed <u>disloyal</u> .	1	2	3	4	5
My partner seemed <u>imposing</u> .	1	2	3	4	5
My partner seemed <u>inattentive</u> .	1	2	3	4	5

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

0 = Extremely unhappy, 1 = Fairly unhappy, 2 = A little unhappy, 3 = Happy, 4 = Very happy, 5 = Extremely happy, 6 = Perfect.

In general, how often do you think that things between you and your partner are going well? (5 = All of the time, 4 = Most of the time, 3 = More often than not, 2 = Occasionally, 1 = Rarely, 0 = Never)

Please answer the following questions with this scale: (0 = Not At All True, 1 = A Little True, 2 = Somewhat True, 3 = Mostly True, 4 = Almost Completely True, 5 = Completely True)

Our relationship is strong.

My relationship with my partner makes me happy.

I have a warm and comfortable relationship with my partner.

I really feel like part of a team with my partner.

Please answer the following questions with this scale: 0 = Not At All, 1 = A Little, 2 = Somewhat, 3 = Mostly, 4 = Almost Completely, 5 = Completely)

How rewarding is your relationship with your partner?

How well does your partner meet your needs?

To what extent has your relationship met your original expectations?

In general, how satisfied are you with your relationship?

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.

26. Interesting (5,4,3,2,1,0) Boring

27. Bad (0,1,2,3,4,5) Good

28. Full (5,4,3,2,1,0) Empty

29. Lonely (0,1,2,3,4,5) Friendly

30. Sturdy (5,4,3,2,1,0) Fragile

31. Discouraging (0,1,2,3,4,5) Hopeful

32. Enjoyable (5,4,3,2,1,0) Miserable

APPENDIX B

Motivation Questionnaire

Rate the extent to which you think the following activities would be beneficial for your relationship.

It would be **beneficial** for my relationship for me to do something that requires a substantial effort on my part.

Disagree Strongly – 1, Disagree – 2, Agree Somewhat – 3, Agree – 4, Agree Strongly - 5

It would be **beneficial** for me to spend time examining my own actions to see how they affect my relationship.

Disagree Strongly – 1, Disagree – 2, Agree Somewhat – 3, Agree – 4, Agree Strongly - 5

It would be **beneficial** for me to spend time finding out where I need the most improvement in my relationship.

Disagree Strongly – 1, Disagree – 2, Agree Somewhat – 3, Agree – 4, Agree Strongly - 5

It would be **beneficial** for me to spend time making changes in areas where I need the most improvement in my relationship.

Disagree Strongly – 1, Disagree – 2, Agree Somewhat – 3, Agree – 4, Agree Strongly - 5

It would be **beneficial** for me to spend time learning about what skills are most important for a healthy relationship.

Disagree Strongly – 1, Disagree – 2, Agree Somewhat – 3, Agree – 4, Agree Strongly - 5

It would be **beneficial** for me to learn about different activities or exercises that people can do to strengthen and improve their relationships.

Disagree Strongly – 1, Disagree – 2, Agree Somewhat – 3, Agree – 4, Agree Strongly - 5

It would be **beneficial** for me to spend time doing activities or exercises that are recommended for building a strong relationship.

Disagree Strongly – 1, Disagree – 2, Agree Somewhat – 3, Agree – 4, Agree Strongly - 5

Rate the extent to which you have a desire to do the following activities over the next month.

This month, I **want** to do something for my relationship that requires a substantial effort on my part.

Disagree Strongly – 1, Disagree – 2, Agree Somewhat – 3, Agree – 4, Agree Strongly - 5

This month, I **want** to spend time examining my own actions to see how they affect my relationship.

Disagree Strongly – 1, Disagree – 2, Agree Somewhat – 3, Agree – 4, Agree Strongly - 5

This month, I **want** to spend time finding out where I need the most improvement in my relationship.

Disagree Strongly – 1, Disagree – 2, Agree Somewhat – 3, Agree – 4, Agree Strongly - 5

This month, I **want** to spend time making changes in areas where I need the most improvement in my relationship.

Disagree Strongly – 1, Disagree – 2, Agree Somewhat – 3, Agree – 4, Agree Strongly – 5

This month, I **want** to spend time learning about what skills are most important for a healthy relationship.

Disagree Strongly – 1, Disagree – 2, Agree Somewhat – 3, Agree – 4, Agree Strongly - 5

This month, I **want** to learn about different activities or exercises that people can do to strengthen and improve their relationships.

Disagree Strongly – 1, Disagree – 2, Agree Somewhat – 3, Agree – 4, Agree Strongly - 5

This month, I **want** to spend time doing activities or exercises that are recommended for building a strong relationship.

Disagree Strongly – 1, Disagree – 2, Agree Somewhat – 3, Agree – 4, Agree Strongly - 5

Rate the extent to which you are committed to doing the following activities once over the next month.

During the next month, how often **will** you do something for your relationship that requires a substantial effort on your part?

Never – 1, Once – 2, A couple times – 3, Every week – 4, Several times each week – 5, Every day - 6

During the next month, how often **will** you take some time to examine your own actions to see how they affect your relationship?

Never – 1, Once – 2, A couple times – 3, Every week – 4, Several times each week – 5, Every day - 6

During the next month, how often **will** you take some time to find out where you need the most improvement in your relationship?

Never – 1, Once – 2, A couple times – 3, Every week – 4, Several times each week – 5, Every day - 6

During the next month, how often **will** you spend time working to make changes in areas where you need the most improvement in your relationship?

Never – 1, Once – 2, A couple times – 3, Every week – 4, Several times each week – 5, Every day - 6

During the next month, how often **will** you spend time learning about what skills are most important for a healthy relationship?

Never – 1, Once – 2, A couple times – 3, Every week – 4, Several times each week – 5, Every day - 6

During the next month, how often **will** you spend time learning about different activities or exercises that people can do to strengthen and improve their relationship?

Never – 1, Once – 2, A couple times – 3, Every week – 4, Several times each week – 5, Every day - 6

During the next month, how often **will** you spend time doing activities or exercises that are recommended for building a strong relationship?

Never – 1, Once – 2, A couple times – 3, Every week – 4, Several times each week – 5, Every day - 6

APPENDIX C

Couples' Contemplation Ladder

Please indicate, on a scale from zero to ten, how you currently feel about making changes in your relationship.

- 10 – I am currently taking action to change things for the better in my relationship (e.g., enrolling in therapy, working on communication)
- 9
- 8 – I am feeling ready to start making some changes to better my relationship.
- 7
- 6
- 5 – I think I am interested in making some positive changes in my relationship, but I'm not quite ready
- 4
- 3
- 2 – I think I would be interested in bettering my relationship someday.
- 1
- 0 – No thoughts of making changes to better my relationship

APPENDIX D

Couples Stages of Change Questionnaire

The following questions should be answered based on your relationship. Indicate the number on the 1-5 scale that matches your answer.

1 = Strongly Disagree; 5 = Strongly Agree

1. As far as I'm concerned, I don't have any problems in my relationship that need changing.
2. I think my relationship might be ready for some improvement.
3. I am doing something about the issues in my relationship that have been bothering me.
4. It might be worthwhile to work on my relationship.
5. I don't think my relationship has any problems that I need help with.
6. I'm worried that the changes I've made in my relationship won't last without help.
7. I am working on our relationship problems.
8. I have been thinking I might want to change some things about my relationship.
9. I have been successful in working on our relationship problems with my partner, but I'm not sure we can keep up the effort on our own.
10. At times our relationship problems are difficult, but I'm working on them.
11. I think that seeking help for our relationship would be a waste of time for us.
12. I sometimes wonder if my relationship might need work.
13. I guess we have problems in our relationship, but there is nothing I really need to change.
14. I am really working hard to change problems in our relationship.
15. I really think I should work on the issues in my relationship.
16. I'm working hard to prevent the reoccurrence of problems we've already worked out in our relationship.
17. Even though I'm not always successful, I am at least working on our relationship issues.
18. I thought that once I had resolved the problems in my relationship I would be free of them, but sometimes I still find myself struggling with them.
19. I wish I had more ideas on how to resolve our relationship issues.
20. I have started to work on our relationship issues, but I would still like help.
21. Maybe someone else can help us with our relationship.
22. We may need a boost right now to help us maintain the changes in our relationship we've already made.
23. I may be part of my relationship problems, but I don't really think I am.
24. I'd like to get some good advice about my relationship.
25. Anyone can talk about improving their relationship; I'm actually doing something.
26. All this talk about relationships is boring. Why can't people just forget about their relationship problems?
27. I'm working to prevent a relapse of our relationship problems.

28. It is frustrating, but I feel that I might be having a recurrence of a relationship problem I thought I had resolved.
29. I have worries about my relationship, but so does the next person. Why spend time thinking about them?
30. I am actively working on my relationship problems.
31. I would rather cope with our relationship issues than try to change them.
32. After all I have done to try to change my relationship problems, every now and again they come back.

REFERENCES

- Alemi, F., Haack, M.R., Nemes, S., Aughburns, R., Sinkule, J., & Neuhauser, D. (2007). Therapeutic emails. *Substance Abuse Treatment, Prevention, and Policy*, 2(7), 1-18.
- Beach, S.R.H., Hurt, T.R., Fincham, F.D., Franklin, K.J., McNair, L.M., & Stanley, S.M. (2011). Enhancing marital enrichment through spirituality: Efficacy data for prayer-focused relationship enhancement. *Psychology of Religion and Spirituality*,
- Bendelin, N., Hesser, H., Dahl, J., Carlbring, P., Nelson, K.Z., & Andersson, G. (2011). Experiences of guided Internet-based cognitive behavioural treatment for depression: A qualitative study. *Biomed Central Psychiatry*, 11(107), 1-10.
- Biener, L. & Abrams, D.B. (1991). The contemplation ladder: Validation of a measure of readiness to consider smoking cessation. *Health Psychology*, 10(5), 360-365.
- Boddington, S.J.A. (1995). Factors associated with drop-out from a couples therapy clinic. *Sexual & Marital Therapy*, 10(3), 321-327.
- Bornstein, P.H., Wilson, G.L., Bornstein, M.T., Balleweg, B.J., Weisser, C.E., Andre, J.C., Smith, M.M., Woody, D.J., Laughna, S.M., McLellarn, R.W., Kirby, K.L., & Hocker, J. (1985). Behavioral cohabitation: Increasing satisfaction among nonmarried dyads? *Journal of Sex & Marital Therapy*, 11(2), 113-120.
- Brock, R.L., Barry, R.A., Lawrence, E., Dey, J., & Rolffs, J. (2010). Internet administration of paper-and-pencil questionnaires used in couple research: Assessing psychometric equivalence. *Assessment*, 20(10), 1-17.
- Buchanan, T. (2003). Internet-based questionnaire assessment: Appropriate use in clinical contexts. *Cognitive Behaviour Therapy*, 32(3), 100-109.
- Buhrmester, M., Kwang, T., & Gosling, S.D. (2011). Amazon's Mechanical Turk: A new source of inexpensive, yet high-quality data? *Perspectives on Psychological Science*, 6(1), 3-5.
- Bulger, M.E., Mayer, R.E., Almeroth, K.C., & Blau, S.D. (2008). Measuring learner engagement in computer-equipped college classrooms. *Journal of Educational Multimedia and Hypermedia*, 17(2), 129-143.
- Burke, B.L., Vassilev, G., Kantchelov, A., & Zweben, A. (2002). Motivational interviewing with couples. In W.R. Miller & S. Rollnick (Eds.), *Motivational Interviewing: Preparing People for Change* (pp. 347-361). New York, NY: The Guilford Press.

- Carpenter, K.M., Stoner, S.A., Mikko, A.N., Dhanak, L.P., & Parsons, J.T. (2010). Efficacy of a web-based intervention to reduce sexual risk in men who have sex with men. *AIDS Behavior, 14*, 549-557.
- Cordova, J.V., Scott, R.L., Dorian, M., Mirgain, S., Yaeger, D., & Groot, A. (2005). The marriage checkup: An indicated preventive intervention for treatment-avoidant couples at risk for marital deterioration. *Behavior Therapy, 36*, 301-309.
- Cordova, J.V., Warren, L.Z., & Gee, C.B. (2001). Motivational interviewing as an intervention for at-risk couples. *Journal of Marital and Family Therapy, 27*(3), 315-326.
- Davis, H. & Dhillon, A.M. (1989). Prediction of early attrition from couple therapy. *Psychological Reports, 65*(3), 899-902.
- DeAngelis, T. (2011). The couples doctor. *American Psychological Association Monitor on Psychology, 42*(1), 46.
- Denissen, J.J.A., Neumann, L., & van Zalk, M. (2010). How the internet is changing the implementation of traditional research methods, people's daily lives, and the way in which developmental scientists conduct research. *International Journal of Behavioral Development, 34*(6), 564-575.
- Department of Psychology, University of Miami. (2012). *Brian D. Doss, Associate Professor*. Retrieved July 4, 2012, from <http://www.psy.miami.edu/faculty/bdoss/>
- DiClemente, C.C. & Velasquez, M.M. (2002). Motivational interviewing and the stages of change. In W.M. Miller & S. Rollnick, *Motivational interviewing: Preparing people for change*, (pp. 201-216) (2nd ed.). New York, NY: The Guilford Press.
- Emery, K.A. (2012). *Romantic Relationship Study*. Retrieved August 20, 2012, from <http://www.kara.psybu.com/>.
- 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.
- Funk, K.L., Stevens, V.J., Bauck, A., Brantley, P.J., Hornbrook, M., Jerome, G.J., Myers, V.H., & Appel, L. (2011). Development and implementation of a tailored self-assessment tool in an Internet-based weight loss maintenance program. *Clinical Practice & Epidemiology in Mental Health, 7*, 67-73.
- Galesic, M., & Garcia-Retamero, R. (2011). Graph literacy: A cross-cultural comparison. *Medical Decision Making, 31*, 444-457.
- Graff, C.A. & Hecker, L.L. (2010). E-therapy: Developing an ethical online practice. In L. Hecker (Ed.), *Ethics and Professional Issues in Couple and Family Therapy*, pp. 243-255. New York, NY: Routledge/Taylor & Francis Group.

- Grenard, J.L., Ames, S.L., Pentz, M.A., & Sussman, S. (2006). Motivational interviewing with adolescents and young adults for drug-related problems. *International Journal of Adolescent Medicine and Health, 18*(1), 53-67.
- Hawkins, A.J., Blanchard, V.L., Baldwin, S.A., & Fawcett, E.B. (2008). Does marriage and relationship education work? A meta-analytic study. *Journal of Consulting and Clinical Psychology, 76*(5) 723-734.
- Hoague, A., Dauber, S., & Morgenstern, J. (2010). Validation of a contemplation ladder in an adult substance use disorder sample. *Psychology of Addictive Behaviors, 24*(1), 137-144.
- Houston, T.K. & Ford, D.E. (2008). A tailored Internet-delivered intervention for smoking cessation designed to encourage social support and treatment seeking: Usability testing and user tracing. *Informatics for Health & Social Care, 33*(1), 5-19.
- Hrastinski, S. (2008). What is online learner participation? A literature review. *Computers & Education, 51*, 1755-1765.
- Hurling, R., Fairley, B.W., & Dias, M.B. (2006). Internet-based exercise intervention systems: Are more interactive designs better? *Psychology and Health, 21*(6), 757-772.
- Jencius, M. & Sager, D.E. (2001). The practice of marriage and family counseling in cyberspace. *The Family Journal: Counseling and Therapy for Couples and Families, 9*(3), 295-301.
- Joseph, A., Lexau, B., Willenbring, M., Nugent, S., & Nelson, D. (2004). Factors associated with readiness to stop smoking among patients in treatment for alcohol use disorder. *The American Journal on Addictions, 13*(4), 405-417.
- Kim, C. & Keller, J.M. (2008). Effects of motivational and volitional email messages (MVEM) with personal messages on undergraduate students' motivation, study habits, and achievement. *British Journal of Educational Technology, 39*(1), 36-51.
- Knaevelsrud, C. & Maercker, A. (2007). Internet-based treatment for PTSD reduces distress and facilitates the development of a strong therapeutic alliance: A randomized controlled clinical trial. *BMC Psychiatry, 7*(13), 1-10.
- Knutson, L. & Olson, D.H. (2003). Effectiveness of PREPARE program with premarital couples in community settings. *Marriage & Family: A Christian Journal, 6*(4), 529-546.
- Lieberman, D.Z. & Huang, S.W. (2008). A technological approach the reaching a hidden population of problem drinkers. *Psychiatric Services, 59*(3), 297-303.

- Lieberman, D.Z. & Massey, S.H. (2008). Pathways to change: The effect of a web application on treatment interest. *The American Journal on Addictions, 17*, 265-270.
- Linke, S., Murray, E., Butler, C., & Wallace, P. (2007). Internet-based interactive health intervention for the promotion of sensible drinking: Patterns of use and potential impact on members of the general public. *Journal of Medical Internet Research, 9*(2), 1-12.
- Mauriello, L.M., Gokbayrak, N.S., Van Marter, D.F., Paiva, A.L., & Prochaska, J.M. (2012). An Internet-based computer-tailored intervention to promote responsible drinking: Findings from a pilot test with employed adults. *Alcoholism Treatment Quarterly, 30*, 91-108.
- McCabe, M.P., & Price, E. (2009). Intervention for erectile dysfunction: Who is likely to drop out? *Journal of Sex & Marital Therapy, 35*, 391-401.
- McKay, H.G., Danaher, B.G., Seeley, J.R., Lichtenstein, E., & Gau, J.M. (2008). Comparing two web-based smoking cessation programs: Randomized controlled trial. *Journal of Medical Internet Research, 10*(5), 68-81.
- Miller, E.T., Neal, D.J., Roberts, L.J., Baer, J.S., Cressler, S.O., Metrik, J., & Marlatt, G.A. (2002). Test-retest reliability of alcohol measures: Is there a difference between Internet-based assessment and traditional methods? *Psychology of Addictive Behaviors, 16*, 56-63.
- Miller, W.M. & Rollnick, S. (2002) *Motivational interviewing: Preparing people for change* (2nd ed.). New York, NY: The Guilford Press.
- Newman, M.G. (2004). Technology in psychotherapy: An introduction. *Journal of Clinical Psychology, 60*(2), 141-145.
- Paolacci, G., Chandler, J., & Ipeirotis, P.G. (2010). Running experiments on Amazon Mechanical Turk. *Judgment and Decision Making, 5*(5), 411-419.
- Pizur-Barnekow, K., Patrick, T., Rhyner, P.M., Cashin, S., & Rentmeester, A. (2011). Readability of early intervention programs. *Topics in Early Childhood Special Education, 31*(1), 58-64.
- Pollack, S.L. (2006). Internet counseling and its feasibility for marriage and family counseling. *The Family Journal: Counseling and therapy for Couples and Families, 14*(1), 65-70.
- Postel, M.G., de Jong, C.A.J., & de Haan, H.A. (2005). Does e-therapy for problem drinking reach hidden populations? *American Journal of Psychiatry, 162*(12), 2393.

- Powell, J., & Clarke, A. (2006). Internet information-seeking in mental health. *The British Journal of Psychiatry*, 189, 273-277.
- Prepare-Enrich: Building Strong Marriages*. (2011). Retrieved August 1, 2011, from <http://www.prepare-enrich.com>
- Prochaska, J.O., & DiClemente, C.C. (1982). Transtheoretical therapy: Toward a more integrative model of change. *Psychotherapy: Theory, Research, & Practice*, 19(3), 276-288.
- Richards, J., Klein, B., & Carlbring, P. (2003). Internet-based treatment for panic disorder. *Cognitive Behaviour Therapy*, 32(3), 125-135.
- Sanford, K. (2010a). Assessing conflict communication in couples: Comparing the validity of self-report, partner-report, and observer ratings. *Journal of Family Psychology*, 24, 165-174.
- Sanford, K. (2010b). Perceived threat and perceived neglect: Couples' underlying concerns during conflict. *Psychological Assessment*, 22, 288 - 297.
- Sanford, K. (2011). *Motivation questionnaire*. Unpublished questionnaire.
- Sanford, K. (2012). *Website Design Instructions*. Unpublished manuscript.
- Scuka, R.F. (2005). *Relationship enhancement therapy healing through deep empathy and intimate dialogue*. New York, NY: Routledge/Taylor & Francis Group.
- Silverstein, S.M., Berten, S., Olson, P., Paul, R., Williams, L.M., Cooper, N., & Gordon, E. (2007). Development and validation of a world-wide-web-based neurocognitive assessment battery: WebNeuro. *Behavior Research Methods*, 39(4), 940-949.
- Taylor, C.B., Jobson, K.O., Winzelber, A., & Abascal, L. (2002). The use of the Internet to provide evidence-based integrated treatment programs for mental health. *Psychiatric Annals*, 32(11). 671-677.
- The Couples Conflict Consultant*. (2011). Retrieved July 18, 2011, from <http://www.pairbuilder.com>
- The World Bank. (2010). *Internet users (per 100 people)*. Retrieved February 7, 2011 from http://data.worldbank.org/indicator/IT.NET.USER.P2?cid=GPD_44
- Van Mook, W.N.K.A., Muijtjens, A.M.M., Gorter, S.L., Zwaveling, J.H., Schuwirth, L.W., & van der Vleuten, C.P.M. (2012). Web-assisted assessment of professional behaviour in problem-based learning: More feedback, yet no qualitative improvement? *Advances in Health Sciences Education*, 17, 81-93.

- Wantland, D.J., Portillo, C.J., Holzemer, W.L., Slaughter, R., & McGhee, E.M. (2004). The effectiveness of web-based vs. non-web-based interventions: A meta-analysis of behavioral change outcomes. *Journal of Medical Internet Research*, 6(4).
- Ward, D.B. & McCollum, E.E. (2005). Treatment effectiveness and its correlates in a marriage and family therapy training clinic. *American Journal of Family Therapy*, 33(3), 207-223.
- Weiss, S.M. & Smith-Simone, S.Y. (2010). Consumer and health literacy: The need to better design tobacco-cessation product packaging, labels, and inserts. *American Journal of Preventive Medicine*, 38(3), 403-413.
- Yuen, E.H., Goetter, E.M., Herbert, J.D., & Forman, E.M. (2012). Challenges and opportunities in Internet-mediated telemental health. *Professional Psychology: Research and Practice*, 43(1), 1-8.