The Empirical Basis for Gottman Couples Therapy

In the Gottman scientific research there were three phases.

Phase 1: The discovery of reliable patterns of interaction discriminating the “masters” from the “disasters” of relationships.

The first phase of John Gottman’s research was devoted to the discovery of reliable patterns in observational data. In his research with couples, he wanted to see if there were patterns of behavior, or sequences of interactions, that could discriminate happy from unhappy couples. It was not at all clear that these patterns existed. John Gottman and Roger Bakeman (using Jim Sackett’s ideas) began developing the math for sequential analysis, which now is a well-developed methodology. They began finding consistent sequences that differentiated happily married from unhappily married couples. Gottman wrote about this work in a book called *Marital Interactions: Experimental Investigations* (Academic Press, 1979).

Research on couples had actually begun in 1938 with the publication of a book by Louis Terman. He had interviewed couples and given them questionnaires, but systematic observation of couples only started in the 1970s in Gottman’s lab and a few others around the U.S. At that time, the field of psychology was having a great deal of difficulty establishing reliable patterns in the personality of one individual. State of the art advice was that psychologists should not study couples, because the unreliability in studying one person might be squared in studying two people. That advice was wrong; it turned out there was tremendous regularity in couple interactions over time.

Using an observational coding system that scored videotapes called the Couples’ Interaction Scoring System, or CISS, the Gottman lab first discovered these interaction patterns in a published study of couples with a University student population. A grad student of Gottman’s, Mary Ellen Rubin, later repeated the same experiment for her dissertation with couples in rural Indiana. Remarkably, the CISS numbers in the two studies differed only in the second decimal place.

In a series of research studies, Gottman developed new observational coding systems with his student Cliff Notarius, and the lab applied brand new methods for studying sequences of interaction developed by Jim Sackett and Roger Bakeman for examining sequences of interaction. Following Thibaut and Kelley’s 1959 book *The Social Psychology of Groups*, Gottman built a device called a “talk table,” in which people could interact and then rate how positive or negative their intentions were, and how positive or negative were the effects of the messages they received. This was the first application of game theory to couples’ interaction.

Phase 2: Prediction and the Replication of the Prediction

The second phase of the Gottman research program was devoted to trying to replicate these findings, and focused on prediction. Prediction in psychology means being able to predict important outcomes from the patterns observed. That phase was also effective. The patterns and sequences observed distinguished happy from unhappy couples in repeated studies.

In 1976, Robert Levenson and John Gottman teamed up to combine the study of emotion with psycho-physiological measurement and a video-recall method that produced rating dial measures (still applying game theory) of how people felt during conflict. That was the new method for obtaining the “talk table” numbers. The research also became longitudinal. They made no predictions in the first study, but were interested in a measure of “physiological linkage,” from a prior study showing that the skin conductance of two nurses was correlated only if they disliked one another. Levenson and Gottman thought this might be linked to negative affect in couples, and indeed it was.

They also found that in their first study with 30 couples, they could “predict” the change in marital satisfaction almost perfectly with their physiological measures. “Time 2” was three years later than “Time 1.” The correlations were very high with Time-2 marital satisfaction (from the 70s to the 90s), controlling for Time-1 marital satisfaction. The results showed that the more physiologically aroused couples were in all areas (heart rate, skin conductance, gross motor activity, and blood velocity), the more their marriages deteriorated in happiness over a three-year period, even controlling for the initial level of marital satisfaction. The rating dial and observational coding of the interaction also “predicted” changes in relationship satisfaction. Gottman and Levenson had never seen such large correlations in their data. Furthermore, they had preceded the conflict conversation with a reunion conversation in which couples talked about the events of their day, and then followed the conflict discussion with a positive topic. Remarkably, harsh startup by women in the conflict discussion was predictable by the male partner’s disinterest or irritability in the ‘events of the day’ discussion. This revealed that the quality of the couple’s friendship, especially as maintained by men, was critical in understanding conflict. Moreover, the ability to rebound from conflict to the positive conversation became a marker of emotion-regulation ability of couples.

Both Levenson and Gottman had discovered Paul Ekman and Wallace Friesen’s Facial Affect Coding System (FACS), and Gottman subsequently developed the Specific Affect Coding System (SPAFF), which was an integration of FACS and earlier systems in the Gottman lab. The SPAFF became the main system that Gottman used to code couples’ interaction. At first it took 25 hours to code 15 minutes of interaction, but later Gottman was able to get the same coding done in just 45 minutes, with no loss of reliability.

Gottman also began applying time-series analysis to the analysis of interaction data. He wrote a book on time-series analysis to explain these methods to psychologists, and developed some new methods for analyzing dominance and bi-directionality with James Ringland. To create these time series from observational data, Gottman summed SPAFF codes in six-second blocks using weights in terms of the codes’ ability to predict divorce. (For example, because they were such good predictors of stability or divorce, contempt got a weight of -4, and humor a weight of +4, while anger and sadness were weighted only -1). Gottman and Levenson then got their first grant together and began attempting to replicate observations from the first study. The subsequent
studies conducted (some with colleagues Laura Carstensen, with Lynn Katz, with Sybil Carrere, and with Neil Jacobson) eventually spanned the entire life course (from a study following newlyweds through the transition to parenthood, through a study of two groups of couples at Berkeley in the Levenson lab on the transition through retirement; the older couples’ study involved following couples for 20 years in Levenson’s Berkeley lab).

The Gottman lab at the University of Illinois also studied the linkages between marital interaction, parenting, and children’s social development (with Lynn Katz), and later at the University of Washington explored these linkages with infants (with Alyson Shapiro). Gottman began studying families, at first examining children from age 3 longitudinally up to age 15. He developed the concept of Meta-Emotion, which is how people feel about specific emotions (like anger), emotional expression and emotional understanding in general. In that study, meta-emotion mismatches between parents predicted divorce with 80% accuracy.

The idea of emotion coaching emerged from that research, which was a scientific validation of the work of child psychologist Haim Ginott. In a newlywed study Gottman began exploring the transition to parenthood and learned how to do research on babies and parents.

Gottman and Levenson discovered that couples’ interactions had enormous stability over time (about 80% stability in conflict discussions separated by 3 years). They also found that most relationship problems (69%) are never resolved, but are “perpetual” problems based on personality differences between partners. That was deduced by seeing couples in the lab every 3 years, then every 6 years, and so on.

In seven longitudinal studies (see bibliography), one with violent couples (with Neil Jacobson), the predictions replicated. Gottman’s lab could predict whether a couple would divorce with an average of over 90% accuracy across studies, using the ratio of positive to negative SPAFF codes, the Four Horsemen of the Apocalypse (criticism, defensiveness, contempt, and stonewalling), physiology, the rating dial, and an interview called the Oral History Interview, as coded by Kim Buehlman’s coding system. The lab could predict whether or not stable couples would be happy or unhappy using measures of positive affect during conflict, which Jim Coan and Gottman found was used not randomly, but to physiologically soothe the partner. Gottman and his team also discovered that men accepting influence from women was predictive of happy and stable marriages. Using the rating dial, Bob Levenson (with Anna Ruef) discovered that humor was physiologically soothing, and that empathy had a physiological substrate.

Jacobson and Gottman collaborated in a basic study of domestic violence with four groups of couples: (1) happily married, nonviolent, (2) unhappily married, nonviolent, (3) situationally violent couples, and (4) characterologically violent men. They discovered a typology of battering that has mostly been replicated in the literature.

In 1986 Gottman built an apartment laboratory at the University of Washington and his student Janice Driver spent a decade (first as a volunteer and then a doctoral student) studying the basis of friendship and intimacy and its relation to conflict in their Bids and Turning Coding System. That work revealed how couples create and maintain friendship and intimacy and how this relates to conflict. For example, newlyweds who divorced 6 years after the wedding had turned toward bids for attention 33% of the time, while newlyweds who stayed married 6 years after the wedding had turned toward bids 86% of the time. The idea of the friendship “emotional bank account” was
verified. It was related to repair of negativity, and to the quality of sexual intimacy.

When 14-year longitudinal data became available, Levenson and Gottman discovered a second dysfunctional pattern: emotional disengagement. It was marked by the absence of positive affect during conflict (no interest, affection, humor, or empathy). Now they could predict not only if a couple would divorce, but when. Couples who had ongoing evidence of the Four Horsemen divorced an average of 5.6 years after the wedding, while emotionally disengaged couples divorced an average of 16.2 years after the wedding. That was a very new finding.

Levenson, Carstensen, and Gottman began studying marriage in later life with two groups of couples in the Bay Area, one in their 40s and one in their 60s. Thanks to Levenson’s tenacity, this has turned out to be a 20-year longitudinal study that his lab is now finishing.

Levenson and Gottman also conducted a 12-year study of gay and lesbian couples, work they published in two papers in the Journal of Homosexuality. Patterns replicated across the life course, and they replicated for gay and lesbian couples as well.

See the bibliography for abstracts of the journal articles regarding these longitudinal studies.

**Phase 3: Theory Building, Understanding, and Prevention & Intervention**

The third phase of the Gottman research was devoted to trying to understand the empirical predictions, and thus building and then testing theory. The idea here was to build a theory that is testable, or disconfirmable. That is the hallmark of good science.

Testing theory in the psychology field requires clinical interventions. The Gottman lab returned to intervention research 17 years ago (in 1996) with Dr. Julie Schwartz Gottman. They designed both proximal and distal change studies. In a proximal change study, one intervenes briefly with interventions designed only to make the second of two conflict discussions less divorce prone. In one of these studies it was found that a 20-minute break, in which couples stopped talking and just reading magazines (as their heart rates returned to baseline), dramatically changed the discussion so that people had access to their sense of humor and affection. (Gottman, J., Ryan, K., Swanson, C., and Swanson, K., (2005). “Proximal change experiments with couples: A methodology for empirically building a science of effective interventions for changing couples’ interaction,” *Journal of Family Communication*, 5(3), 163-190)


At the same time, as part of theory building, the world-class award-winning mathematical biologist James Murray and his students began working with Gottman on building a mathematical model of relationships, which led eventually to the publication of *The Mathematics of Marriage* (2002, MIT Press). This math created nonlinear difference and differential equations of actual couple interactions, which was a fulfillment of von Bertalanffy’s classic book *General System Theory*, a book that started family systems therapy in the 1960s. These nonlinear equations made it possible to simulate a couple’s interaction under new conditions and then test these simulations
with real experiments. The equations represent a new language for analyzing and understanding couple interactions.

It is important to note that Gottman Couples Therapy and the Sound Relationship House Theory were built upon this basic scientific research, and the theory emerged from that basic research. Gottman Couples Therapy is not a “school of therapy,” but a work in progress that should always be based on solid empiricism. The Sound Relationship House Theory is designed to be totally disconfirmable, subject to empirical testing. Its assumptions are clearly spelled out in the Gottmans’ Level 1 training for clinicians. Over time, it will no doubt be modified, as the therapy is made more effective by empirical self-examination. The theory has already been modified as a result of more research.

**Intervention Testing**

The Gottmans first began testing their interventions by exploring what happened to a couple when the first baby arrived. In this longitudinal research they began studying young couples in first marriages a few months after their wedding, following them into pregnancy and studying parent-infant interaction using the Lausanne Triadic Play paradigm. They discovered that 67% of couples experienced a precipitous decline in relationship satisfaction in the first 3 years of the baby’s life. Gottman’s student Alyson Shapiro compared the 33% of couples who did not experience the downturn in satisfaction with the 67% who did. This is the same method of comparing the masters to the disasters and designing the therapy empirically. The couples were studied after their wedding, and during pregnancy as well. Gottman’s team developed the Pregnancy Oral History Interview. The predictions of the baby’s temperament from the last trimester of pregnancy was impressive, done by Gottman’s student, Eun Young Nahm. Furthermore, Alyson Shapiro’s thesis showed that they could predict the baby's vagal tone (the nervous system’s ability to establish calm and focus attention), and how much the baby laughed and cried at 3 months from the way the couple discussed a conflict in their last trimester. Again, based on the differences between the “masters” of relationships and the “disasters” of relationships, John and Julie Gottman designed a couples’ workshop and a couples’ therapy. Based on the comparison of the couples who did and did not decline in relationship satisfaction after baby, they designed the highly effective “Bringing Baby Home” (BBH) workshop. They performed a randomized clinical trial study with long-term follow up. That workshop has now been taught to 1,000 birth educators from 24 countries. The effects have been replicated in Australia and Iceland. (See Shapiro, A.F., and Gottman, J., (2005). “Effects on marriage of a psycho-communicative-educational intervention,” *Journal of Family Communication, Vol. 5*(1), 1-2).

Second, the Gottmans turned to the emotion-coaching intervention (described in J. Gottman and J. DeClaire’s *Raising an Emotionally Intelligent Child* (Simon & Schuster, 1998). That intervention has been evaluated in 3 randomized clinical trials by Australian psychologist Sophie Havighurst, and has also been found effective in a study in South Korea, led by certified Gottman therapist Dr. Christina Choi, in orphanages in Seoul and in Busan. Emotion Coaching is now being taught to teachers throughout South Korea. For Havighurst’s papers and programs, see her website at tuningintokids.org.au. References include:


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Research and training is also taking place in the UK on emotion coaching. See references below.


Third, the Gottmans extended their work to lower-income unmarried couples with a new baby in a program called “Loving Couples Loving Children (LCLC).” This program is a couples group intervention with 21 two-hour sessions that begin with talk-show segments that initiate group self disclosure. The talk shows were led by Julie Gottman. The LCLC intervention was evaluated by the policy group Mathematica Policy Research in a randomized clinical trial with 3,500 couples, and effectiveness was demonstrated, especially with African-American couples. That study has not been published.

Fourth, the Gottmans modified LCLC into the Couples Together Against Violence (CTAV) curriculum for situational domestic violence. In that intervention (also with Mathematica Policy Research) the same couples’ group approach was used with 4 added modules, and the use of the HeartMath “Emwave” biofeedback device before every interaction exercise in the group. Couples were asked to become calm (get in the device’s “green zone”) before beginning each exercise in the group. The Gottman Relationship Research Institute completed a randomized clinical trial study with 18-month follow up with a group of situationally violent couples. The CTAV program has been shown to be effective, and these effects last. A replication study is now being planned with a briefer intervention in Julia Babcock’s laboratory at the University of Houston.

It is important to point out that Babcock’s meta-analysis of male-only groups treating domestic violence showed that no intervention was more effective than one arrest. Hence, the emotionally-focused CTAV study is a first.

Fifth, in collaboration with Dr. Julia Babcock (a former Gottman student, now professor at the University of Houston), an initial randomized clinical trial study was performed with
characterologically violent married men. She used brief audio training tapes developed by Gottman to modify the conflict interaction of these violent men with their wives, obtaining significant proximal changes in interaction, and in the satisfaction of wives with the nature of the interaction, following treatment. This research is clearly just at the beginning phase.

Sixth, these master/disaster comparisons and analyses across the Gottmans’ studies have led to what has come to be called “Gottman Method Couples Therapy.” A randomized clinical trial of a two-day workshop (with follow up) that is a dismantling study is in press in the Journal of Family Therapy. A second study examining the effects of nine added sessions of couples’ therapy showed that relapse could be drastically reduced for more distressed couples with the added therapy sessions.

Trust and Betrayal Theory

More recently the theory building has been concerned with new applications of game theory toward an understanding of how couples build, versus erode, trust and betrayal. New metrics for trust and betrayal have been created and validated by Gottman. That work has led to two books, The Science of Trust, (Norton, 2011), and What Makes Love Last? (Simon & Schuster, 2012). With Dr. Paul Peluso, a randomized clinical trial study is planned for couples trying to heal after an extra-marital affair.

Summary of Effectiveness Evidence for Intervention/Prevention

It is reasonable to ask what the current status of evidence for the effectiveness of Gottman Method interventions. Here is the current status.

1. Proximal Change Experiments. Gottman suggested that a couples’ therapy program could be built empirically by performing a series of “proximal” change studies. In these studies the goal is smaller than the goal of couples’ therapy. The proximal goal is only to change specific aspects of a couple’s relationship; for example, how they begin a conflict discussion, and then examining the effect of that intervention on the second of two conflict discussions. These proximal change studies were examined in a study with Kim Ryan (published) and a dissertation with Amber Tabares (as yet unpublished). These studies showed that it was possible to create change in couples’ interaction with very brief interventions, which were later grouped into the two-day couples’ workshop called “The Art & Science of Love.”

2. Randomized Clinical Trial of Workshops and Gottman Couples Therapy. In a randomized clinical trial that became Kim Ryan’s dissertation, a one-day workshop on building friendship, a one-day workshop on conflict regulation, a two-day workshop combining both, and an added group that added nine sessions of Gottman Couples Therapy were compared, with a one-year follow up. Effectiveness was demonstrated, with the greatest one-year effectiveness and least relapse for the combined two-day workshop together with nine sessions of Gottman Couples Therapy. A paper with Julia Babcock is in press in the Journal of Family Therapy, to be published in August 2013.

3. Bringing Baby Home (BBH). A randomized clinical trial with the BBH workshop compared to a control group showed powerful effects in reversing the drop in marital satisfaction, reducing post-partum depression, reducing inter-parental hostility, improving the parents’
interaction with baby, and improving the baby’s emotional and language development. The paper is published with Alyson Shapiro. That intervention is being taught to birth educators by The Gottman Institute as an Educator’s Training to nurses, social workers, family therapists, doulas, midwives, childbirth educators, professors, parent coaches and clergy. That intervention has also had large effects when tested in hospitals in Australia and Iceland. See Shapiro, A.F., and Gottman, J.M., “Effects on marriage of a psycho-education intervention with couples undergoing the transition to parenthood, evaluation at one-year post-intervention,” Journal of Family Communication, 2005(1), 1-24 and Gottman, J.M., Shapiro, A.F., and Parthermer, J., “Bringing Baby Home: A workshop for new and expectant parents,” ICEA Journal (Swedish Hospital, 2004).

4. Loving Couples Loving Children (LCLC). This program was developed by Dr. Julie Schwartz Gottman and Dr. John Gottman for lower-income couples who probably did not see school as a positive experience. It is based on a 21-session couples’ group curriculum with talk show segments initiating self disclosure and skill building. It was evaluated by Mathematica in a randomized clinical trial with 3,500 fragile-family unmarried couples, all expecting a baby. That intervention was shown to be highly effective, especially for African-American couples.

5. Couples Together Against Violence (CTAV). In a randomized clinical trial completed at Gottman’s Relationship Research Institute (RRI), a couples’ group intervention for situational domestic violence has demonstrated long-term effectiveness on 18-month follow up. (Information, materials, and training currently being prepared for The Gottman Institute).

6. Emotion Coaching with Children. The work Gottman and Katz have done in the area of Meta-emotion (see the books Meta-emotion with Lynn Katz and Carole Hooven, and Raising an Emotionally Intelligent Child with Joan DeClaire) has borne fruit in a highly effective intervention for parents with their children. Three randomized clinical trials were conducted by Australian psychologist Sophie Havighurst, showing emotion coaching to be highly effective at preventing and treating externalizing and internalizing disorders in children. An Emotion Coaching video/handbook program for parents, educators and therapists is now offered through The Gottman Institute.

**The Seven Longitudinal Studies**


A longitudinal study of 52 married couples is reported. Using nine key variables from an oral history interview at time one, the researchers were able to predict which couples would separate or divorce or remain intact upon three-year follow-up. A discriminant function analysis showed that the oral history variables could predict divorce or marital stability with approximately 94% accuracy. The oral history variables also correlated in clear ways with Time 1 marital interaction in problem solving and affect, the couple’s physiological reactivity during marital interaction, as well as Time 1 and Time 2 marital satisfaction. Despite the correlation of oral history variables with Time 1 marital satisfaction, in a discriminant function analysis, Time 1 marital satisfaction variables alone resulted in a non-significant canonical correlation coefficient in the prediction of divorce.
Gottman, J. and Levenson, R.W., (2002). “A Two-Factor Model for Predicting When a Couple Will Divorce: Exploratory Analyses Using 14-Year Longitudinal Data," *Family Process*, 41 (1), p. 83-96; This article examines 14-year longitudinal data and attempts to create a post hoc model that uses Time-1 data to “predict” the length of time the marriage will last. The sample consists of the 21 couples (of 79 studied) who divorced over a 14-year period. A two-factor model is proposed. One factor is the amount of unregulated volatile positive and negative affect in the marriage, and this factor predicts a short marriage length for the divorcing couples. A second factor is called “neutral affective style,” and this factor predicts a long marriage length for the divorcing couples. This model is compared to a Time-1 model of ailing marriage in which Time-1 marital satisfaction is used to predict the timing of divorce.


A study with 130 newlywed couples was designed to explore marital interaction processes that are predictive of divorce or marital stability, processes that further discriminate between happily and unhappily married stable couples. We explore seven types of process models: (a) anger as a dangerous emotion, (b) active listening, (c) negative affect reciprocity, (d) negative start-up by the wife, (e) de-escalation, (f) positive affect models, and (g) physiological soothing of the male. Support was not found for the models of anger as a dangerous emotion, active listening, or negative affect reciprocity. Support was found for models of the husband’s rejecting his wife’s influence, negative start-up by the wife, a lack of de-escalation of low intensity negative wife affect by the husband, or a lack of de-escalation of high intensity husband negative affect by the wife, and a lack of physiological soothing of the male, all predicting divorce. Support was found for a contingent positive affect model and for balance models (i.e., ratio models) of positive-to-negative affect predicting satisfaction among stable couples. Divorce and stability were predicted with 83% accuracy and satisfaction with 80% accuracy.


A longitudinal study with 95 newlywed couples examined the power of the Oral History Interview to predict stable marital relationships and divorce. A principal components analysis of the interview with the couples (Time 1) identified a latent variable, perceived marital bond, that was significant in predicting which couples would remain married or divorce within the first five years of their marriage. A discriminant function analysis of the newlywed oral history data predicted, with 87.4% accuracy, those couples whose marriages remained intact or broke up at the Time 2 data collection point. The oral history data predicted with 81% accuracy those couples who remained married or divorced at the Time 3 data collection point. This study offers support for causal linkages between perceptual biases and selective attention on the path of marriage. (PsycINFO Database Record (c) 2012 APA, all rights reserved)


Reviews studies which indicated physiological arousal, particularly of the husband, as well as

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husband’s stonewalling and the wife’s verbal expressions of contempt, predicted longitudinal deterioration of marital satisfaction. Presents stages of disengagement and emotional withdrawal.


Two longitudinal studies of marital interaction were conducted using observational coding of couples attempting to resolve a high-conflict issue. We found that a different pattern of results predicts concurrent marital satisfaction than predicts change in marital satisfaction over three years. Results suggest that some marital interaction patterns, such as disagreement and anger exchanges, which have usually been considered harmful to a marriage, may not be harmful in the long run. These patterns were found to relate to unhappiness and negative interaction at home concurrently, but they were predictive of improvement in marital satisfaction longitudinally. However, three interaction patterns were identified as dysfunctional in terms of longitudinal deterioration: defensiveness (which includes whining), stubbornness, and withdrawal from interaction. Hypotheses about gender differences in roles for the maintenance of marital satisfaction are presented. (PsycINFO Database Record (c) 2012 APA, all rights reserved)


This study tested the hypothesis that how a discussion of a marital conflict begins — in its first few minutes — is a predictor of divorce. The marital conflict discussion of 124 newlywed couples was coded using the Specific Affect Coding System, and the data were divided into positive, negative, and positive-minus-negative affect totals for five three-minute intervals. It was possible to predict marital outcome over a six-year period using just the first three minutes of data for both husbands and wives. For husbands this prediction improved as the groups diverged in the remaining 12 minutes; for wives the prediction remained equally powerful for the remaining 12 minutes as it had been in the first three minutes.

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