

Cognitive evaluations of feeling loved

Our interpretation of *love* is much broader than romantic love. We regard love as a virtue that brings about care for others, as conveyed in human compassion and kindness. In the proposed project we study the effects of love from a novel, cognitive angle. We argue that felt love fulfills a critical part of the positive relationship concept in PERMA.

By adulthood, people develop internal models of their social context that consist of a set of cognitive schemata. These are generalized expectations and preferences regarding relationships that guide the interpretation of interpersonal experiences (Lopez, 2003). Our investigations will focus on studying various facets of what feeling loved means with a special emphasis on the sources of possible interindividual differences therein. We will cast these investigations in the framework of cultural consensus theory (CCT; Batchelder & Romney, 1988).

1. Historical accounts

Cognitive reflections on what constitutes love date back in history. For example, St. Thomas Aquinas regarded love as "to will the good of another". Another way to define love has always been by contrasting it to other emotions or emphasizing its distinguishing characteristics. For example, St Augustine emphasized the difference between love and lust. Erich Fromm's (Fromm, 1956) work focused on the conscious aspects of loving relationships by emphasizing one's commitment to another through a long period of time. He regarded loving relationships as a conscious choice with specific behavioral aspects, namely series of loving actions over time. Singer (1984) investigated the history of the concept of love in Western culture and emphasized the unselfish investment in the well-being of the loved one as one of the most important aspects (see also Hegi & Bergner, 2010).

2. Scientific literature

While love is generally considered as a facilitator in all types of relationships, most studies have focused primarily on romantic love (e.g., Rubin, 1970; Hazan & Shaver, 1987; Fisher, Aron, & Brown, 2005). In a broader sense, however, studies point towards the idea that it is the perception of love, care, support, together with the interpretation of relational intention that play a dominant role in the terms of human flourishing. Here we review some of this literature and how it relates to our model of love in the current work.

Adult attachment

Adult attachment theory (see e.g., Fraley & Shaver, 2000) indicates that levels of anxiety and avoidance are the two fundamental pathways in which people differ from one another when they evaluate their close relationships. Attachment anxiety (worry about whether others really love them and fear of rejection) directly connects to the cognitive aspects of feeling loved. High levels of attachment avoidance, on the other hand, might interfere with learning the consensus-based cognitive schema of what feeling loved is like (or accepting that the schema is true for the self), which will in turn influence the subjective level of feeling loved.

We therefore anticipate that adult attachment style in our study will be an important predictor of felt love in general. We also expect that respondents with secure attachment styles will show higher overlap between their individual schema and interpersonal as well as consensus schema. Additionally, we will study relations between dynamical characteristics of feeling loved (e.g., intra-individual variability) and trait attachment styles. Recent attachment research has also investigated attachment-in-the-moment in terms of security, anxiety and avoidance (Gillath, Hart, Nofhle, & Stockdale, 2009). This idea resonates well with our conception of felt love as a dynamical state variable. Our measure adds to this a focus on the cognitive (and cognitively accessible) aspect of felt love.

Self-expansive love

Feeling loved contributes to the above-described feeling of security, and it gives depth to relationships. Aron and Aron (1996) developed self-expansion theory, which interprets relationship satisfaction as a natural by-product of self-expansive love. In the cognitive sense this corresponds to the decision to expand ones self and include ones partner. An interesting question here is whether people who seek to extend themselves through love feel more loved in return in general, and do they have lower levels of variability and higher inertia in their love related experiences? These aspects can be directly addressed within the proposed framework.

Social relationships

Finally, another social characteristic that is well-studied in the context of physical well-being is that of social support. This has been typically studied in the context of stress, whereby perceptions of being supported reduce the aversive biological sequelae arising from the experience of threat (see, e.g., Cohen & Wills, 1985; Leavy, 1983). Cobb (1976) showed greater coping ability in participants who interpreted communications from others as signs of esteem, love, care, and belonging. Also, ones beliefs about the availability of possible social support were found to be more important in predicting health outcomes than the actual receipt of support (Wethington & Kessler, 1986). This complements our idea of the importance of felt love, however, it is distinct. While social support is thought to mostly be beneficial via a model of stress-buffering (Cohen & Wills, 1985), feeling loved is likely to be more directly related to the well-being variables of interest. Furthermore, social support scales do not specifically ask about many of the love domains that will be studied here (e.g., kindness, felt love from God, etc.), and instead focus on a wide array of activities/perceptions that occur in the context of stress (e.g., having someone to lend you money when needed, to help you study, to give you a shoulder to cry on). Our measure will be less specific to stress, although there may be some overlap in terms of belongingness, romantic aspects and so on.

Well-being

Satisfaction with interpersonal relationships has been shown to be connected to happiness and well-being (happiness and well-being in these studies are generally measured by affect scales and by the satisfaction with life scale, see, e.g., Argyle, 2001; Diener & Seligman, 2002; Lyubomirsky, King, & Diener, 2005). In these studies typically there are items directly asking participants how satisfied/happy/unhappy they are with different aspects of their interpersonal relationships (e.g., I feel unhappy in my significant relationship; I feel loved and wanted; or self-rating the quality of their family and romantic relationships and friendships). People who are

generally in a positive mood and satisfied with their lives report higher satisfaction with their personal relationships as well.

Over the course of this project, we will place special emphasis on the measurement of positive relationships. However, we depart from the usual interpretation of this element. In particular, we will interpret this component as the cognitive evaluation of feeling loved. While Seligman (2011) also mentions the capacity to be loved as a strength (see, e.g., Isaacowitz, Vaillant, & Seligman, 2003), his focus is not primarily on this concept. We believe that the “feeling loved” aspect to SWB plays a crucial role above and beyond the mere having of personal relationships. This aspect to SWB is also described by Forgeard, Jayawickreme, Kern, and Seligman (2011, p. 86):

Social support—the belief that one is cared for, loved, esteemed and valued—has been recognized as one of the most (if not the most) influential determinants of wellbeing for people of all ages and cultures (Reis & Gable, 2003).

3. Contributions of the proposed cultural consensus theory approach on felt love

The proposal’s major addition to the field is the cognitive psychometric approach to studying feeling loved. First, while cognitive aspects of relationships in general have been studied before (see e.g.; Harvey et al., 2001, on minding relationships; Hofman, Grossman & Hinton, 2011 on kindness and compassion based cognitive-behavioral therapy), these studies did not focus on the cognitive schema of what feeling loved means. From this cognitive angle, love is seen as a mode of communication, with a sender, a medium, and a receiver. While we acknowledge the importance of the sender of love, we will focus on the receiver's ability to detect, understand, and know that they are loved. By taking a psychometric approach, we emphasize that the impact of love is likely reduced if its target is unreceptive due to individual differences that alter the perception/interpretation of the message. For example, people who have low self-esteem or are dysphoric might be cognitively unreceptive and not perceive or interpret messages of love the same as others—not due to unwillingness in the cognitive processing, but to a potentially resolvable inability. While individual differences in child (Bowlby, 1969; Ainsworth, 1979) and adult attachment (Fraley & Shaver, 2000) have been widely recognized, they have not yet been systematically related to felt love. Once we quantify these relationships, a goal of future research could be to work out individual-specific awareness increasing techniques related to feeling loved (by for example facilitating social learning through online computer role-play). Finally, we point out here that conclusions from this phase will contribute to the longitudinal study of feeling loved in the subsequent phases of the project.

We will cast these investigations in the framework of cultural consensus theory (Batchelder & Romney, 1988; Oravec, Batchelder & Vandekerckhove, 2014). CCT relies on formal cognitive and measurement models to examine respondents’ shared cultural knowledge or beliefs. CCT has found wide use in cultural anthropology, for example to examine folk beliefs on diseases (see, e.g., Baer et al., 2003). Its psychological applications include judgment of friendship ties in social networks (Batchelder, Kumbasar, & Boyd, 1997), extracting truth from eyewitness testimonies (Waubert de Puiseau, Assfalg, Erdfelder, & Bernstein, 2012) and so on. In the case of feeling loved, it is possible for there to be a single consensus, or there could be multiple latent consensus truths/schemata; This is inferred from the quality of the model fit to the data. We will evaluate whether “consensus truths” exist and fit appropriate models (see, e.g., Anders & Batchelder, 2012, for a multiple truth CCT model).

CCT provides us with flexible tools to study both individual differences and inter-subjective agreements on the cognitive evaluations of love. The focus is both on the individual's schema, and on an “average” schema, which is not a simple average, but an aggregate measure that is weighted by the amount of correspondence between individuals while accounting for cognitive response style. The CCT approach is not strictly normative, therefore it is possible for different subgroups to exist—for example men and women, securely attached vs. insecurely attached—with different group consensus answers.

“Lay” concepts of what it means to feel loved embody the evaluations that people actually make when they judge their relationships, making them important complements of the notions based on philosophical, theological, and psychological theory. To collect these cognitive evaluations, we have conducted a preliminary study with open-ended survey questions. We asked volunteers to complete two sentences: ‘People in general feel loved when...’ and ‘People in general feel unloved when...’ Participants ($N=20$) were instructed to generate five items each. From these we derived 20 items that consistently appeared in their answers. Appendix B contains preliminary items of these reflections on feeling loved, together with items derived from the literature.

4. Research plan

In our study of felt love as a cognitive construct, we will make a distinction between two types of cognitive evaluations: (a) an individual's subjective schema of what makes them feel loved (*subjective perception of felt love*) and (b) an individual's mental representation of what makes most people feel loved (*subjective beliefs of felt love*). These two, in turn, give rise to at least two different consensus schemata: (a') the consensus(es) among respondents on what makes them, as individuals, feel loved (*shared perception*) and (b') the consensus(es) among respondents on what makes most people feel loved (*shared belief*). For both (a') and (b'), it is possible for there to be a single consensus, or there could be multiple latent consensus schemata; this is inferred from the quality of the model fit to the data.

Consensus

First, we will study the relationship between the two types of cognitive evaluations of feeling loved (perception and belief) on the one hand, and the shared cultural understanding of these concepts.

In the first step, individual (respondent) subjective perceptions and beliefs will be assessed through questionnaire items, after which consensus schemata are derived through cultural consensus modeling. A typical question for the subjective perception might be “I feel loved when I perceive kindness from others” (answer on a scale from 0 to 10, as in Figure 2), whereas an item regarding subjective beliefs might be “People in general feel loved when they perceive kindness from others”. From these answers we will extract an average response (weighted by correspondence between individuals and cognitive response style) to indicate a consensus regarding what makes people feel loved.

As a second step, we will evaluate how subjective perception/belief overlaps with the shared perception/belief. Different groups of people might differ in their conception of what it means to be loved. For some, love will come from family and friends exclusively, from some it may come from colleagues, students, pets, or strangers, and for some it will come from God, nature, or their

community. More interestingly, some participants may have subjective perceptions that are more aligned with the consensus shared perception than others—in terms of cultural consensus model parameters, there will be variability among participants in their knowledge of the consensus. Similarly, there will be variability in the participants' correspondence to the shared belief. Finally, there will be variability among participants in the degree to which their perceptions correspond to their beliefs about society. These naturally-occurring individual differences are a target for explanatory modeling: we will apply latent variable models to explore which exogenous variables covary with these person-specific correspondence values. As described in more detail below, our candidate list of covariates/predictors covers a wide range of possible variables, including personality characteristics, attachment styles, social support and so on.

Primary conclusions from this phase will involve (a) determining the shared perceptions/beliefs of what feeling loved is like; (b) determining the consensus perception/belief of feeling loved; (c) describing individual differences in the amount of correspondence between subjective schemata vs. consensus schemata; and (d) explaining these differences in terms of covariates.

Subjective levels of felt love over time, and feeling loved as part of well-being

Here we will focus on the question of how much respondents actually feel loved, and we argue that subjective aspects of feeling loved should be investigated in a daily-life study set-up. We believe that a single measurement (e.g., a one-time response to the question: how much do you feel loved?) is likely to provide a biased response (due to social desirability, cognitive dissonance, etc.) relative to the true underlying state of feeling loved. Moreover, we hypothesize that people will differ not only in broad terms of how much they feel loved, but also (e.g.) in the variability of their experience and its evaluation. A longitudinal setting is most suited for this type of question.

In this phase, we will use the shared perceptions and beliefs obtained in 2.4.1 as an assessment tool. A typical question here might be “Indicate how much you experience that people are kind towards you” (assuming that this item was endorsed by one of the consensus schemata) with a response scale as in Figure 2. If in the first phase it was determined that there are meaningfully distinct interpersonal patterns (e.g., different between men and women) then individuals will be assessed conditionally on their membership in the relevant group.

Conclusions from this phase involve the psychometric evaluation of the measurement tool, and various substantive issues centered on how the degree of feeling loved relates to, for example, social characteristics (relationship status, religious beliefs, and so on). Because of the wide range of questions that can be investigated by the proposed psychometric process modeling framework, we expect this part of the project to play a very significant role in the published outcomes.

As a last step in this phase, we will relate the concept of feeling loved to other aspects of well-being, as described in the PERMA model. The proposed modeling framework allows us to study synchronicity in the different dimensions, and individual differences therein. We plan to administer this scale every day together with measures of other elements of SWB to investigate the dynamical aspects of changes over time and the possible interplay among the five dimensions, and study how this cognitive evaluation of feeling loved relates to SWB components.

Data collection

The next step in the proposed project is to run a pilot study by administering these items to a small ($N=50$) group of participants in order to obtain feedback on wording, clarity and so on. Once we have a final version of the questionnaire we intend to collect data through Amazon Mechanical Turk (MTurk; Buhrmester, Kwang, & Gosling, 2011). MTurk is a crowdsourcing website that allows us to reach a diverse group of people. We intend to recruit 1,000 participants.

Statistical Methodology

We will employ cognitive psychometric modeling techniques to derive consensus and interpersonal schemas and to assess interindividual differences therein. This part of the project also contains methodological advancement. In particular, we will derive statistical inference for a CCT model with continuous underlying truth values in a hierarchical Bayesian statistical framework. As a result, for each cognitive evaluation in our survey, not only will we be able to derive the consensus answer (i.e., to what degree an evaluation represents a culturally important cognitive aspect of being loved), but we will also be able to quantify uncertainty in our estimates in terms of posterior probability distributions. This will help us determine how strong the consensus is on whether certain cognitive elements are relevant to the feeling of being loved. The project staff are highly skilled at fitting a wide range of hierarchical Bayesian models as well as CCT models (see for example, Anders & Batchelder, 2012; Batchelder & Anders, 2012; Anders, Oravecz, & Batchelder, 2014; Oravecz, Anders, & Batchelder, 2014; Oravecz, Batchelder, & Vandekerckhove, 2014; Vandekerckhove, Tuerlinckx, & Lee, 2011). For the dynamical modeling techniques please see Phase 3.

5. Summary of aims, expected output, and target audience of the second phase

The aim of the second phase is to examine the cognitive evaluations of feeling loved, derive the most important aspects of it, and to examine inter-individual differences therein and how they relate to person-specific attributes (i.e., social and personality characteristics).

Regarding expected output, a more thorough understanding of the cognitive aspect of feeling loved will lead to at least one academic paper published in an emotion psychology journal. Depending on the results with respect to inter-individual differences in feeling loved, another substantively oriented publication is expected. The technical aspects of developing the relevant extensions to CCT models are to be published in a methodological journal. Moreover, we will devise a measurement instrument to measure the *cognitive ability to recognize being loved*, which we will report in a form of a technical publication. Ideally, the new measurement instrument will be used later in studies of cross-cultural comparisons of feeling loved, much like the Gallup research illustrated in Figure 3.

The target audience of this phase consists of psychometricians, positive psychology researchers as well as the broader public, including governments, NGOs, and industrial partners. During this phase of the project we will also welcome collaborations with interested agencies to assist them in measuring the SWB of their clients, staff, or citizens.

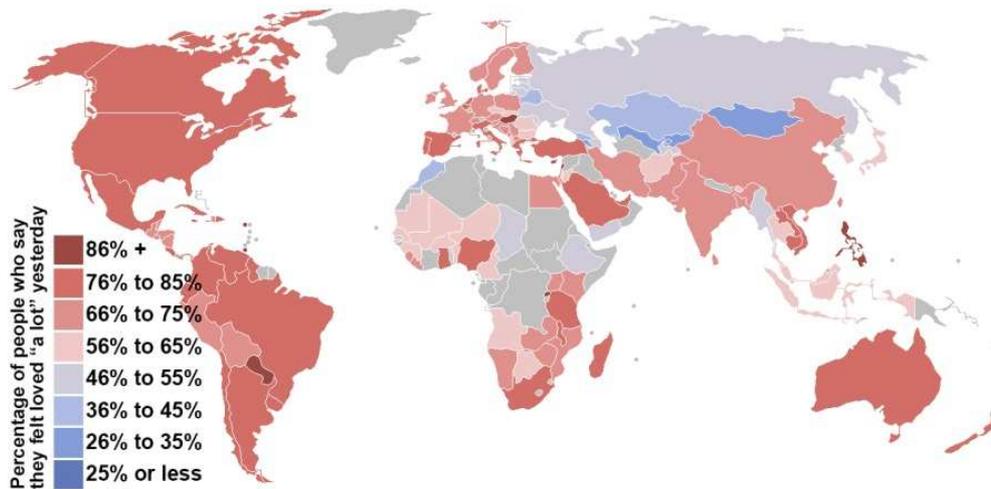


Figure 3. Percentage of people who say they “felt loved a lot yesterday”. Data and figure are due to Max Fisher/Washington Post. Cross-cultural effects are clearly visible, but the measurement instrument used did not allow the researchers to discriminate between *feeling loved* and *knowing that you are loved*.

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