Reinforcement matters: A preliminary, laboratory-based component-process analysis of Functional Analytic Psychotherapy's model of social connection

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ABSTRACT

A therapeutic model of social connection derived from Functional Analytic Psychotherapy (FAP) that applies to both the client's outside-of-therapy relationships and the psychotherapeutic relationship is explored in two studies. The model integrates established behavioral principles with existing research on the reciprocal process of self-disclosure and responsiveness that occurs during development of intimate relationships to highlight a promising therapeutic process. In this process, self-disclosure ("courage" in FAP's model) is evoked by the therapist and then reinforced with therapeutic responsiveness ("love" in the FAP model) resulting in improved self-disclosure and more connectedness in the therapy and other relationships. Study 1 included a sample of 77 undergraduate participants who self-disclosed responses to a series of closeness generating questions to undergraduate research assistants trained in responsiveness. Findings indicated that social connection increased following this full procedure. Study 2 included a sample of 99 undergraduate participants and provided evidence that the responsiveness of the research assistant is key to promoting increased feelings of connectedness and also improves the depth of disclosure.

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1. Introduction

The terms *social relationships*, *social connection*, *social functioning*, and *social support*, as well as converse terms such as *loneliness, troubled social relationships*, and *social isolation* refer to a broad realm of human functioning that has been studied extensively across different domains of science. The public health significance of successful behavior with respect to this domain of human functioning, which we will refer to as *social connection*, is massive. Social connection, in fact, may be our most important public health priority, proving to be equivalent to cigarette smoking and stronger than alcoholism, physical activity, obesity and hypertension as a predictor of mortality risk (Holt-Lunstad, Smith, & Layton, 2010; Wilkinson & Marmot, 2003).

The need for social connection is fundamentally human. Converging lines of scientific inquiry, from evolutionary biology (Bugental, 2000), psychology (discussed below), and neuroscience

(reviewed in Cacioppo & Patrick, 2008) suggest that humans are hard-wired to seek social connection and to dysregulate when it is lost or unavailable. Thus, social connection is often a target of psychotherapy, as it has been shown to be related with a host of depressive, anxiety, and other psychiatric disorders (Wetterneck & Hart, 2012).

Social connection is also relevant to the process of psychotherapy itself. While psychotherapy researchers may debate the exact requirements and nature of the therapeutic relationship necessary for therapists to do their work, the general consensus is that a strong relationship, alliance, or bond is required, or at least beneficial, in producing positive therapeutic outcomes (Norcross, 2011; Tsai, Kohlenberg, & Kanter, 2010). It is generally regarded as the most important of psychotherapy's non-specific or common factors, and meta-analytic reviews of alliance research have concluded that relationships characterized by a strong therapeutic alliance are important for psychotherapeutic outcomes.

The current research explores a therapeutic model of social connection derived from Functional Analytic Psychotherapy (FAP; Kohlenberg & Tsai, 1991) that applies to both the client's outside-of-therapy relationships and the psychotherapeutic relationship. Emphasizing the three terms "awareness," "courage," and "love,"

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this contextual-behavioral clinical model is a direct extension of a well-researched interpersonal-process model for how close relationships develop (Reis & Shaver, 1988). The potential benefit of this particular articulation of the model is that it is both contextual behavioral and clinical. It explicates the key processes in both behavioral and clinically user-friendly terms, thereby producing a clinically beneficial research strategy that focuses directly on the therapeutic behaviors necessary for client growth at any moment (Hayes, Barnes-Holmes, & Wilson, 2012).

The current two studies present a laboratory-based, experimental component-process strategy (Levin, Hildebrandt, Lillis, & Hayes, 2012) for researching this model in analog, non-clinical settings. The first study served as a demonstration of the basic process, replicating and extending earlier findings (Aron, Melinat, Aron, Vallone, & Bator, 1997; Reis et al., 2010). The second study dissected the process into its basic components from a contextual behavioral perspective, providing a model for future explorations of this process.

2. FAP's clinical model of social connection

FAP suggests that the psychotherapy relationship is a real, genuine relationship involving trust, vulnerability, and attachment. Therefore, the process of psychotherapeutic relationship development is influenced by the same factors as the other important relationships in the client's life. As such, the psychotherapeutic relationship can be used as a context in which improved connection-related behavior can be encouraged and nurtured, and these improvements will generalize to the client's outside relationships (Kohlenberg & Tsai, 1991; Tsai et al., 2009). At a very basic level, regardless of the specific content focus of a therapy session, the therapeutic encounter can be seen as an interpersonal process of client self-disclosure and therapist responsiveness that leads to the development of intimacy and connection between the two individuals.

FAP's model of social connection incorporates three constructs —awareness, courage, and love—in an interactional sequence. This sequence is consistent with previous literature on the development of intimate relationships (Aron, Melinat, Aron, Vallone, & Bator, 1997; Reis & Shaver, 1988), with previous behavioral analyses of intimacy (Cordova & Scott, 2001), and with an operant functional analysis of the behavior of interest, client vulnerable self-disclosure. With respect to the client behavior of interest, although the current formulation focuses on "vulnerable self-disclosure," the FAP model can be applied to almost any client behavior that occurs in session. Previous FAP writings have used the purposely unspecific term "clinically relevant behavior" rather than specifying that the target of therapy is self-disclosure per se. Nonetheless, there is much research to support the specific therapeutic target of authentic, vulnerable, emotional self-disclosure of difficult content that otherwise would be avoided or suppressed when the goal of therapy is improved social connectedness and intimate relating (Baddeley & Singer, 2009; Brunell et al., 2010; English & John, 2013; Graham, Huang, Clark, & Helgeson, 2008; Reis et al., 2010).

The FAP model of the full process is outlined in Fig. 1. The model clarifies the therapist's functions in the process (Panel A) which begins with providing antecedents for/evoking the client self-disclosure (A). This could be as simple as asking "How are you feeling?" or it could be more specifically related to asking for specific responses from the client. After the client behavior (B) occurs, the key therapeutic behavior is providing effective consequences by responding to the resulting disclosure in a reinforcing way (C). The FAP view of the therapist response as reinforcing is seen as a clarification of the function of
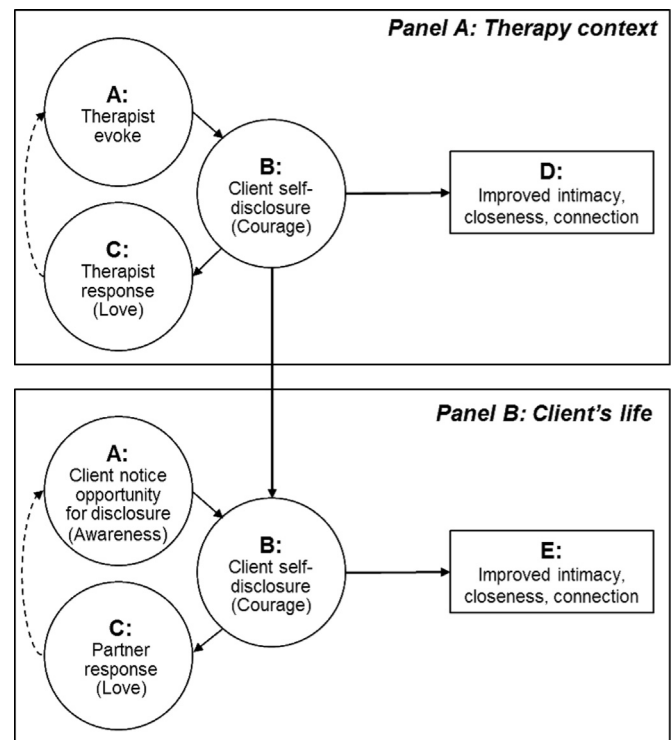

Fig. 1. FAP's clinical model of social connection.

"responsiveness" in the interpersonal process model of Reis and Shaver (1988). Note that, in traditional FAP terminology, the therapeutic behaviors of evoking and responding to client behavior, respectively, have been referred to as Rule 2 and Rule 3, respectively (e.g., Kohlenberg & Tsai, 1991). In the current formulation, consistent with more recent FAP writings (Tsai et al., 2009), we also have added the clinical terms "courage" as a label for the client self-disclosure and "love" as a label for the therapeutic response. Thus, clinically, it may be said that the therapeutic task is to respond to client courage with love (for more discussion of this, see Kanter, Holman & Wilson, 2014 and Kanter et al., 2015).

The dotted arrow from C (responding) back to A (evoking) in the model suggests that this process is replicated multiple times throughout a therapy session and over the course of therapy (analyses of FAP sessions suggest approximately 10 cycles per session during a FAP research protocol with a client with positive outcomes; Busch et al., 2009). If the process is indeed responsive/reinforcing, then it is predicted that both the frequency of client vulnerable self-disclosure (B) will increase in session and (D) there will be an increase in experienced closeness, intimacy, and connection in the therapy relationship. Importantly, in contextual behavioral terms, the prediction that vulnerable self-disclosure will increase in frequency during the session is a direct statement of FAP's presumed mechanism of action—reinforcement of target behavior will lead to an increase in the frequency of the target behavior. The increase in experienced closeness and intimacy (D) that is predicted in the model can be seen as an important respondent that occurs during the interaction.

A key prediction of the FAP model is that the frequency of vulnerable self-disclosure will increase in session and this behavior will generalize to the client's out-of-therapy relationships (B in Panel B in Fig. 1). To help with this generalization, an important element of the FAP model is increasing client awareness of opportunities for connection (A in Panel B) which facilitates evocation of the behavior. When the self-disclosure occurs, when the other individuals in these relationships respond to the disclosures well, increases in the frequency of self-disclosure (B) and

improvements in experienced closeness and connection in outside relationships should occur as well (E). Although the model suggests that this process should unfold over time, perceived similarities between therapy and out-of-therapy relationships may result in immediate, improved perceptions of social connectedness with others directly after a good therapy encounter, even in the absence of positive responsiveness from outside others.

3. The current research

Development of a lab-based experimental model of this process can offer more precise experimental control over relevant variables and clarify the underlying behavioral processes involved in the interaction. Some aspects of this model have been evaluated (Aron, Melinat, Aron, Vallone, & Bator, 1997; Canevello & Crocker, 2010; Fekete, Stephens, Mickelson, & Druley, 2007; Laurenceau, Barrett, & Pietromonaco, 1998; Lemay Jr. & Clark, 2008; Manne, Badr, & Kashy, 2012; Manne et al., 2004; Reis et al., 2010; Sprecher, Tregerr, Wondra, Hilaire, & Wallpe, 2013), but important elements have not. Several experimental studies of disclosure and responsiveness focus on self-disclosures of positive and neutral content (e.g., Lemay Jr. & Clark, 2008; Reis et al., 2010). For example, Reis et al. (2010) demonstrated the benefits of enthusiastic positive feedback in response to the sharing of a positive event. These authors, however, did not explore responsiveness to self-disclosures of more vulnerable or difficult content, more likely in therapy and intimate relationships. Furthermore, previous studies have not examined the possible benefits of this interaction with respect to generalization of social connectedness to others (E in Fig. 1). In addition, no studies have demonstrated the effects of the interaction in terms of actually increasing the frequency of the behavior of vulnerable self-disclosure (B), a key element of the model from a contextual behavioral perspective.

In the current research, we modified an experimental procedure for generating closeness in the laboratory, known as the "Fast Friends" procedure, developed by Aron, Melinat, Aron, Vallone, and Bator (1997) to more closely map on to the FAP model. In the original procedure, previously unacquainted participants increased their closeness and connection through reciprocal self-disclosures in response to a series of increasingly intimate questions (e.g., an early question was "Given the choice of anyone in the world, whom would you want as a dinner guest?" and a later question was "If you were to die this evening with no opportunity to communicate with anyone, what would you most regret not having told someone?"). Because such questions parallel more closely the kinds of questions that occur in initial psychotherapy sessions, they were seen as an improvement over disclosures of neutral or positive events. For the current studies, instead of two research participants reciprocally self-disclosing to each other, we trained undergraduate research assistants in two elements of the interaction. First, they provided the questions to the research participant, more like a therapist would (A in the model). Second, they were trained in a FAP "loving responsiveness" protocol such that they provided natural, genuine (hopefully reinforcing) feedback (C in the model) to the research participant after they responded to each question. Thus, we consider the current work as extending the findings of Aron et al. (1997) from naturalistic encounters to those that more closely mirror the relationship dynamics found in the therapeutic setting.

In Study 1, we explored the impact of this full procedure compared to a neutral, nature-video control condition on both immediate connectedness with the research assistant (D) and immediate generalized social connectedness with others (E). By testing the FAP assumption that progress in the therapeutic relationship extends to relationships outside of the therapy setting,

the demonstration of an impact of the procedure on generalized social connectedness with others is a novel feature of Study 1. The nature video was chosen as a control for time spent together with the research assistant and demand characteristics.

In Study 2, we addressed several limitations of Study 1, isolated the key components of the model and assessed if responsiveness (C) is necessary for connectedness to develop beyond asking the questions that prompt the self-disclosure (A). In contextual behavioral terms, this can be seen as exploring the necessity of providing consequences for the disclosure, or if simply evoking the behavior is sufficient. Study 2 also investigated the durability of the improved connectedness with the research assistant over a two-week follow-up period during which no additional interaction occurred. Finally, Study 2 offers the first exploration of whether the procedure actually influences the behavior of participant self-disclosure itself. In other words, does the depth of the participants' self-disclosure *in-session* improve when they receive more responsive feedback from the research assistants?

4. Study 1

4.1. Participants

Seventy-seven (77) undergraduates from the University of Washington (29% male, 48% Asian, 40% in a relationship, mean age=19 years) were recruited for participation in return for extra credit in their psychology courses. Table 1 presents demographic characteristics of the sample.

4.2. Experimental design and procedure

Once informed consent was obtained, each subject completed paper-and-pencil baseline and demographic measures before being randomly assigned to one of two conditions. The baseline measures included the Social Connectedness Scale (SCS; Lee, Draper, & Lee, 2001), the Connectedness Scale-RA (CS-RA4), which was an adaptation of the Social Connectedness Scale-Campus (SCS-C; Lee & Davis, 2000), and the Inclusion of Other in the Self Scale (IOS; Aron, Aron, & Smollan, 1992). Seventy-seven (77) subjects were randomly assigned to the experimental (n=33) and control (n=44) conditions. Immediately after the interventions, each subject completed the post-test measures identical to the baseline measures. Follow-up measures were also administered but significant attrition to follow-up prevented meaningful

Table 1
Demographic variables by condition in Study 1.

	Control (n=44)	Experimental (n=33)	Total sample (N=77)
Age M (SD)	19.41 (1.27)	19.18 (1.52)	19.31 (1.38)
Gender (frequency)			
Male	29.54% (13)	27.27% (9)	28.57% (22)
Female	70.46% (31)	72.73% (24)	71.43% (55)
Ethnicity (frequency)			
Caucasian	27.27% (12)	45.45% (15)	36.06% (27)
African-American	0.00% (0)	0.00% (0)	0.00% (0)
Latino/a	9.09% (4)	3.03% (1)	6.49% (5)
Asian-American	52.27% (23)	42.42% (14)	48.05% (37)
Native American	0.00% (0)	0.00% (0)	0.00% (0)
Other	11.36% (5)	9.09% (3)	10.39% (8)
Relationship status			
Single	63.64% (28)	54.55% (18)	59.74% (46)
In a relationship	36.36% (16)	45.45% (15)	40.26% (31)

analyses of these data so they are not reported.

4.2.1. Experimental condition

Subjects in the experimental condition were paired one-on-one with a research assistant (RA) and led to a private experimental room. Each subject was informed that their task was to become psychologically closer to the RA by taking small steps outside of their comfort zone and sharing personal information about themselves. Each RA had a set of nine questions from Aron et al. (1997; see Appendix for the questions). RAs began by asking the subject the first question and then modeling a response by providing their own personal disclosure. The purpose of the modeled response was to encourage the subjects to reciprocate and provide information that they would not normally share with a stranger. Once the subject had finished his/her response, the RA provided an individually-tailored, natural response designed to reinforce the disclosure. The RA might respond, for example, by saying "Wow, I can really see the trust and care that you have for your mother. It is so loving, and inspires me to try and be more like that with my mother. Thank you." This process was repeated for all nine questions. At the end of the interaction the RA expressed appreciation to each subject for participating in the intervention.

4.2.2. Control condition

Subjects in the control condition were led in groups of approximately five individuals to a small private room. Similar to the experimental condition, the RA informed the subjects that their task throughout the study was to become psychologically closer to the RA. The RA further explained that through watching a nature video together and connecting together with nature, the subject would develop a deeper connection with the people surrounding them. Subjects watched a nature video about trees with the RA for 45 min. Immediately afterwards, the RA provided a statement of appreciation for watching the video with him/her.

4.2.3. Training of research assistants

The RAs were trained by the third author to provide individually tailored, natural responses to subjects' self-disclosures. Weekly one-hour meetings were held for 15 weeks. During each meeting, the RAs focused on developing a natural, fluid repertoire of responsiveness. By taking turns answering the nine study questions as well as similar personal questions, and providing feedback to one another, the RAs practiced providing understanding, validating, and caring responses *in vivo*. Weekly one-hour group meetings continued for the duration of the study to allow the RAs to discuss new, unanticipated situations that arose.

4.3. Measures

4.3.1. Connectedness Scale-RA – 4 items (CS-RA4)

The CS-RA4 is a self-report measure that was adapted from the Social Connectedness Scale-Campus (SCS-C; Lee & Davis, 2000) to fit the purposes of this study, and has not been published previously. Specifically, we modified the SCS-C to reflect feelings of connection between the subject and the RA rather than with those on campus in general. The resulting four-item CS-RA4 asks subjects to respond to each item on a 6-point scale ranging from 1 ("Strongly Disagree") to 6 ("Strongly Agree"). Higher scores indicate greater feelings of connection after reverse scoring negatively phrased items. Sample items include "I feel that I can share personal concerns with the research assistant that I primarily interacted with" and "I feel distant from the research assistant that I primarily interacted with." The original SCS-C demonstrated strong internal consistency, good factor structure, and predictive validity in the original validation study (Summers, Beretvas, Svinicki, & Gorin, 2005). Prior to the intervention, the CS-RA4

demonstrated high internal consistency in the current study ($\alpha = .88$).

4.3.2. Inclusion of Other in the Self Scale (IOS)

The IOS (Aron et al., 1992) is a single-item, pictorial measure of relational closeness. Each subject was instructed to select among 7 Venn Diagrams with varying degrees of overlap between 'self' and 'other' that best describes their experience of connectedness with the research assistant (RA) with whom they interacted. Each diagram is scored from 1 to 7 with greater degrees of overlap indicating greater overlap/feelings of closeness between the subject and the RA. In the initial validation study (Aron et al., 1992), the IOS indicated good convergent and construct validity, test–retest reliability, and predictive validity.

4.3.3. Social Connectedness Scale (SCS)

The SCS (Lee, Draper, & Lee, 2001) contains 20 items that measure feelings of interpersonal closeness and connection with others. Critically, this scale indexed interpersonal closeness not specific to the RA. Sample items include "I am able to relate to my peers" and "I feel disconnected from the world around me." Each item is rated on a 6-point scale from 1 ("Strongly Disagree") to 6 ("Strongly Agree"), and negatively phrased items are reverse scored, so that higher scores indicate greater levels of social connectedness. In the initial validation study (Lee et al., 2001), the SCS demonstrated high internal reliability ($\alpha = .92$) and strong concurrent validity. Prior to the intervention, the scale demonstrated high reliability in the current study ($\alpha = .92$).

4.4. Analytic method and hypotheses

We predicted that participants in the experimental condition would demonstrate increased feelings of connection with both the research assistant (CS-RA4, IOS) and more generally (SCS) compared to participants in the control condition. Each dependent measure was subjected to a two-way mixed ANOVA with two within-subjects levels of Time (Pre-test vs. Post-test) and two between-subjects levels of condition (control and experimental). For each measure, we predicted that there would be a significant Time × Condition interaction. Generalized eta-squared (η_G^2) (Bakeman, 2005; Olejnik & Algina, 2003) was used to measure effect-sizes for the ANOVAs. Follow-up paired and independent samples *t*-tests were conducted for significant interactions and effect sizes for these analyses were measured with Cohen's *d* (Cohen, 1988).

5. Results

Table 2 presents means and standard deviations for all

Table 2
Means and standard deviations of primary outcome variables by condition in Study 1.

	Control M (SD)	Experimental M (SD)	Total sample M (SD)
CS-RA4	2.74 (1.03)	3.77 (1.20)	3.18 (1.43)
Pre-test	2.61 (1.10)	2.98 (1.30)	2.77 (1.18)
Post-test	2.87 (1.15)	4.56 (1.45)	3.59 (1.53)
IOS	1.64 (1.02)	2.65 (1.70)	2.07 (1.43)
Pre-test	1.5 (0.73)	1.67 (1.24)	1.57 (0.98)
Post-test	1.77 (1.24)	3.64 (1.52)	2.57 (1.64)
SCS	4.31 (0.73)	4.71 (0.68)	4.48 (0.77)
Pre-test	4.35 (0.73)	4.62 (0.73)	4.46 (0.74)
Post-test	4.27 (0.81)	4.81 (0.71)	4.50 (0.81)

Note: CS-RA4=Connectedness Scale-RA-4 items; IOS=Inclusion of Other in the Self Scale; SCS=Social Connectedness Scale.

dependent measures by condition. There was no significant variability between conditions with respect to demographic variables, including gender, relationship status, ethnicity, or mean age.

5.1. Connection with research assistant

5.1.1. CS-RA4

Significant main effects for time, $F(1,74) = 40.98$, $p < .001$, $\eta_G^2 = .102$, and condition, $F(1,74) = 16.75$, $p < .001$, $\eta_G^2 = .153$, were found, qualified by a significant Time × Condition interaction, $F(1,74) = 25.96$, $p < .001$, $\eta_G^2 = .067$. Paired t-tests indicated that changes from pre-test to post-test were not significant for participants in the control condition, $t(43) = 1.87$, $p = .068$, $d = 0.28$, but were significant for those in the experimental condition ($M = 1.58$, $SD = 1.36$), $t(32) = 6.67$, $p < .001$, $d = 1.16$. Independent samples t-tests indicated that scores in the experimental condition and control condition were not significantly different at pre-test, $t(62.33) = 1.10$, $p = .190$, $d = .30$. Those in the experimental condition, however, felt significantly more connected the research assistant at post-test ($M = 4.56$, $SD = 1.45$), compared to those in the control condition ($M = 2.87$, $SD = 1.15$), $t(59.53) = 5.53$, $p < .001$, $d = 1.30$.

5.1.2. IOS

Similar to the CS-RA4, significant main effects for time, $F(1,74) = 51.66$, $p < .001$, $\eta_G^2 = .158$, and condition, $F(1,74) = 18.52$, $p < .001$, $\eta_G^2 = .155$, were qualified by a significant Time × Condition interaction, $F(1,74) = 34.60$, $p < .001$, $\eta_G^2 = .111$. Paired t-tests indicated that there was an increased sense of connection to the research assistant for both those in the control condition ($M = 0.27$, $SD = 1.04$), $t(33) = 2.37$, $p = .024$, $d = 0.26$, and experimental condition ($M = 1.97$, $SD = 1.45$), $t(32) = 7.82$, $p < .001$, $d = 1.36$. Independent samples t-tests indicated that scores in the experimental condition and control condition were not significantly different at pre-test, $t(48.38) = 0.69$, $p = .495$, $d = .17$, but those in the experimental condition felt significantly more attached the research assistant at post-test ($M = 3.64$, $SD = 1.52$) compared to those in the control condition ($M = 1.77$, $SD = 1.24$), $t(60.63) = 5.77$, $p < .001$, $d = 1.35$.

5.2. Social connection with others

5.2.1. SCS

For the SCS, there was not a significant main effect of time, $F(1,63) = 0.11$, $p = .744$, $\eta_G^2 = .021$, but there was a significant main effect of condition with those in the experimental condition showing higher connection scores ($M = 4.71$, $SD = 0.68$) compared to those in the control condition ($M = 4.31$, $SD = 0.73$), $F(1,74) = 4.61$, $p = .035$, $\eta_G^2 = .089$. The Time × Condition interaction was significant, $F(1,63) = 4.23$, $p = .044$, $\eta_G^2 = .12$. Paired t-tests indicated that changes from pre-test to post-test were not significant for the control condition, $t(35) = 1.03$, $p = .332$, $d = 0.17$, or the experimental condition, $t(28) = 1.83$, $p = .077$, $d = .34$. Independent samples t-tests indicated that scores in the experimental condition and control condition were not significantly different at pre-test, $t(56.9) = 1.12$, $p = .269$, $d = .28$. Those in the experimental condition, however, scored significantly higher at post-test ($M = 4.81$, $SD = 0.71$) compared to those in the control condition ($M = 4.27$, $SD = 0.81$), $t(60.65) = 2.32$, $p = .024$, $d = .58$.

6. Discussion

In terms of the FAP model (in Fig. 1), Study 1 incorporated an experimental procedure, delivered by trained undergraduate research assistants, that combined providing a brief rationale, asking 9 "closeness-generating" questions to the research participant (A), modeling vulnerable self-disclosure responses, and providing loving responsiveness to the participants' self-disclosures (C). This procedure resulted in increased social connectedness with the research assistant (D) and an immediate increased sense of social connection in general (E), compared to a control condition that controlled for the demand characteristics of providing a rationale and time spent with the research assistant. The finding that the procedure produces increased connection with the research assistant is a replication of earlier findings (e.g., Reis et al., 2010), but the finding that this sense of connection immediately generalizes to others is novel, and supports the FAP assumption that therapeutic interactions extend to social relationships outside of the therapy setting.

For Study 2, several changes were made to the methodology of Study 1 to improve the precision of the research. Primarily, in Study 2 we were interested in exploring the elements of the basic operant at the heart of the FAP model. Specifically, from a contextual behavioral perspective, it is important to define and measure all three terms of the operant: The effects of evoking the target behavior (A), the behavior itself (B), and the effects of reinforcing the target behavior (C). Therefore, in Study 2 we added an additional experimental condition in which the research assistant engaged in the full experimental procedure except that no loving response was provided after the participant engaged in the self-disclosure. In other words, this condition evoked the target behavior (A) with questions but provided no substantial response (C).

In line with this, we removed the modeling component of the experimental procedure from all the conditions. This component was included in Study 1 in response to a concern that the procedure would not naturally evoke the targeted vulnerable self-disclosures sufficiently. Modeling of behavior, however, is not seen as central to FAP's model and in fact offers an alternate explanation for the results that competes somewhat with FAP's emphasis on loving responsiveness as the desired therapeutic response. Therefore, in Study 2, the modeling of the response by the research assistant was removed from the experimental procedure and the research assistant only provided the questions (A) and engaged in loving responsiveness (C) after the research participant responded. This allowed for a purer test of the operant elements of the interaction without unnecessary elements in the interaction.

In addition, we dropped the attempt to measure social connection with others in Study 2, focusing primarily on the effects of the interventions on social connection with the RA. The model primarily suggests that this connection with others will be a function of repeated interactions with others over time as the therapy improvements generalize, rather than an immediate change. FAP posits that for full generalization to occur, specific generalization interventions (i.e., "Rule 5" in FAP) should be included in the intervention. To study these generalization effects properly, a substantially different methodology is required. Therefore, the SCS was removed as an outcome measure in Study 2 in order to focus directly on the effects of the in-session interaction on social connection with the other person in the interaction. We also added procedures to increase the follow-up completion rates so we would be able to analyze the two-week follow-up data to explore the durability of the social connection experienced with the research assistant after the termination of the experimental interaction.

In addition to measuring social connection with the research assistant (D) as in Study 1, we also measured the depth of the self-disclosure behavior (B) itself, with blind coding. This allowed us to both determine if the procedure influences the actual behavior itself—an important prediction from a contextual behavioral perspective that has not been explored previously. It also allowed us

to determine if changes in the behavior predict increases in social connection, for a full analog characterization of the therapeutic mechanism as described in Panel A in Fig. 1

7. Study 2

7.1. Participants and setting

Ninety-nine (99) undergraduates from the University of Wisconsin-Milwaukee (21% male, 66% Caucasian, 47% in a relationship, mean age=21 years) were recruited for participation in return for extra credit in their psychology courses. Table 3 presents demographic characteristics of the sample.

7.2. Experimental design and procedure

Study 2 employed the same two conditions as in Study 1 and a new, third condition. Once informed consent was obtained from all subjects, each completed paper-and-pencil baseline and demographic measures before being randomly assigned to one of the conditions. Thirty-four (34) subjects were randomly assigned to the control (nature video) condition, 32 to the evoke-only condition, and 33 subjects to the evoke-and-respond condition. Immediately after the intervention (described below), each subject completed a battery of post-assessment measures identical to the baseline questionnaires. The subjects took an online assessment consisting of these same measures 48 h and 2-weeks post-intervention.

7.2.1. Evoke-and-respond condition

The evoke-and-respond condition was identical to the experimental condition of Study 1 with the following exceptions: (1) no modeling of the response was provided by the RA and (2) 20 questions from Aron et al. (1997) were asked instead of nine questions (see Appendix).

Table 3
Demographic variables by condition in Study 2.

	Control (n=34)	Evoke-Only (n=32)	Evoke-and-Respond (n=33)	Total sample (N=99)
Age M (SD)	21.00 (2.89)	19.92 (1.31)	23.22 (4.30)	21.21 (3.13)
Gender (frequency)				
Male	20.59% (7)	28.13% (9)	15.15% (5)	21.21% (21)
Female	79.41% (27)	71.88% (23)	84.852% (28)	78.79% (78)
Ethnicity (frequency)				
Caucasian	64.71% (22)	68.8% (22)	63.64% (21)	65.66% (65)
African-American	14.71% (5)	12.50% (4)	27.27% (9)	18.18% (18)
Non-white Hispanic	2.94% (1)	3.13% (1)	3.03% (1)	1.01% (1)
South Asian	8.82% (3)	0.00% (0)	0.00% (0)	3.03% (3)
Middle Eastern	0.00% (0)	3.13% (1)	0.00% (0)	1.01% (1)
East Asian	2.94% (1)	3.13% (1)	3.03% (1)	3.03% (3)
Southeast Asian	0.00% (0)	9.38% (3)	6.06% (2)	5.05% (5)
Native American	2.94% (1)	0.00% (0)	0.00% (0)	1.01% (1)
Other	2.94% (1)	3.13% (1)	0.00% (0)	2.02% (2)
Relationship status				
Single	52.94% (18)	56.25% (18)	48.48% (16)	52.53% (52)
In a relationship	47.06% (16)	43.75% (14)	51.52% (17)	47.47% (47)

7.2.2. Evoke-only condition

The evoke-only condition was identical to the evoke-and-respond condition except that after the subject had finished his/her response to each question, instead of providing a reinforcing response, the RAs were instructed specifically *not* to provide verbal and/or non-verbal reinforcement to the subjects' responses (i.e., strong eye contact and smiling). The RAs were instructed to be matter-of-fact but not aversive.

7.2.3. Control condition

The control condition was identical to Study 1.

7.2.4. Training of research assistants

RAs were trained by the first author of this study, a first year clinical psychology graduate student at the University of Wisconsin – Milwaukee, using procedures similar to those of Study 1 (the first author was involved in the training of Study 1 at the University of Washington). Weekly, one-hour group meetings continued for the duration of the study to allow the RAs to discuss new, unanticipated situations that arose.

7.3. Measures

7.3.1. Inclusion of Other in the Self Scale (IOS)

The IOS is described in Study 1.

7.3.2. Connectedness Scale-RA-6 items (CS-RA6)

To explore the connection between the RA and the subject after the interventions, the CS-RA4 used in Study 1 was employed with the addition of two new items that we felt more fully captured the construct of interest. The resulting six-item CS-RA6 asks subjects to respond on a 6-point Likert scale from 1 ("*Strongly Disagree*") to 6 ("*Strongly Agree*"), with higher scores indicating greater levels of connectedness. Sample items include "I feel a close bond with my peer coach" and "I feel very distant from my peer coach." The CS-RA6 demonstrated similarly high internal consistency in Study 2 as in Study 1 (Pre-test α=.88).

7.3.3. Disclosure coding system (DCS)

The DCS was developed for the purpose of this study to measure the depth of the subject's self-disclosure responses to the questions, operationalized as the level of perceived intimacy involved in the disclosure (Altman & Taylor, 1973; Collins & Miller, 1994). DCS coders were 3 undergraduate research assistants, blind to the study's hypotheses, trained over a 7-week period to criterion (intraclass correlation coefficients (ICC) of 0.70 or greater). Coders were instructed to rate disclosure depth on a 5-point Likert scale (1=*Little or No Disclosure*, 2=*Superficial-Conventional Disclosure*, 3=*Personal Disclosure*, 4=*Intimate Disclosure*, 5=*Very Intimate Disclosure*). Final scores were obtained by having each coder produce an independent rating of the tape and then averaging coders' ratings for the dataset that was analyzed. The average ICC between coders throughout the duration of the study was acceptable (.79).

7.3.4. Responsiveness coding system (RCS)

The RCS was developed for the purpose of this study to measure the quality of the RA's responses to the subject's self-disclosure statements on a question-by-question basis, operationalized as the amount of understanding, validation, and caring demonstrated by the RA (Maisel, Gable, & Strachman, 2008). RCS coders were 2 study-independent undergraduate RAs trained over the course of 9 weeks to criterion (ICCs of 0.70 or greater). Coders were instructed to rate the quality of RA's response on a 4-point Likert scale (0=*No response or invalidating response*, 1=*Just understanding, no validation or caring*, 3=*A lot of validation,*

understanding and caring). Only tapes in the evoke-and-respond condition were coded. Final scores were obtained by having each coder produce an independent rating of the tape and then averaging the coders' ratings for the dataset that was analyzed. The average ICC between coders throughout the duration of the study was acceptable (.67).

7.4. Analytic method and hypotheses

We predicted that participants in the evoke-and-respond condition would demonstrate increased feelings of connection with the research assistant (CS-RA6) compared to the other conditions and that these differences would be durable across the follow-up period. To explore this hypothesis, we conducted a 4 (Time: pre-test vs. post-test vs. 48 h follow up vs. 2-week follow up) × 3 (Condition: control vs. evoke-only vs. evoke-and-respond) mixed ANOVA using scores on the CS-RA6. Follow-up tests are described below.

We also explored hypotheses about the effects of experimental condition (evoke-only vs. evoke-and-respond) on the depth of self-disclosure as measured by DCS scores. Because the data were nested in that each participant responded to 20 questions from the RA over time, and the depth of each response was coded, we were able to include question number as a variable in the analyses indicating experience with the RA. Because the attempt to reinforce disclosure only occurred in the evoke-and-respond condition, we predicted that the evoke-and-respond condition would demonstrate larger increases in depth of responding over the course of the experience with the RA compared to the evoke-only condition. Further, we expected that the amount of disclosure *within* the evoke-and-respond condition would be positively associated with closeness to the RA. To explore this, we modeled experimental condition, experience with the RA, and the interaction between experimental condition and experience with the RA using multilevel modeling (MLM; Gelman & Hill, 2006) using restricted maximum likelihood estimation (REML) with the lme4 statistical package in R (Bates, Maechler, Bolker, & Walker, 2014; R Core Team 2013). In our first model, we examined a null model (no predictors) with a random effect of subject, which allowed us to assess the proportion of variability within and between subjects in the data structure and calculate the ICC. Our second model included a within-subjects predictor at Level 1 of experience with the RA. Our third model included a between-subjects predictor at Level 2 of experimental conditions (evoke-only vs. evoke-and-respond), and our fourth model included a cross-level Experience × Condition interaction. We predicted that the effect of experience with the RA on depth of disclosure would be higher in the evoke-and-respond condition, relative to the evoke-only condition.

8. Results

Table 4 presents means and standard deviations for all dependent measures by condition. There was no significant variability between conditions with respect to demographic variables, including gender, relationship status, ethnicity, or mean age.

8.1. Quality of responding

The quality of the RA's response was around the midpoint of the RCS ($M = 1.86$, $SD = 0.26$), with a modal score of 2.

8.2. Connection with research assistant

8.2.1. IOS

We found that scores on the IOS did not differ as a function of condition, $F(2, 71) = 2.96$, $p = .058$, $\eta_G^2 = .067$, but that scores were

Table 4

Means and standard deviations of primary outcome variables by condition in Study 2.

	Control	Evoke-only	Evoke-and-respond	Total sample
	M (SD)	M (SD)	M (SD)	M (SD)
CS-RA6	3.38 (1.03)	3.34 (1.10)	4.34 (0.97)	3.69 (1.13)
Pre-test	3.66 (1.04)	3.70 (1.02)	3.82 (0.73)	3.73 (0.93)
Post-test	3.68 (1.02)	3.53 (1.28)	5.07 (0.61)	4.11 (1.21)
48 h follow up	3.22 (0.89)	3.20 (1.09)	4.42 (0.87)	3.62 (1.10)
2-Week follow up	2.95 (1.03)	2.92 (0.88)	4.04 (1.11)	3.31 (1.14)
IOS	2.26 (1.58)	2.27 (1.42)	3.10 (1.91)	2.55 (1.69)
Pre-test	2.15 (1.59)	2.09 (1.44)	1.88 (1.30)	2.04 (1.44)
Post-test	2.37 (1.60)	2.45 (1.40)	4.32 (1.63)	3.05 (1.78)

Note: CS-RA6 = Connectedness Scale-RA-6 items; IOS = Inclusion of Other in the Self Scale.

generally higher at post-test than pre-test, $F(1,71) = 61.38$, $p < .001$, $\eta_G^2 = .106$. There was a significant Time × Condition interaction, $F(2,71) = 31.12$, $p < .001$, $\eta_G^2 = .107$. Specifically, we found that there were no differences in connection to the research assistant across treatment conditions at pre-test, $F(2,71) = 0.24$, $p = .787$, $\eta_G^2 = .007$, but that there was a significant difference across treatment conditions at post-test, $F(2,71) = 12.57$, $p < .001$, $\eta_G^2 = .261$. Pairwise *t*-tests using the Benjamini–Hochberg (BH) correction indicated that the control condition, $M = 2.37$, $SD = 1.60$, and evoke-only condition were not significantly different at post-test, $M = 2.45$, $SD = 1.41$, $t(47) = .19$, $p = .851$, $d = .05$. However, scores were significantly higher in the evoke-and-respond condition, $M = 4.32$, $SD = 1.63$, than either the control, $t(50) = 4.36$, $p < .001$, $d = 1.22$, or evoke-only conditions, $t(45) = 4.18$, $p < .001$, $d = 1.17$.

8.2.2. CS-RA6

We found that there was a main effect for both time, $F(3,124) = 26.46$, $p < .001$, $\eta_G^2 = .189$, and condition, $F(2,124) = 10.90$, $p < .001$, $\eta_G^2 = .081$. As predicted, there was a significant Time × Condition interaction, $F(6,74) = 9.29$, $p < .001$, $\eta_G^2 = .059$. To simplify the presentation of the simple main effects, we only conducted simple main effects for each level of the time factor. We found that there was no difference across treatment conditions at pre-test, $F(2,118.41) = 0.35$, $p = .834$, $\eta_G^2 = .01$. However, we found that there was a significant difference across treatment conditions at post-test, $F(2,118.41) = 18.67$, $p < .001$, $\eta_G^2 = .336$. Pairwise *t*-tests using the BH correction indicated that the evoke-and-respond condition, $M = 5.07$, $SD = 0.61$, was significantly higher than both the evoke-only condition, $M = 3.53$, $SD = 1.28$, $t(29.23) = 5.14$, $p < .001$, $d = 1.54$, and control condition, $M = 3.68$, $SD = 1.02$, $t(43.19) = 6.04$, $p < .001$, $d = 1.65$. There was not a significant difference between the evoke-only and control conditions, $t(39.61) = 6.04$, $p = .600$, $d = .13$. There was also a significant difference between conditions at the 48 h follow up, $F(2,118.41) = 12.62$, $p < .001$, $\eta_G^2 = .271$. Again, connection in the evoke-and-respond condition, $M = 4.42$, $SD = 0.87$, was significantly higher than both the evoke-only condition, $M = 3.20$, $SD = 1.09$, $t(40.15) = 4.19$, $p < .001$, $d = 1.24$, and control condition, $M = 3.22$, $SD = .89$, $t(49.82) = 4.91$, $p < .001$, $d = 1.36$. There was not a significant difference between the evoke-only and control conditions, $t(40.33) = .06$, $p = .953$, $d = .02$. Finally, we found that there was a significant difference across treatment conditions at the 2-week follow up, $F(2,118.41) = 10.60$, $p < .001$, $\eta_G^2 = .215$. Feelings of connection to the RA in the evoke-and-respond condition, $M = 4.04$, $SD = 1.12$, were significantly higher than in both the evoke-only condition, $M = 2.91$, $SD = .88$, $t(44.51) = 3.85$, $p < .001$, $d = 1.12$, and control condition, $M = 2.95$, $SD = 1.03$, $t(48.80) = 3.64$, $p < .001$, $d = 1.01$. There was not a

Table 5

Multilevel regression models of the association between depth of disclosure and number of questions, condition, and the interaction between number of questions and condition in Study 2.

	Model 1		Model 2		Model 3		Model 4	
	B (SE)	p	B (SE)	p	B (SE)	p	B (SE)	p
Fixed effects								
Intercept	2.32 (.04)	< .001	1.93 (.04)	< .001	2.14 (.13)	< .001	1.98 (.16)	< .001
No.-of-questions	–	–	0.04 (.00)	< .001	–	–	01 (.01)	0.175
Condition	–	–	–	–	0.12 (.08)	0.136	−.03 (.10)	0.746
No.-of-questions × Condition	–	–	–	–	–	–	02 (.01)	0.013
Random effects								
Level 1 (within)	0.341		0.281		0.341		0.287	
Level 2 (between)	0.056		0.013		0.053		0.052	

significant difference between the evoke-only and control conditions, $t(46.88) = .12$, $p = .908$, $d = .04$.

8.3. Depth of disclosure

We first confirmed that a linear model fit the overall trends of experience on DCS for most participants (Tasca & Gallop, 2009). The depth of participant's responses was around the mid-point of the scale ($M = 2.33$, $SD = 0.63$), indicating that participants disclosures varied but included some life details that transcended publicly available knowledge or the type of disclosures one might make with a casual acquaintance.

Table 5 presents results of our MLMs. Model 1, the unconditional means model (random intercept by participant), indicated that most of the total variability was within subjects, with only 14.16% of the variability due to between-subject differences (ICC = .1416, 95% CI [.0854,.2306]). Therefore, observations were not independent, which justifies the use of MLM. With Model 2, we found that participant's depth of disclosure increased linearly throughout the session, $B = 2.32$, $SE = .04$, $t(44) = 9.35$, $p < .001$. Model 3 indicated that there was not a significant difference across experimental conditions in depth of disclosure ratings when collapsing across all 20 questions, $B = .12$, $SE = .08$, $t(44) = 1.49$, $p = .136$. Model 4 found a significant number-of-questions × condition interaction, $B = .02$, $SE = .01$, $t(44) = 2.49$, $p = .013$. This means that there was a significant effect of number-of-questions on depth of disclosure, but the effect differed by condition. In other words, the effect of number-of-questions on depth of disclosure was significantly stronger in the evoke-and-respond condition compared to the evoke-only condition. Fig. 2 illustrates this finding and presents depth of disclosure scores for both conditions across all 20 questions of the study. Observation of Fig. 2 suggests considerable variability in the depth of disclosure pulled for by questions across both conditions (e.g., Question 9 pulled for lower disclosures and Question 15 pulled for higher disclosures for both groups), with some increase in the depth of disclosure happening over time for both conditions. Regarding the
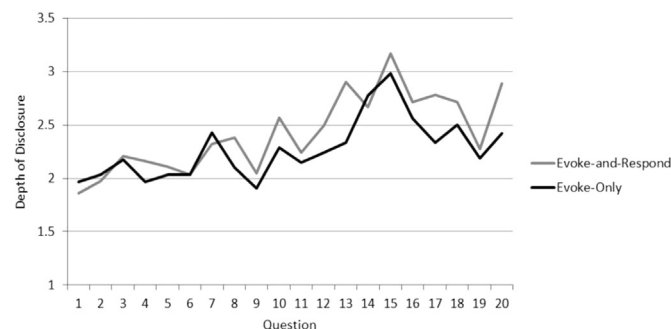

Fig. 2. Depth of disclosure across experience with the RA (question) and condition.

differences between conditions in the effect of number-of-questions on depth of disclosure, for the first seven questions, the depth of disclosure was equivalent in the two conditions. Starting with Question 8, however, the depth of disclosure scores for the evoke-and-respond participants are slightly but consistently higher for the remainder of the protocol, with the exception of Question 14, which favored the evoke-only participants.

9. General discussion

In Study 2, we addressed several limitations of Study 1, isolated the key components of the model and explored if responsiveness (C) is necessary for connectedness to develop above and beyond asking the questions that prompt the self-disclosure (A). In contextual behavioral terms, this can be seen as exploring the necessity of providing consequences for the disclosure, or if simply evoking the behavior is sufficient. Study 2 also explored the durability of the improved connectedness with the research assistant over a 2-week follow-up period during which no additional interaction occurred. Finally, Study 2 offers the first exploration of whether the procedure actually influences the behavior of participant-self-disclosure itself over time. In other words, does the depth of the participants' self-disclosure improve when they receive more responsive feedback from the research assistants?

Study 2 replicated the effects of the Study 1 procedure on connectedness with the RA and added precision to this finding. First, results of Study 2 suggest that the increases in social connectedness with the RA are not due to the RA modeling of the disclosure or simply evoking the disclosure, but rather may be due to the specific effects of the RA's responsiveness after the disclosure. The changes in the experimental procedure (specifically, the removal of the modeling component) and the specific comparison with an evoke-only condition allow for a more confident conclusion that responsiveness is a key and significant variable. Put simply, while evoking the behavior is obviously necessary for the behavior to occur, this study suggests that how one responds to an intimate disclosure appears to drive the sense of connection between individuals. This conclusion is consistent with previous research on Reis and Shaver's (1988) model. Our study demonstrates that it is possible to parallel this process with an experimental procedure that maps more closely on to the therapeutic processes of interest according to FAP's clinical model of social connection. In FAP terms, responding to courage with love has benefits in terms of social connection. The speculative extension to psychotherapy is that therapeutic provision of Rule 3 (reinforcement) in response to client self-disclosing behavior may improve the quality of the therapeutic bond over and above simply evoking self-disclosure (Rule 2) by asking therapeutic questions.

Second, Study 2 is the first study to explore the stability of this experimental effect over time. Specifically, increases in social

connectedness in the full evoke-and-respond condition remained significant compared to the evoke-only and control conditions across a two-week follow-up period. The effect did appear to attenuate over time, which is not surprising given no further interaction occurred between the subject and the RA after the experimental intervention. Critically, the increase in connectedness remained significant compared to the other conditions even after two weeks. Interestingly, the evoke-only condition was not different from the Control condition at any of the measured time points. This finding bolsters our interpretation for the importance of responsiveness during the initial session. It also indicates that responsive feedback seems to create a sense of connection between the respondent and the participant that endures after the initial testing session while offering no feedback to intimate responses provides no real benefit.

Third, Study 2 is the first study to show that responsiveness to disclosure may have a direct effect on the depth of that disclosure, a prediction that is generated from FAP's contextual behavioral view of loving responsiveness-as-reinforcement. This finding has important implications regarding the model in Fig. 1. Specifically, Study 1 found that the experimental procedure did result in an immediate sense of connectedness with others, even outside the experimental relationship (E in Fig. 1). The FAP model, however, predicts that, for long-term improvements in the client's outside relationships to occur, the frequency and depth of the client's self-disclosures first must be reinforced and increased in the therapeutic relationship (increases in B in Panel A). These improvements must generalize to the client's daily life (B in Panel B). Once the improvements generalize, hopefully the client's outside environments will respond lovingly (i.e., in a reinforcing manner), resulting in long-term improvements (E in Panel B). Study 2 establishes one component of that process – that responsiveness to self-disclosure does appear to reinforce the disclosure, as indicated by increases in the depth of the disclosure specifically during the reinforcement process. This relation between responsiveness and depth was found even though the actual quality of the responsiveness was not extremely high according to our rating scale. Undergraduates, with no therapy experience, were trained to provide the responses and part of the training involved "matching" the level of response with the depth of disclosure. Thus, this study also suggests that training in effective loving responsiveness is possible with non-professionals.

Several limitations to Studies 1 and 2 remain. First, we are suggesting that the increases in the *depth* of disclosure across experience with the RA in the evoke-and-respond condition are an indication of a reinforcement process, but the most important indicator is the actual *frequency* of disclosure. Simply put, a primary test of the FAP model is whether reinforcement of the disclosure by the RA increases the frequency of disclosure by the participant over time. The FAP model posits that the frequency should increase both immediately (B in Panel A representing the immediate effects of reinforcement in the therapeutic, or in our case, experimental, situation), and in the client's daily life (B in Panel B). Immediate increases in the frequency of self-disclosure were impossible to measure in these studies because the procedure forced a fixed number of questions to be asked of subjects (9 questions in Study 1 and 20 questions in Study 2); thus, there was no opportunity for subjects to choose to disclose with more frequency in either condition. We chose to fix the number of questions asked in these studies to prioritize hypotheses about social connectedness. In other words, we controlled for number of questions so potentially different amounts of questions responded to would not confound results regarding social connectedness. With the social connectedness findings established by the current studies, future studies may give subjects the choice to continue to self-disclose to more precisely explore the effects of the interventions on the frequency of self-disclosure.

Future studies may also measure increases in frequency of self-

disclosure in the subject's daily life across the follow-up period. This is, of course, a key outcome, supported by Study 1 but dropped in Study 2 to focus more on the in-session process. Future studies may identify target individuals in participants' lives to whom experimental improvements may generalize, and test if the generalization occurs.

A second limitation is that the *amount of time with the RA* was not controlled in these experiments. Specifically, in the evoke-and-respond condition, the RA spent time responding to the subject, but in the evoke-only condition the RA did not spend this time. Thus, the time spent together was undoubtedly longer in the evoke-and-respond condition. Perhaps it is simply time spent together, and not responsiveness, that is driving the current findings. A similar concern is that perhaps the subject experienced the evoke-only condition as aversive. Although the RAs were trained to be pleasant and not aversive in the evoke-only condition, it may be the case that the subjects still experienced the procedure of being asked personal questions and receiving no substantial response from the RA as aversive. Thus, perhaps the aversiveness of the evoke-only condition is limiting social connection, rather than the reinforcing effects of the evoke-and-respond condition increasing social connection. Future studies, therefore, can provide comparison conditions that both control for amount of time spent together and the pleasantness of the interaction.

A final concern has to do with the technical definition of reinforcement, which specifies a *contingency* between a response and a reinforcer. It may be the case that the causal agent in the evoke-and-respond condition was non-contingent praise of the subject by the RA, rather than contingent responding. For example, perhaps simply listening to someone praise you, even in the absence of self-disclosure upon which praise is contingent, increases closeness. Future studies may control for the effects of non-contingent praise as well. Similarly, perhaps contingent praise/reinforcement does matter, but the type of verbal response does not, such that reinforcement of verbal responses other than self-disclosure also may be experienced as connecting. Such studies are important with respect to maximizing the clinical utility of our research model through identification of precise therapeutic responses in the moment that will maximize client growth. Similarly, perhaps contingent reinforcement of verbal responses other than self-disclosure also may be experienced as connecting.

The current results are encouraging because they suggest a paradigm for laboratory-based, experimental modeling of the component processes of FAP's model. FAP, originally published in 1991 (Kohlenberg & Tsai, 1991) has been lauded for articulating how reinforcement, arguably one of the most established principles in behavioral science (Catania, 2013), can be applied in outpatient psychotherapy. Although dozens of theoretical explorations of the process within FAP have been published (e.g., Follette, Naugle, & Callaghan, 1996), clinically informative and scientifically stimulating research on FAP's model has been sparse (Corrigan, 2001; Mangabeira, Kanter, & Del Prette, 2012). We hope that, through clarifying the importance of social connection as a key target of FAP, delineating FAP's model with this particular target in mind as per Fig. 1, and linking the model with existing, successful experimental research paradigms such as Reis and Shaver (1988) and Aron et al. (1997), a progressive research agenda on this topic can be stimulated. This research may have particular clinical utility due to the foundational position of the construct of reinforcement within a contextual behavioral science designed to predict-and-influence human actions in context (Hayes, Barnes-Holmes, & Wilson, 2012).

Appendix A

See Table A1.

Table A1

Study 1: Closeness generating questions

1[a]   Given the choice of anyone in the world, who would you want as a dinner guest and why?
2[a]   For what in your life do you feel most grateful?
3   If you could change anything about the way you were raised, what would it be?
4   What is your most treasured memory?
5   How do you feel about your relationship with your mother?
6   If a crystal ball could tell you the truth about yourself, your life, the future, or anything else, what would you want to know?
7   When did you last cry in front of another person? By yourself?
8[a]   If you were to die this evening with no opportunity to communicate with anyone, what would you most regret not having told someone? Why haven't you told them yet?
9   Tell me something you like about me. Be very honest this time saying things that you might not say to someone you've just met.

Study 2: Closeness Generating Questions

1   Would you like to be famous? In what way?
2   What would constitute a "perfect day" for you?
3[a]   For what in your life do you feel most grateful?
4   If you could wake up tomorrow having gained any one quality or ability, what would it be?
5   Your house, containing everything you own, catches fire. After saving your loved ones and pets, you have time to safely make a final dash to save any one item. What would it be? Why?
6[a]   Given the choice of any famous person in the world (alive or dead), who would you want as a dinner guest and why?
7   Is there something that you've dreamed of doing for a long time? Why haven't you done it?
8   What is the greatest accomplishment of your life so far?
9   Can you name three things that you notice that you and I have in common?
10   What roles do love and affection play in your life?
11   How does it feel to be answering these questions from me so far? Please be honest about both positive and negative feelings.
12   Share an embarrassing moment in your life.
13[a]   If you were to die this evening with no opportunity to communicate with anyone, what would you most regret not having told someone? Why haven't you told them yet?
14   Of all the people in your family, whose death would most affect you? Why?
15   What has been the greatest loss in your life? How did this loss make you feel?
16   What is your least favorite quality about yourself?
17   If you had to sacrifice your own life for one person, who would you choose and why?
18   What is the cruelest thing you have ever done to someone?
19   Tell me something you like about how I've been interacting with you. Make it something you would not normally say to someone you have just met.
20   When you are sad or hurt or alone how do you talk to yourself about your feelings (i.e., "I just need to get over it." "It's okay to feel sad right now.")?

[a] Items used in Study 1 and Study 2.

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