The Impact of Validation and Invalidation on Affect and Learning Task Performance

Thesis

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By

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Validation has been hypothesized to impact the quality of therapeutic relationships and to have far-reaching consequences for treatment outcomes. Although there is some evidence that invalidation increases arousal and negative affect (Shenk, 2007), to date there are no known investigations of the role of invalidation in learning. The aim of the present study was to test the impact of validation and invalidation on mood and learning task performance. Participants were randomized to receive either validation or invalidation during disclosure of an angry personal event. Participants then completed an emotion-word card sorting test, followed by a paired-associates word recall test. Manipulation checks demonstrated significant differences in self-reported invalidation between conditions \[ F(2, 95) = 12.02, p < .001 \]. However, no difference was observed between the validation and invalidation groups on any learning task variable. We found a significant positive affect (PA) by condition interaction when comparing validation and invalidation separately \[ F(1, 64) = 7.67, p = .01 \], such that invalidated participants experienced significantly larger decreases in PA following recall of the angry story than did validated participants. No significant differences in self-reported negative affect were obtained \[ F(1, 64) = 0.002, p = .97 \]. These findings suggest that invalidating interactions may reduce PA, which is related to approach behavior and broadening of behavioral repertoires (Custers & Aarts, 2005; Fredrickson, 2001). It may be the case that reductions in PA, as opposed to disruptions in learning per se, might be related to poor therapeutic outcomes via decreased approach behaviors.
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# Table of Contents

Abstract .................................................................................................................. ii

Acknowledgments ................................................................................................. iii

Vita ............................................................................................................................ iv

List of Tables .......................................................................................................... vii

List of Figures ........................................................................................................ viii

Chapters

1. Introduction ...................................................................................................... 1
   1.1 Forms of Supportive Interpersonal Exchange .............................................. 2
   1.2 Validation ........................................................................................................ 5
   1.3 Invalidation ..................................................................................................... 9
   1.4 Arousal .......................................................................................................... 15
   1.5 The Effects of Validation, Invalidation, and Arousal on Learning ............. 18
   1.6 Objectives of the Proposed Research .......................................................... 20
   1.7 Hypotheses .................................................................................................... 22

2. Method ............................................................................................................... 24
   2.1 Participants ..................................................................................................... 24
   2.2 Measures & Materials .................................................................................. 24
   2.3 Study Procedure ........................................................................................... 26
      2.3.1 Feedback Condition .............................................................................. 28
List of Tables

1. A Comparison of Fruzzetti’s and Linehan’s Levels of Validation…………………71
2. Means and Standard Deviations of Questionnaire Data by Validation Condition…..72
3. Pearson’s Correlations among Outcome Variables ….................................73
4. Distribution of Participants across Condition and Experimenter ..................74
5. Cart Sort Test Outcome Variables by Validation Condition .........................74
6. Angry - Neutral Word Pairs Utilized in the Word Recall Task .......................75
7. Mean Mood Ratings by Validation Condition .............................................75
List of Figures

1. Diagram of the study design .................................................................77
2. Sample card from emotion word card sort test .....................................78
3. Mean SRVIS score by condition by experimenter .................................78
4. Sample graph of card sort experimenter effect .....................................79
5. Mean word recall by condition, at delays of 15 mins & 24 hours post-manipulation..79
6. PANAS PA score by condition .................................................................80
7. PANAS NA score by condition .................................................................80
8. Mean mood rating by condition across the protocol ..............................81
Chapter 1: Introduction

The manner in which we interact with the people around us greatly impacts the quality of our relationships. Supportive interpersonal exchanges, such as validation and empathy, can affect the mood and physiology of both the expresser and the receiver in the interaction. Conversely, negative exchanges, such as invalidation or insults, can damage interpersonal relationships, increase negative emotions, and impair the cognitive abilities of those who receive them. Validation and invalidation occur in the context of everyday interpersonal interactions and, as such, have implications for myriad human contacts, including employment, familial, romantic, academic, and therapeutic relationships.

Both validation and invalidation are theoretically important predictors of behavior, including emotional arousal and learning. Despite the emotional impact and frequent occurrence of validating and invalidating experiences, few studies have examined the complex relationships that exist among validation, invalidation, and emotional arousal, or their effects on real-life outcomes such as learning and therapeutic success. Specifically, no studies to date have investigated the potential of validation to reduce emotional arousal and increase learning.

The present study will contribute to the literature on validation and invalidation by providing information on the degree to which validation, invalidation, and simple emotional arousal affect a person’s ability to learn new information. This information can potentially be generalized to the impact that these constructs might have on learning new behaviors and skills in a therapeutic setting.
Forms of Supportive Interpersonal Exchange

There are about as many ways to communicate with others as there are people, affecting both the exchanges themselves and the relationships in which they occur. Studies of various forms of supportive (and non-supportive) interpersonal exchange have highlighted the fact that the way a message is delivered can affect the outcome of the exchange as much as the explicit content and the timing of the message. Understanding how the ways in which we communicate may affect the interpretation and resulting affective responses is particularly important in the therapeutic context, where clients are likely to experience distressing emotions. While there is relatively little research on validation and invalidation, research on other forms of supportive communication may inform this area of interest.

Empathy, defined as an expression of concern for another’s well-being, has been identified as an important concept in interpersonal relationship research, and can have a significant impact on the quality of interpersonal exchanges (Hakansson & Montgomery, 2003). The importance of empathy during psychotherapy sessions has been well documented (Jordan, 2000; Rogers, 2007; Truax, 1968). In a 47-study meta-analysis of empathy’s relation to psychotherapy outcomes from three perspectives (therapist, client, and observer ratings), clients’ feeling understood by their therapists was found to be related to therapy outcome, underlying the potential importance of clients’ emotional experiences in determining the outcome of therapeutic work (Greenberg, Elliott, Watson, & Bohart, 2001).

Many scales have been developed to measure both trait and state empathy levels, often specifically designed for use in health care research (i.e. the Reynolds Empathy
Scale, Reynolds, 1994). Jordan (2000) has postulated that the use of empathy in therapeutic relationships encourages self-growth and teaches the client how to connect to others and be their authentic selves. Thus, the empathic response is a common form of supportive interpersonal exchange, which may improve the quality of therapeutic relationships.

In addition to the impact of another’s behavior, a person’s response to the feedback they receive from others may be affected by the way they view themselves. Self-verification theory states that a person’s self-views may affect their reactions to feedback from others. Self-verification theory further postulates that people tend to seek out self-confirmatory feedback from significant others, and will work very hard to discredit or dismiss feedback that contradicts their views of themselves (Swann, 1983; Swann, Pelham, & Chidester, 1988; Swann, Stein-Seroussi, & Giesler, 1992). Strivings for self-verification can also affect how people choose their interaction partners through selective affiliation, based upon how well that partner’s perceptions align with the person’s self-conceptions (Swann et al., 1992). When an interaction partner provides feedback that threatens a person’s self-beliefs, that person will typically resist such feedback and look for ways to prove that their self-conceptions are, in fact, correct. Such reactions may occur in the wake of invalidation from the therapist, which may harm the client-therapist relationship and hinder therapeutic progress.

McCollough and colleagues (1991) compared 16 cases of brief psychotherapy to examine the relationship between patient-therapist interaction style and therapy outcomes. They found that interventions followed by patient affective responses, such as satisfaction, were predictive of improvement at termination, whereas interventions
followed by a self-protective reaction, such as denial, were correlated with negative outcomes. Thus, it may be possible that if a client feels invalidated or misunderstood, they may resist the new information in order to protect their self-concept. Because such reactions correlate negatively with treatment success, therapists need to consider the potential for defensive reactions when interacting with clients during psychotherapy.

While validation is similar to these and other therapeutic constructs, such as compassion, reassurance, or agreement, it is a distinct and separate construct. Validation focuses specifically on communicating acceptance of some part of a belief or act, emphasizing its reasonableness and appropriateness given the situation in which it occurred (Linehan, 1993). Validation is similar to empathy in that it involves accurately “reading” the feelings of others, and is like self-verification in its focus on accurate reflection of the client’s experiences.

Validation is different from empathy in that validation specifically reflects back the wisdom in a client’s view, whereas empathy encompasses a broader category of positive feedback. In other words, validating statements are often empathic and many empathic statements are also validating, although some are not (Linehan, 1997). Linehan (1993; 1997) suggests that empathy is roughly equivalent to two of her proposed stages of validation (i.e. active observation and accurate reflection of the client’s feelings, thoughts, and behaviors). The past several decades have seen an increasing interest in validation and its effects on interpersonal exchanges. I present an overview of the validation literature in the next section.
Validation

Validation has been defined as “the expression of understanding (and implicitly or explicitly acknowledging the legitimacy) of a target experience or behavior (emotion, want, thought, sensation, action, etc.) of another person” (Fruzzetti & Iverson, 2004). Linehan (1993) defines validation as comprised of three steps: active observation (of both the obvious and the unstated), reflection of these observations back to the client, and, finally, direct indications of support and/or understanding of the client’s thoughts or behaviors given the context in which they occurred. The process of validation can be as brief as a single comment or as lengthy as an entire therapeutic session. During these steps, the key is to reflect back the wisdom in the client’s view, no matter how small, without necessarily agreeing with it or condoning it (Linehan, 1993). The idea is simply to search for and highlight an element of wisdom, or kernel of truth, within the client’s thoughts or behaviors.

Fruzzetti (1997) outlined seven levels of validating responses that serve to identify the diverse array of ways a therapist or any individual can validate another person. He developed the Validating and Invalidating Behavior Coding Scale (VIBCS; Fruzzetti, 1997), which draws from, and is very similar to, the six levels of validation first outlined by Linehan (1993; see Table 1). Linehan’s and Fruzzetti’s conceptualizations of the levels of validation overlap heavily; the following section provides detailed descriptions of each level, as well as distinctions between the two models of validation where appropriate, using Fruzzetti’s model as the base for definitional descriptions because the response manipulations in the current study were developed to reflect this conceptualization.
The first level, attentive listening, simply involves paying attention to the person as they speak. Linehan’s conceptualization of staying awake includes both observing and unbiased listening. Functionally responding is the second level of validation, which involves acknowledging or accurately reflecting back the client’s disclosures. This level can also include direct responses and problem-solving behaviors. Linehan refers to this level of validation as accurate reflection. The third level of validation includes clarifying the client’s experiences (both verbalized and unverbalized); in this level, the therapist pays special attention to ensure that they understand the client by asking questions and offering suggestions to improve their understanding of the client’s situation.

Recontextualizing is Fruzzetti’s fourth level of validation; recontextualizing may take the form of putting a more positive “spin” on the client’s situation or making responses that communicate acceptance of the context in which the behaviors or thoughts occurred. Linehan’s (1993) fourth level of invalidation is somewhat different, referring more to validation of the client’s past learning experiences and/or biological dysfunction, as in “I can understand why you would do that, since such actions have served you well in the past.” The fifth level of validation is normalizing. This level emphasizes that anyone would behave or feel similarly in such a situation, with responses such as “me too” or “that makes sense.” The sixth (and Linehan’s final) level of validation is radical genuineness, which emphasizes acceptance of the client as a person, treating them as equal and competent to solve the problems at hand. Fruzzetti adds a seventh level of validation, reciprocal vulnerability. In this level, the therapist matches the client’s vulnerability with clinically-relevant and appropriate self-disclosures, maintaining an
equal power level with the client and providing a supportive environment for sensitive disclosures.

Validation has been theorized to be psychologically beneficial for a variety of reasons. Lynch and colleagues (Lynch, Chapman, Rosenthal, Kuo, & Linehan, 2006) have theorized several ways in which clinicians can utilize validating responses to enhance therapy and regulate clients’ emotions during the session. According to these authors, validation can serve at least four roles in the context of a therapy session. First, validation can be used to provide the client with valuable feedback on his/her progress; by either providing or withholding validation in response to appropriate or inappropriate responses from the client, the clinician can use validation as a reinforcer of clinical progress. Second, validation can be utilized to teach the client to self-validate, which in turn may improve their self-views and assist them in developing a more coherent view of him/herself.

Third, validation can be utilized in conjunction with direct behavioral change-based strategies to encourage the client to modify their thoughts and behaviors while feeling understood and supported. Fourth, validation may function as a source of reinforcement and encouragement when used in conjunction with direct behavioral change strategies, if the therapist alternates between suggestions for change and validation of the client’s self-disclosed feelings and behaviors. Therapist validation may increase clients' motivation to remain in therapy as well as improve treatment retention (Linehan et al., 2002). Because validation’s central behavioral principle is reinforcement (Thorp, 2001), validating responses from the therapist will likely facilitate a supportive and trusting therapeutic environment for the client.
There is some evidence that validation can be a powerful psychotherapeutic mechanism. Linehan et al. (2002) compared comprehensive validation therapy with concurrent 12-step treatment (CVT+12S) to Dialectical Behavioral Therapy (DBT) in a modified intent-to-treat analysis, to see which treatment approach could best reduce opiate use in opiate-addicted women with Borderline Personality Disorder (BPD). 23 of the 24 initial participants were included in the final analyses; one participant was dropped at the beginning of the protocol due to the discovery of a violation of inclusion criteria. The main focus of CVT was validating the client and creating a supportive, pleasant therapy environment so that clients felt confident in their ability to develop new capabilities. CVT draws upon the major acceptance-based strategies of DBT, including empathy and therapist responsiveness, and purposely excludes any active behavioral or cognitive change strategies. The authors reported that both the DBT and CVT conditions led to reduced opiate use at 16-month follow-up, with nearly equal results; the percentage of participants in each group with opiate-positive urinalyses, indicating continued opiate use, was 27% for all DBT participants versus 33% for all participants in the CVT group (this difference was non-significant). Importantly, the overall study retention rate for the CVT condition was significantly higher (100%) than for the DBT condition (64%).

These findings imply that CVT may be experienced as more pleasant or supportive than DBT, leading to an increased likelihood of remaining in therapy for the course of treatment (in this case, one year; Linehan et al., 2002). Validation may play an important role in keeping clients engaged and interested in the often-difficult process of psychotherapy. The supportive environment fostered by validating therapist responses may play a role in increasing the client’s trust in the therapist, as well as garnering client
confidence in the utility of the psychotherapeutic endeavor. Because early termination is a common problem for psychotherapy clients (Beckham, 1992), any facet of treatment that encourages clients to remain in therapy may greatly increase the chances of achieving therapy goals.

Invalidation

Invalidation can occur when a person’s thoughts, emotions, behaviors, or actions are negated, ignored, or deemed to be inaccurate or inappropriate. Invalidation serves as a punisher of the behaviors preceding the invalidating response (Thorp, 2001). Experiences of invalidation from the therapist, such as insisting on a particular interpretation of a situation or behavior, criticizing, or ignoring key client behaviors or actions, are common in psychotherapeutic relationships (Linehan, 1993). Such invalidating responses from the therapist have been hypothesized to damage the therapeutic relationship and hinder progress toward therapy goals (Fruzzetti, 1996; Linehan, 1993; 2001).

Invalidation has been conceptualized as a relatively broad set of distancing behaviors, all of which may reduce client self-disclosures. According to Fruzzetti (1997), invalidation can be active, as in the case of passing judgment on the client or blaming them for their life situations; invalidation can also occur in a passive manner, such as through unresponsiveness to self-disclosures or missing opportunities to validate. Avoidance can also be a form of invalidation, including behaviors such as emotional withdrawal or defensiveness. Lastly, Fruzzetti includes aversive control strategies such as manipulation of the client or deceitful behavior as a form of invalidating behavior. Following this conceptualization, there are many forms of therapist behaviors, from subtle to severe, that can be experienced as invalidating by the client.
More specifically, Fruzzetti (1997) identified seven levels of invalidation that can occur in interpersonal interactions. The first level of invalidation is inattention; this can take the form of distractedness or obvious eagerness to end a conversation, among other things. The second level of invalidating behavior is missed opportunities, also referred to as functional unresponsiveness. Examples of this type of invalidation include missing opportunities to validate what the client is saying, or participating insufficiently in the dialogue. Third, invalidation can involve insisting that a client feels/should feel a particular way. Insisting involves telling the client what they are thinking, wanting or feeling, without regard to or perhaps despite the thoughts, desires and feelings being reported by the client.

Fruzzetti’s fourth level of invalidation is increasing negative valence. This type of invalidating behavior occurs when the therapist agrees with or even heightens a client’s self-invalidating thoughts, such as feelings of worthlessness. Emphasizing a client’s self-invalidation may increase the negative aspects of their emotions and behaviors instead of helping the client to see them in a different light or modify their behavior. The fifth invalidation level involves pathologizing what the client is saying. In this level, the therapist may criticize the client’s reasonable behaviors, emphasizing how unusual or strange the behaviors or thoughts might have been. Frailizing is the sixth level of invalidation outlined by Fruzzetti. This level includes treating the client as if they are incompetent or too fragile to solve the problems in their lives, as well as behaviors that attack the client, such as patronizing or contemptuous responses. Lastly, the seventh level of invalidation involves indifference to vulnerability. In this level, the therapist may assume a superior position over the client by failing to respond in an empathic way to
vulnerable moments of self-disclosure on the part of the client, in effect leaving the client “out to dry.” The seven levels provide specific information on the various types of invalidating behaviors, from mild to extreme, that can occur during therapy and influence its outcome.

While validation and invalidation tend to be experienced in very different ways, it is important to note that validation and invalidation need not be seen as opposite ends of some validation-invalidation spectrum (Thorp, 2001). It is not necessarily the case that when high levels of validation are occurring, no invalidation is occurring or vice-versa. Linehan (1993) also cautions against over-validating, which can be experienced by the client as invalidating if the client feels like the therapist is minimizing the difficulty of their emotional experiences or is not taking their concerns seriously. It is also possible for a statement to be both somewhat validating and somewhat invalidating. For example, a teacher may exclaim “I’m surprised you did so well!” This would be somewhat validating because it indicates approval of the current task (level 5), but is also somewhat invalidating because it implies that the person’s typical standard of work is lacking in some way (level 6).

Similarly, it is possible that a statement intended to validate will actually serve to invalidate, if the statement is grossly incorrect, or is expressed or interpreted in an invalidating way. For example, a friend may half-heartedly mumble “I’m sure that was really difficult for you” while shuffling through papers on their desk. While the explicit content of the statement is validating, it is likely that this comment would be invalidating because the person appears to not care enough to truly listen. Clearly, the contexts in which validation or invalidation occur should be taken into account when considering
potential interpretations, rather than relying solely on the explicit content of the statement (Woodberry, Gallo, & Nock, 2008).

**Invalidation in childhood.**

The social environment in which a child is reared can greatly affect their development of interpersonal skills and risk for later psychopathology. The biosocial model of Borderline Personality Disorder first proposed by Linehan (1993) posits that biologically-based deficits in emotion regulation, such as high emotion sensitivity and intensity as well as slow return to baseline, transact with invalidating childhood environments, resulting in symptoms of the disorder. According to Linehan (1993), invalidating environments are those in which a child’s emotional responses are ignored, negated, or modified in such a way that they fail to develop appropriate emotion regulation skills and may lack a sense of private control over their emotions.

Similarly, the transactional model of dyadic functioning (Fruzzetti, Shenk, & Hoffman, 2005) provides a framework for understanding the effects of validation and invalidation on interpersonal functioning, both in childhood and as an adult. In the model, validating and invalidating behaviors can both influence and be influenced by a person’s interpersonal environment, modifying the social milieu, which in turn can shape a person’s reactions to their environment. This iterative relationship continues throughout the lifespan, and negative, invalidating childhood experiences may lead to increased risk for difficult life situations and interpersonal difficulties (Krause, Mendelson, & Lynch, 2003; Selby, Braithwaite, Joiner, & Fincham, 2008; Yap, Allen, & Ladouceur, 2008), which are common reasons for entering therapy.
The bidirectional effects central to the transactional of the model are supported by numerous studies suggesting that childhood invalidation is a key risk factor for later psychopathology (Cassidy, 1994; Krause et al., 2003; Yap et al., 2008). In line with the transactional model, Cassidy (1994) theorized that effective emotion regulation strategies assist children in attaining their goals, which leads to improved parent-child attachment through successful, supportive emotional interactions with their parents. According to this theory, if the child-parent relationship is disrupted through invalidating responses to emotion, the child then fails to learn to appropriately moderate their emotions, which in turn will likely harm their relationships with caregivers and others, increasing the child’s risk of interpersonal difficulties later in life.

Retrospectively-reported childhood emotional invalidation has been shown to contribute to adult psychological distress and to be predictive of adult depression and anxiety symptoms (Krause et al., 2003). The authors found strong support for a model in which a self-reported history of invalidating experiences in childhood predicted chronic emotional inhibition in adulthood. They found that chronic emotional inhibition was a mediator of the relationship between childhood invalidation and psychological distress in adulthood, including avoidant stress responses and ambivalent expressions of emotion. Emotional inhibition was also found to be highly predictive of later psychological symptomatology and distress, including depression and anxiety.

An invalidating childhood environment can also negatively influence a child’s development of certain emotion regulation skills. Yap and colleagues (2008) gathered cross-sectional data on the maternal relationships of Australian adolescents and found an association between adolescent-reported invalidating maternal socialization and a variety
of undesirable psychological outcomes. Across genders, the authors concluded that perceived experiences of invalidation in adolescence are negatively related to a person’s ability to regulate their emotions, as measured by questionnaire data as well as behavioral scores from a family problem-solving interaction. Adolescent participants who reported that their mothers frequently invalidated their positive affect indicated more emotionally dysregulated behaviors and maladaptive emotion regulation strategies than adolescents who did not report high levels of maternal invalidation of PA.

Interestingly, Yap and colleagues (2008) found several effects which were gender-moderated, including the association between maternal invalidating behaviors and use of maladaptive emotion regulation strategies, which was only significant for females. Also, maternal validation of positive affect was associated with greater emotion regulation abilities, but only for male participants. Furthermore, across genders, invalidated adolescents reported higher rates of depressive symptoms than their non-invalidated counterparts (Yap et al., 2008). The emotional dysregulation and higher rates of depressive symptoms may contribute to the increased mental health service utilization found for the invalidated group. It is clear from this line of research that males and females may be differentially affected by their childhood social relationships, and further research is needed to clarify these effects.

Mountford and colleagues (Mountford, Corstophine, Tomlinson, & Waller, 2006) developed the Invalidating Childhood Environments Scale (ICES) to test the effects of childhood invalidation on the development of eating disorder pathology. The ICES includes items such as “When I was anxious, my parents ignored this” and “My parents would become angry if I disagreed with them.” The authors reported that people who
scored highly on the ICES (suggesting greater levels of perceived childhood invalidation) tended to report greater levels of disordered eating. The authors also found an association between reports of invalidating environments and distress tolerance difficulties. Meditational analyses supported their original hypothesis that difficulties in tolerating distress partially mediate the relationship between childhood invalidation and eating disorders in adulthood. These findings support the theory that childhood invalidation may contribute to a variety of psychological difficulties later in life.

A similar study investigated the effects of perceived childhood invalidation by parents on romantic relationship dysfunction. Selby and colleagues (2008) used structural equations modeling to look at perceived childhood invalidation as a mediator of the relationship between BPD features and current romantic relationship dysfunction in a sample of 758 young adults. The researchers identified several relationship distress variables commonly seen in young adults with features of BPD, including poor social problem solving skills and maladaptive cognitive responses, such as “splitting.” The authors found that childhood invalidation mediated the relationship between BPD features and relationship distress, even while controlling for depressive episodes in the past year using the Composite International Diagnostic Interview (CIDI; WHO, 1990); this indicates that the impairments related to experiences of invalidation contribute to interpersonal dysfunction above and beyond the impairments that may arise from a diagnosis of Major Depressive Disorder.

**Arousal**

Physiological changes often take place in response to interpersonal interactions and the type and magnitude of the response may be related to responses provided by
one’s interaction partner. Physiological arousal often accompanies emotional reactions, and can be conceptualized as an increase and activation of specific emotional and somatophysiological processes, such as heart rate or energy level, typically in response to a stressor (Gomez, Zimmermann, Guttormsen Schär, & Danuser, 2009). Russell (1980) differentiated between two continuous, orthogonal, and distinct mood dimensions: valence (pleasantness or unpleasantness of mood) and arousal (level of activation). Thus, arousal can be pleasant or unpleasant and range from very mild to very intense. Similarly, Reisenzein (1994) characterized all affective states as drawing from both of these dimensions, resulting in membership in one of four categories: pleasure-activation; displeasure-activation; pleasure-deactivation; and displeasure-deactivation. Under this framework, high-arousal states can be experienced in a wide array of affective (pleasant or unpleasant) forms.

The experience of emotion has been shown to lead to increases in physiological arousal (Rein, Atkinson, & McCrty, 1995; Zellars, Meurs, Perrewé, Kacmar, & Rossi, 2009). Negative affect has been correlated with the strongest increases in physiological arousal, as well as slower returns to baseline levels following a stressor, when compared with positive or neutral affective states (Zellars et al., 2009). When compared with other emotions, experiences of anger were associated with the largest increases in heart rate and slowest returns to baseline, (Schwartz, Weinberger, & Singer, 1981). Negative arousal, then, particularly anger-related arousal, may typically be experienced as more intense and more long-lasting than neutral or positive forms of arousal.

Shenk (2007) investigated the effects of validation and invalidation on emotional arousal. He found that participants in the validation group reported significantly lower
levels of self-reported negative affect and had lower heart rates when compared with the invalidation group. He also found that these influences persisted over time, with repeated validation continuing to lower emotional arousal and continued invalidation maintaining and even increasing emotional arousal over time. Shenk (2007) concluded from these results that experiences of validation and invalidation do influence a person’s level of emotional arousal.

Additional studies have shown that experiences of invalidation increase emotional and physiological arousal (Woodberry et al., 2008) and delay participants’ return to normal emotional and cognitive function (Fruzzetti et al., 2005). In a study of female participants with borderline personality features, invalidation during a frustrating anagram-solving task increased physiological arousal in participants with poor emotion regulation skills (Woodberry et al., 2008). Participants were presented with both solvable and unsolvable anagrams; after four minutes spent attempting to solve the unsolvable anagrams, an experimenter provided either validating or invalidating feedback regarding their progress. While there was no difference in arousal level between groups prior to the manipulation, significant differences in self-reported emotional valence were observed; the BPD group reported less happiness and greater discomfort with their emotions when compared with the control group, even before the validating and invalidating comments were made.

The borderline-features group displayed the largest positive initial response to validation relative to previous valence ratings, whereas, somewhat surprisingly, the control group reported the most positive initial response to the invalidation condition. In this study, the authors did not detect significant differences in level of physiological
arousal between the validated and invalidated groups. It may be that the relationship between validation or invalidation and arousal level is moderated by emotion regulation ability. However, the control group reported no overall change in self-reported comfort level after either a validating or invalidating comment, which may indicate an ineffective manipulation or, alternatively, that individuals without high emotional sensitivity are less susceptible to this type of interpersonal feedback.

The Effects of Validation, Invalidation, and Arousal on Learning

The heightened physiological arousal that arises during the experience of certain emotional states can interfere with a person’s ability to learn and remember new information. High levels of emotional arousal have been shown to interfere with overall cognitive processing and information recall (Bock & Klinger, 1986; Ihssen, Heim, & Keil, 2007). In particular, high arousal has been demonstrated to negatively affect information processing and recall, particularly immediately after presentation of the information (Kleinsmith & Kaplan, 1963). The authors hypothesized that this detriment to information processing at that moment may be due to increased perseveration on the arousing information, which may hinder immediate recall. Similarly, Eysenck (1976) reported an arousal by retention interaction, in which high arousal facilitates long-term retention but is detrimental in the short term. While there may be mixed effects for arousal on short- and long-term recall, the aspects and types of presented information that are retained may also be influenced by level of arousal.

Several studies have demonstrated that strongly-valenced stimuli are recalled to a greater degree than neutral stimuli (Dolcos, LaBar, & Cabeza, 2004; Schwabe, Bohnringer, Chatterjee, & Schachinger, 2008; Woodberry et al., 2008). Because
validation is theorized to reduce emotional arousal (Fruzzetti et al., 2004), validating and invalidating experiences may differentially enhance recall of positively or negatively-valenced information. This is particularly important in the context of a therapy session, where the consolidation of the newly-presented skills and information, which is likely emotionally neutral, is critical to attaining treatment goals. Liu, Graham, and Zorawski (2008) studied the effects of positive, negative, and neutral arousal on long-term consolidation of the learned information. They first presented participants with a series of either positive, negative, or neutral pictures, then subjected them to post-learning arousal manipulations that were positively arousing, negatively arousing, or neutral in valence. Participants returned one week later to perform a free recall test, and the researchers found that both the positive and negative arousal manipulations enhanced consolidation of the presented information, but only for stimuli with an emotional component.

Although it has been found that arousal can in fact facilitate recall of the arousing stimuli in some cases (Marx, Marshall, & Castro, 2008; Schwabe et al., 2008), there is also evidence that arousal may lead to significant memory impairment for some aspects of the presented information. Mather (2007) outlined a model to predict the effects of arousal on various types of information encoding. She theorizes that high arousal facilitates recall of the specific features associated with the arousing stimulus, but that that same high arousal also interferes with the formation of associations between the highly arousing stimuli and other objects and the contextual features surrounding it. In a therapeutic context, this may account for enhanced memory of a negative event and decreased memory for the strategies presented to solve the problem, unless some method of reducing the arousal is used. If validation is used to reduce arousal during therapy
sessions, it may be the case that the validation serves to increase the client’s ability to learn new information related to skill use at that moment (Lynch et al., 2006).

Experiences of invalidation can also directly affect the ways in which information is processed and decisions are made. Mazursky and Schul (2000) conducted a study on the effects of invalidation on participants’ judgment rules and the effort involved in making those judgments. They found that, following an experience of invalidation, even well-informed participants switched from complex to simple processing methods, using simpler decision rules. Post-invalidation decision times were also shorter than the decision times of people who did not receive invalidation, which is also indicative of less complex processing. This simplification of information processing following an invalidating experience may influence learning task performance for the participants who receive invalidating feedback from the experimenter.

**Objectives of the Proposed Research**

The primary aim of the current study was to investigate the effects of validation and invalidation on learning performance. We hypothesized that validation would decrease the emotional arousal that results from a discussion of emotionally-charged information, leading to better performance on a learning task; likewise, we predicted that invalidation would maintain and increase the emotional arousal resulting from an emotionally-relevant discussion, leading to greater impairment on learning tasks. The present study utilized methodology that we tested in a pilot study comparing three standardized experimental manipulations of invalidation. The manipulations we compared included angry story recall, angry video clip, and a frustrating computerized task. We concluded, based upon our study findings, that the story recall condition was the
most effective manipulation, based both on reported experience of invalidation and a significant increase in self-reported negative affect from pre- to post-invalidation. We used the story recall task as the emotion-inducing manipulation for all participants in the present study.

Because of the many potential benefits of validation and the potential harms of invalidation, particularly in the context of psychotherapy, further investigation of the effects of validation, invalidation, and emotional arousal is needed. Our current understanding of these constructs and the roles they play during the therapeutic process is limited, and as such, will benefit from greater empirical knowledge of these relations through controlled experimental validation and invalidation in a laboratory setting. Ultimately, all retrospective self-reports of invalidation are inherently confounded with concurrent self-reports of psychological dysfunction. Based upon these reports alone, it is not possible to determine the directionality of the relationship; furthermore, any observed effects may be influenced by a distinct third variable. Because of this limitation, experimental manipulation of validating and invalidating experiences will allow us to control for outside factors and determine the directions of effect.

The present study aims to fill a gap in the current literature and expand our understanding of the effects of validation and invalidation on a person’s ability to learn new information in psychotherapy. Our primary objective is to test validation and invalidation in a laboratory setting to determine the effects on participants’ ability to learn new information, as measured by their performance on two learning tasks. Because invalidation is theorized to increase physiological arousal, we also collected heart rate and heart rate variability data during the study to examine the relative levels of
physiological arousal experienced in each phase of the protocol. Further study of the
effects of validation and invalidation is key to developing an understanding of how
validating and invalidating responses can affect the mood, physiology, and performance
of the communication receiver.

**Hypotheses**

We anticipated that validation following a negative emotional experience would reduce the amount of psychological and physiological arousal experienced in response to the event (Lynch et al., 2006), whereas invalidation after a negative emotional experience would increase psychological and physiological responses further by contributing to the arousal that drives and maintains them, resulting in a reduction in learning task performance. We hypothesized that:

**Hypothesis 1**

Participants who were validated after a personally-relevant, emotionally arousing task would perform better on two learning tasks than people who were either invalidated or emotionally aroused without further communication from the experimenter (i.e. general emotional arousal). We predicted that general emotional arousal would interfere with learning ability, but to a lesser degree than would be seen with invalidation. Participants in the validation condition would perform most strongly on the learning tasks, followed by the arousal condition, then the invalidation condition, with the poorest learning task performance.

**Hypothesis 2**

We also predicted that level of emotional arousal would mediate the relationship between validation condition (validation, invalidation, or arousal) and learning task
performance. In other words, validation would lead to improved learning task performance via reductions in emotional arousal, and invalidation would lead to poorer learning task performance via increases in emotional arousal.
Participants

Participants in the study were recruited from introductory psychology courses at The Ohio State University. All study participants were 18 years of age or older, with a mean age of 20.04 years (SD = 4.74). The sample was 55.6% male and 43.4% female; 68.7% were Caucasian, 11.1% identified as African-American, 11.1% as Asian-American, 4% as Latino, and 5% as bi/multi-racial or other background. All participants provided written consent, and all received course credit for their participation in the study. Of the 107 participants who completed the protocol, 8 were omitted due to language difficulty and protocol violations, for a final sample of 99 participants. Each of the three condition groups contained 33 participants.

Measures & Materials

The measures we administered are listed below. See Appendix B for a copy of all measures created specifically for the present study.

Demographic questionnaire.

A brief demographic questionnaire was administered to obtain basic information about the participants, including: age, gender, ethnic group, level of education completed, and other information.

Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988).

The PANAS was designed to measure positive and negative affect. It consists of ten positive affect (PA) words (e.g., determined, excited) and ten negative affect (NA) words (e.g., hostile, guilty). Each participant rates the strength of each affective term on a
scale from 1 (not at all) to 5 (extremely). We asked participants to rate how they were currently feeling at that moment. From these ratings, scores for positive and negative affect were calculated. The PANAS has been found to be stable, highly internally consistent, and the two factors are largely uncorrelated (Watson et al., 1988).

**Self-Reported Validation and Invalidation Scale (SRVIS).**

We also utilized a preliminary scale which we began developing in an earlier stage of the current line of research. The measure, the Self-Reported Validation and Invalidation Scale (SRVIS), is a ten-item, four-point Likert-scaled measure of participants’ perceived levels of validation or invalidation. The scale was based loosely upon Fruzzetti’s (1997) Validating and Invalidating Behavior Coding Scale, and includes items such as “Did you feel the experimenter took your responses seriously?” and “How much did you feel the experimenter was paying attention to you?” Initial analyses of the measure are promising but show the need for further psychometric refinement of the instrument. As part of the current line of research, we further refined the SRVIS for use in studies of the effects of validation and invalidation. We reworded the items to remove “feel” statements to increase objectivity in participants’ ratings (i.e. “Did you feel that the experimenter was responsive to your emotions?” became “Was the experimenter responsive to your emotions?”) The proposed changes improved the psychometric properties of the SRVIS. See the Results chapter for further discussion of the SRVIS.

**Emotion Word Wisconsin Card Sort Test (WCST; Berg, 1948).**

For the learning task section, we presented a modified emotion word version of the Wisconsin Card Sort Test (WCST; Berg, 1948), using the words “Calm,” “Love,” and “Rage” on the cards. The WCST is a reliable, objective measure of set-shifting ability,
cognitive flexibility, and attentional control (Berg, 1948). Card sort tests have been shown to have adequate ecological validity (Kibby, Schmitter-Edgecombe, & Long, 2000). See the Study Procedure section for further details on the modifications and card sort design. See Figure 2 for an example of the emotional card sort stimuli.

**Emotion word paired-associates task.**

We also used an emotion word paired-associates task to assess participants’ ability to retain and recall previously-presented information. Participants were first presented with 15 emotional word pairs, which included angry words such as “yell” and “stress,” and neutral words like “fence” and “sock,” and were encouraged to try to remember them. Recall was tested 15 minutes after presentation of the list, then a second time approximately 24 hours later (via telephone). We created our own version of the task; however, similar paired-associates tasks have been shown to have adequate validity and reliability (e.g. Ragland, Gur, Deutch, Censits, & Gur, 1995). See Table 6 for the list of paired associates utilized in the present study.

**Study Procedure**

Participants were taken to a private clinic room to begin their study session. All sessions were video and audio recorded. First, the purpose of the study was explained. The consent form and verbal script informed participants that we were studying the effects of emotional arousal on learning performance; we did not disclose that validation or invalidation would take place. All printed materials given to participants (except the debriefing form) used a pseudo-title replacing the words “Validation and Invalidation” with the less specific “Emotional Arousal.” Participants were informed that they would fill out questionnaires, participate in an emotion-inducing task, perform two learning
tasks, then complete several post-task questionnaires. Participants were also informed that the session would be video recorded.

Once consent was obtained and any questions were answered, participants completed an initial battery of questionnaires to obtain basic demographic information, determine baseline levels of emotional arousal and affectivity, and assess potential moderators of the relationships among response type (validation, invalidation, or no response), arousal, and learning, such as emotion regulation ability or gender. Participants were also asked to rate their current mood on a one to ten scale, with 0 being the worst they’ve ever felt, 10 being the best they’ve ever felt, and 5 being neutral in mood, experiencing neither positive nor negative emotions (see Appendix B for a copy of this form).

Participants then engaged in an angry story recall task, in which they were asked to think silently for one minute about an instance in their life when they felt intense anger. They were encouraged to remember the situation as fully as possible, focusing on how they felt and the details of the event. They then wrote about the experience for three minutes. At the end of the writing period, the researcher asked them to again rate their current mood from one to ten, then describe and explain the situation verbally in a very detailed manner, including their thoughts, feelings, and behaviors at the time.

One-third of the participant pool was randomly assigned to then receive validating responses from the researcher, another third was assigned to receive invalidating responses, and a final third (those in the emotional arousal condition) did not interact with the researcher after the anger induction, but instead went directly from the angry story recall to the learning tasks. Following the feedback manipulation, participants were
again asked to rate their current mood from one to ten. See Figure 1 for a visual representation of the study design. The feedback condition protocols are described in detail below.

**Feedback condition.**

The validation condition utilized a flexible validation script (see Appendix A) to ensure that all participants received a very similar set of validating responses, both in terms of total time being validated as well as the specific statements and questions being used. For the invalidation condition, a flexible invalidation script (see Appendix A) was utilized, with similarly structured invalidating responses (i.e. “That’s a reasonable response” became “That’s an atypical response”). Each participant received either validation or invalidation for approximately four minutes, with the exception of the emotional arousal participants, who proceeded immediately from the story recall task to the learning tasks.

**Learning tasks.**

Following the validation, invalidation, or no response phase of the experiment, participants began the first of two learning tasks. Participants were first presented with the word set for an emotion word paired-associates task to memorize. After this presentation, participants engaged in a modified emotion word version of the Wisconsin Card Sort Test (WCST; Berg, 1948). Modified versions of the WCST have been utilized in several studies. Deveney and Deldin (2006) created an emotion word modification of the Wisconsin Card Sort Test, replacing the four traditional shapes (triangles, circles, stars, and plus signs) with emotional words from three categories: positive valence (i.e. “festive”), neutral valence
(i.e. “cabinet”), and negative valence (i.e. “agony”). Instead of four different shapes, four different fonts were utilized for the “shape” rule. They then gave the card sort test to a group of individuals with Major Depressive Disorder and a control group. They found that the control group was less flexible when presented with positive words, whereas the MDD group was less flexible when working with negative words. This expands upon previous research findings that the valence of presented information can affect how it is processed, depending on the mood state of the person doing the set shifting.

Similarly, one study modified the WCST to measure set shifting ability and attentional control in people with spider phobias (Mohlman, Mangels, & Craske, 2006). They replaced the traditional shapes with a new set of positive (i.e. apples), neutrally-valenced (i.e. paw prints), general threat (i.e. skulls) and specific phobic threat (i.e. spiders) icons, to measure the effects of the presence of the phobic stimulus on task performance. They found that the fear-relevant cues lowered performance ability on the card sort test for people high in self-reported spider phobia. Both sets of results highlight the promise of using an emotionally-modified card sort task to test for specific valence-related effects on cognitive flexibility.

In the present study, an angry, neutral, or positive word (in this study, “Rage,” “Calm,” or “Love,” respectively) was presented on a target card that varied in three ways: number of words (one to four repetitions of the word), color (red, blue, green, or brown), and font (four distinctly different font styles). Participants were first presented with a target card, then asked to choose the card that was the same as the target card from three other cards, each of which matched the target card in only one aspect (i.e. number, color, or font). Participants first chose which card matched the target card based on one of its
attributes (i.e. matching by color, by number, or by font), and confirming or disconfirming feedback was provided as cards were chosen correctly/incorrectly according to which “rule” was in place for matching. Once a participant provided ten consecutive correct answers, the matching rule changed without notice, so that the previously correct matching rule suddenly produced incorrect answers, and the participant had to choose a new matching rule.

The card sort test functions as a measure of cognitive flexibility, measuring how long a participant continues to perseverate on the previously-correct decision rule, even after that rule has proven obsolete. Our emotional card sort task included eight rule changes. Following completion of the card sort test, participants performed the first word recall section of the paired-associates task. Participants then proceeded to the post-task questionnaires. The researcher left the room during the post-task questionnaires, and participants were provided with a large envelope to place their responses in before handing them back to the researcher to encourage honest responding. All participants completed a self-report questionnaire on how validated or invalidated they felt during the task (see Self-Reported Validation and Invalidation Questionnaire, Appendix B) as well as the Positive and Negative Affect Schedule a second time (PANAS; Watson et al., 1988) to measure affectivity post-task.

Once the post-test questionnaires were completed, the debriefing process began. At the start of the debriefing process, we asked participants in all conditions to report what they thought the study was measuring (see Appendix B for manipulation check questionnaires). This was to determine whether the intentionally validating and invalidating comments provided by the experimenters were experienced as genuine, or if
some participants realized that we were purposely validating or invalidating them. If this were to occur, it might have impacted their level of emotional response to the manipulations. In addition to a verbal debriefing, participants were given a copy of the debriefing form to take home. See Figure 1 for a detailed flow chart of the study design.
Chapter 3: Results

Analytic Plan

As a first step, the questionnaire data were examined to ensure that assumptions of normality were met and check for significant skewness or kurtosis in the data distribution. We also looked for multivariate outliers and examined descriptive data and patterns of relationships among the questionnaire variables (using correlational analyses), to ensure that the means and standard deviations were within expected ranges based on previous research.

We used one-way and mixed-model analyses of variance to test the effects of feedback manipulation (validation, invalidation, or emotional arousal) on learning task performance and participant-reported invalidated experiences and distress. We treated the feedback manipulation as a three-level (validation, invalidation, arousal) grouping variable, by which we divided the participants for analyses. The four types of dependent variables were: 1) self-reported validation/ invalidation (SRVIS), 2) self-reported affect (PANAS, 1-10 mood ratings), 3) the card sort outcome variables and 3) paired associates recall. The data were analyzed using a series of one-way analyses of variance, comparing the results across the three feedback manipulations and also a separate comparison of validation and invalidation only. The within-subject (pre- and post- task) PANAS data were analyzed using a mixed 2x3 ANOVA to compare pre- and post- questionnaires across the three response conditions.
Sample Description

Our final sample included 99 participants. There were no pre-manipulation differences between conditions on any of the variables of interest (see Table 2). Correlations among questionnaires can be found in Table 3.

Testing for assumptions underlying data analyses.

To identify potential outliers in the data set, we standardized outcome variables and identified any data points further than 3.3 standard deviations from the sample mean for that variable, as suggested by Tabachnick and Fidell (2001). Four participants’ scores were identified as outliers on the emotional card sorting task responses and were omitted from relevant analyses. Analyses were run with and without these outliers, and no differences were observed in terms of significance or pattern of results.

All outcome variables were then analyzed for skewness and kurtosis. For skewness, we utilized a cutoff of +/- 3.3 standard deviations from the mean (using standardized values) to identify significant skewness, using values suggested by Tabachnick and Fidell (2001). Kurtosis was then analyzed by dividing the kurtosis value for each variable by the standard error for kurtosis, then utilizing a +/- 3.3 standard deviation cutoff. Several variables were found to have significant skewness and/or kurtosis, including many of the card sort dependent variables (i.e., total responses, total error, failure to maintain set (rule of 5), learn-to-learn index, percent conceptual response for all three card types (rage, calm, and love), and total SRVIS score.

The non-normally distributed variables were first square-root transformed; following this transformation, four variables fell within acceptable levels of normality, including the Learn-to-Learn Index, percent conceptual response for the rage and love
cards, and total SRVIS score. These four variables were included in their square-root-transformed form in all subsequent analyses. The rest of the non-normal data required further transformation and both log-transformations and inverse transformations were performed. Unfortunately, none of these transformations corrected the deviations from normality observed in the distributions. The non-transformed scores were used for the remainder of the card sort dependent variables.

To address potential experimenter effects, we ran all analyses with and without experimenter as a covariate. Experimenter was non-significant in the majority of cases, with several exceptions. We will present both values for all analyses with a significant experimenter effect. See Figure 3 for a graph of SRVIS means by condition for each experimenter, identified by their first initial. Table 4 displays the number of participants run by each experimenter across the three manipulation conditions.

Finally, because our response rate at follow-up was less than optimal, we also compared rate of follow-up response across the three experimenters to test for potential response differences rate due to experimenter. We performed a chi-square analysis on follow-up response rate by experimenter, and found no significant differences, $\chi^2 (4, N = 39) = 6.00$, $p = .20$.

**Psychometric Properties of the Self-Reported Validation and Invalidation Scale**

We measured invalidation using the Self-Reported Validation and Invalidation Scale (SRVIS), a measure that was created specifically for this line of research. The version of the SRVIS utilized in this experiment was modified from a previous version used in a study comparing three experimental manipulations of invalidation. These modifications, which included simplifying items and making the questions more direct
(e.g., “Do you feel that…” became “Were you…”), significantly improved overall reliability. See Appendix B for a copy of the measure. There are 10 items (scored on a 0 to 4 scale) that assess experiences of invalidation and validation. Lower scores are associated with more validation and higher scores are associated with more invalidation.

In order to assess potential improvements in the psychometric properties of the SRVIS, we compared data from the most similar condition in a previous study (invalidated angry story recall) to the invalidated condition in this study; the previous study did not have any validation or neutral conditions and, as such, we were unable to compare all of the conditions in this study. The range of responses increased in the adapted version; the range of scores in the original study was 1-26 (out of 40), and the range was 2–34 in this sample. Additionally, internal reliability was significantly improved in this version of the measure (alpha = .83), compared with the previous version of the measure (alpha = .64). However, the mean invalidation score numerically decreased in this study (M = 14.31) compared to the same manipulation in the previous study (M = 16.94).

As a manipulation check, we analyzed total SRVIS scores from the current sample using a one-way ANOVA and found a significant main effect for condition, \[ F(2, 95) = 12.02, p < .001 \]. Participants in the invalidation condition reported the highest invalidation, with a mean score of 14.31 (SD = 7.60), followed by the arousal condition with 5.48 (SD = 3.78), and the validation condition, with an average score of 3.03 (SD = 3.16) on the SRVIS. Tukey post-hoc comparisons confirm that the mean for validation was significantly different from the means for both arousal (\( p = .03 \)) and invalidation (\( p \))
The difference between means for invalidation and arousal conditions approaches significance \((p = 0.07)\).

Importantly, with experimenter included in the model, we found no significant main effect for experimenter for SRVIS total score \([F(2, 89) = 1.49, p = 0.23]\), and the interaction between experimenter and condition was also non-significant \([F(4, 89) = 1.85, p = 0.13]\). The main effect for condition remained significant with experimenter in the model \([F(2, 89) = 9.55, p = 0.003]\).

**Hypothesis 1**

We hypothesized that participants in the validation condition would have better performance on both learning tasks than participants in the invalidation or emotional arousal conditions, with invalidated participants performing most poorly on the learning tasks. Within this prediction, we also hypothesized that participants in the emotional arousal condition would perform worse than those in the validation condition but better than those in the invalidation condition. To test this hypothesis, we compared performance across the three conditions on two learning tasks: an emotion word card sorting test and a paired-associates word recall.

Learning task performance was also analyzed separately with experimenter as covariate to account for the possibility of experimenter effects. We found a significant main effect for experimenter, as well as significant condition-by-experimenter interactions, for several variables: total responses, total errors, and failure to maintain set using both the rule of three and the rule of five. Upon graphing the data by condition and experimenter to clarify these effects, we discovered that the interactions were primarily a result of the mean of a very small subsample \((N = 2)\), and were influenced strongly by
the data of a single participant. This relationship was similar across the four significant experimenter-by-condition effects. See Figure 4 for a sample graph of this effect, using the mean total responses card sort data. When this participant’s card sort data were omitted from the analyses, these interactions became non-significant in every case. Conclusions based upon these interactions should be considered highly tentative at best, due to the lack of a general pattern of experimenter differences along with large confidence intervals for these comparisons. We present both sets of data when significant experimenter effects are present, with this caveat in mind.

**Emotion word card sort test.**

See Table 5 for means by condition on these variables.

**Total responses, total errors.**

As a basic measure of test completion, we calculated the total number of responses provided by each participant, as well as the total number of errors committed during completion of the test. We performed a one-way ANOVA with three conditions on both variables, and found that there were no significant differences on the total number of responses \([F (2, 91) = 0.04, p = .97]\) or the total number of errors made \([F (2, 91) = 0.07, p = .94]\). These results indicate roughly equivalent performance across all conditions in terms of the sheer number of responses, as well as errors, made by participants.

When including experimenter in the model, the main effect for condition was significant for both total responses \([F (2, 85) = 4.19, p = .02]\) and total errors \([F (2, 85) = 3.46, p = .04]\). We found a significant experimenter effect for both total responses \([F (2, 85) = 6.91, p = .002]\) and total errors \([F (2, 85) = 7.28, p = .001]\). A significant
experimenter-by-condition interaction was obtained, both for total responses \( F(4, 85) = 4.10, p = .004 \) and total errors \( F(4, 85) = 3.74, \ p = .01 \), which were both found to rely on a single data point and must therefore be interpreted with caution.

**Failure to maintain set.**

Participants’ responses were then analyzed for failures to maintain set, which occur when a participant deviates from a correct answer pattern of either three or five consecutive correct answers (i.e., they receive repeated feedback that their rule is correct but then fail to continue using it). The manual for the Wisconsin Card Sorting Test (Heaton, Chelune, Talley, Kay & Curtiss, 1993) recommends a Failure to Maintain Set cutoff of five consecutive correct answers preceding the switch to incorrect responding; we analyzed the data using this rule and again using a slightly less conservative rule of three consecutive correct answers before the switch to an incorrect rule. When comparing across all three conditions, no significant differences were obtained in total number of failures to maintain set, neither for the rule of three \( F(2, 91) = 0.03, p = .97 \) nor the rule of five \( F(2, 91) = 0.01, p = .99 \).

When controlling for experimenter effects, the main effect for condition was not significant using the rule of three model \( F(2, 85) = 2.14, p = .12 \) but was significant with the rule of five model \( F(2, 85) = 3.74, p = .03 \). The experimenter effect approached significance using the rule of three model \( F(2, 85) = 692, p = .07 \), and we found a significant main effect for experimenter using the rule of five model \( F(2, 85) = 3.32, p = .04 \). A significant experimenter-by-condition interaction was obtained for both the rule of three \( F(4, 85) = 2.70, p = .04 \) and the rule of five \( F(4, 85) = 4.79, p = .002 \)
models. These relationships were once again driven by a single atypical data point, falling from significance when this participant’s data was omitted.

The data on failure to maintain set do not support our initial hypothesis that learning task performance would be better for the validation condition (nor that individuals in the invalidation condition would do more poorly).

**Conceptual responding.**

Participants’ scores were then analyzed using percent of total responses that were conceptually-driven; conceptual responding was defined as any group of three or more consecutive correct answers. If a response was located within a “run” of three or more correct answers, it counts toward that individual’s percent conceptual responding score, as indicated in the WCST manual (Heaton et al., 1993). There were no significant differences in percent conceptual responding (CR) between the three conditions, neither for overall percent CR \( F(2, 91) = 0.12, p = .89 \), CR with Love cards \( F(2, 90) = 0.30, p = .74 \), CR with Calm cards \( F(2, 91) = 0.26, p = .78 \), nor CR with Rage cards \( F(2, 91) = 0.68, p = .51 \). We also divided the sample according to the first card presented (Love, Calm, or Rage) and found similar non-significant results. As an overall summary of task performance, the lack of differences in percent conceptual responding speaks to the equivalence of learning task performance between conditions.

**Learn-to-learn index.**

The Learn-to-Learn index (Heaton et al., 1993) compares an individual’s percent conceptual responding across trials to see if the participant increases their conceptual responding as they proceed through the task (i.e., that they respond in a conceptual manner for a larger percentage of responses in trial 6 versus in trial 1). Based on the one-
way ANOVA, there were no significant differences between conditions on this index \[ F(2, 90) = 0.97, p = .38 \].

The nine outcome measures from the card-sorting paradigm were designed to represent multiple aspects of learning performance, including cognitive flexibility and ability to shift set. As presented above, we found no pattern of differences between conditions on any of the outcome variables. Based upon the null results for these nine ECST outcome comparisons, it appears that the data do not support our initial theory that invalidation disrupts learning.

**Word recall.**

Our second learning performance task involved a delayed word-recall task using emotional-neutral word pairs. We hypothesized that invalidation would lead to poorer word recall compared to performance in the validation and arousal conditions, and that validation would result in improved recall compared to performance in the invalidation and arousal conditions. Time 1 recall occurred 15 minutes following presentation of the word pairs; Time 2 recall occurred approximately 24 hours post-presentation; see flow diagram (Appendix D). On average, 6.07 words were recalled at Time 1 (range = 0 – 15), which is somewhat lower than we initially expected.

Unfortunately, approximately half of the subjects were lost to Time 2, resulting in data for only 43 participants (12 validation, 15 arousal, and 16 invalidation) at this later assessment point. Participants were lost to follow-up due to inability to reach participants (i.e., participant not answering phone) and experimenter error (i.e., forgetting to call). No participants refused to participate in this assessment when contacted, or when informed of the follow-up call at the time of initial consent.
To assess differences between conditions in paired-associates word recall across the two time points, we performed a mixed 3 (condition) x 2 (time) ANOVA to assess differences in word recall across time points. We found a significant main effect for time \([F (1, 40) = 73.23, \ p < .001]\) but not condition \([F (2, 40) = 0.86, \ p = .43]\). The interaction between time and condition was not significant \([F (2, 40) = 1.09, \ p = .35]\). Although the main effect for condition and the interaction effect were not significant, we examined the relations between each of the groups at each time point and found no differences between any of the conditions. Finally, due to the amount of missing data at time 2, we also compared word recall at Time 1 alone, and again found no effect for condition \([F (2, 96) = 0.24, \ p = .79]\).

Our results did not support our initial hypothesis that validation would lead to strongest word recall, nor that invalidation would negatively affect it. Figure 5 shows the word recall data across the three manipulation conditions.

**Hypothesis 2**

Our second prediction was that level of emotional arousal would mediate the relationship between validation and invalidation and learning task performance.

We did not test arousal as a potential mediator of the relationship between level of invalidation and learning task performance because we did not find significant differences in learning across conditions for this sample. Our results do not lend support to this hypothesis.
Additional Analyses.

Positive affect.

To test the hypothesis that validation would lead to greater increases in positive affect (PA) than would invalidation or arousal (and that invalidation would lead to greater decreases in PA than validation or arousal), we performed a mixed 3 (condition) x 2 (time) ANOVA, with the PA subscale of the PANAS as the dependent variable. There were three levels of condition (validation, invalidation, and arousal) which were measured at two time points (i.e., pre- and post-manipulation). We first conducted analyses with all three conditions included. We also conducted analyses comparing only the experimental conditions (i.e., validation and invalidation).

Comparing across all three conditions, we found a main effect for time \( F(1, 96) = 29.72, p < .001 \). We found no main effect for condition \( F(2, 96) = 0.46, p = .63 \), although the time by condition interaction approached significance \( F(2, 96) = 2.77, p = .07 \). When validation and invalidation were analyzed without including arousal, the main effect for time remained significant \( F(1, 64) = 25.82, p < .001 \), and condition remained non-significant \( F(1, 64) = 0.11, p = .74 \). The interaction effect was statistically significant, \( F(1, 64) = 7.67, p = .01 \), with invalidated participants experiencing significantly greater reductions in PA than validated participants. See Figure 6 for a comparison of all three conditions.

Negative affect.

To test our hypotheses that validation would lead to greater decreases in negative affect (NA) than invalidation or arousal (and that invalidation would lead to greater increases in NA than validation or arousal), we used a mixed 3 (condition) x 2 (time)
ANOVA, utilizing the negative affect (NA) subscale of the PANAS. Comparing across the three manipulation conditions, we found no main effect for time [$F (1, 96) = 1.96, p = .16$] nor condition [$F (2, 96) = 0.32, p = .73$]. The interaction between time and condition was also not significant [$F (2, 96) = 0.29, p = .75$].

When comparing validation and invalidation alone, similarly non-significant results for time [$F (1, 64) = 1.81, p = .18$] and condition [$F (1, 64) = 0.002, p = .97$] were obtained. The interaction remained non-significant [$F (1, 64) = 0.39, p = .53$]. The data do not support the current theory in this area that invalidation leads to increased negative affect. Figure 7 shows all three manipulation conditions.

**Mood ratings.**

To test our hypothesis that the validation/invalidation manipulation would differentially affect mood, we compared participants on mood ratings (with the scale ranging from 1 to 10) taken at four time points across the 90-minute protocol. The first mood rating occurred during initial questionnaires (baseline mood), followed by the second mood rating immediately after the manipulation (manipulation mood), the third during post-questionnaires, and finally, the fourth rating was obtained at the 24-hour follow-up telephone call (follow-up mood). Three of the time points yielded useable data for analysis; due to an experimenter error on the data collection form, there were only 6 responses at the third time point (post-questionnaire) and, thus, this time point was omitted from analyses. Furthermore, due to difficulty re-establishing contact with some participants at 24-hour follow-up, less than optimal data were gathered for the follow-up mood rating (N = 43).
We tested mood ratings using two models: first, we compared in-session mood ratings using only the baseline and manipulation mood ratings, then looked at all three mood ratings (baseline, manipulation, and 24-hour follow-up) to test mood rating differences across the entire protocol. Looking across all three conditions at baseline and manipulation mood ratings only, we found a significant main effect for time \( F(1, 92) = 35.69, p < .001 \) but not condition \( F(2, 92) = .05, p = .96 \). The interaction between time and condition approached significance \( F(2, 92) = 2.43, p = .09 \), suggesting a trend toward greater reductions in mood ratings for the arousal and invalidation conditions over time.

We then compared mood ratings across the entire protocol. Using a mixed ANOVA, we found a significant main effect for time \( F(2, 36) = 7.99, p = .001 \). We again found no main effect for condition \( F(2, 36) = 0.36, p = .70 \). The interaction between condition and time of rating was not significant \( F(4, 36) = 1.87, p = .13 \). We found a significant experimenter effect for mood ratings across the protocol \( F(2, 36) = 6.82, p = .004 \). When experimenter is included as covariate, the main effect for time remains significant \( F(1, 31) = 15.37, p < .001 \), and the main effect for condition remains non-significant \( F(2, 31) = 0.73, p = .49 \). The interaction between time and condition becomes significant \( F(4, 31) = 2.76, p = .04 \), indicating that the pattern of change in mood rating was significantly influenced by experimenter, with experimenter K yielding lower mood ratings overall.

We then looked at validation and invalidation alone, using both models. Testing baseline and manipulation mood only, the main effect for time remained significant \( F(1, 62) = 14.14, \ p < .001 \) but condition was not \( F(1, 62) = 0.09, p = .76 \). The interaction
was also not significant \[ F (1, 62) = 2.02, p = .16 \]. When we tested across all time points (baseline, manipulation, and follow-up), similar results were obtained. Time was again significant \[ F (2, 24) = 10.29, p < .001 \], and there was again no main effect for condition \[ F (1, 24) = 0.20, p = .66 \]. The time-by-condition interaction was not significant \[ F (2, 24) = 1.34, p = .27 \].

We found a significant main effect for experimenter when looking at validation and invalidation only across the entire protocol \[ F (2, 21) = 9.19, p = .001 \]. There was no main effect for condition \[ F (1, 21) = 0.05, p = .82 \], and time remained significant \[ F (1, 21) = 12.77, p < .001 \]. The time by condition interaction approached significance \[ F (1, 21) = 2.44, p = .10 \]. See Table 7 for more information. Figure 8 shows mood ratings across time for all three manipulation conditions.
Chapter 4: Discussion

The results we obtained in the present study, for the most part, did not support our initial hypothesis that validation would lead to better learning task performance (nor that invalidation would negatively impact learning task performance). Because there were no differences in learning task performance, the analyses planned to determine what mechanisms might explain such differences were not conducted. Thus, we did not test the hypothesis that level of emotional arousal would mediate the relationship between level of invalidation and learning task performance. We did, however, find that invalidation led to greater reductions in positive affect compared with validation, and that there were no group differences in changes in negative affect.

Summary and Interpretation of Findings

The most central finding from the present study was the lack of differences in learning task performance between the validation and invalidation groups. We tested the three conditions on a variety of outcome measures designed to capture many aspects of learning task performance, and found similar task performance across all experimental groups. It may be the case that experiences of invalidation do not, in fact, lead to poorer performance on learning tasks (and that validation does not lead to better performance); it may also be the case that the two learning tasks we tested differ in some meaningful way from the forms of learning that occur in therapy. The emotion word card sorting test was designed to measure cognitive flexibility in the presence of emotionally-relevant information, including the ability to identify patterns and shift attentional set when appropriate. Similarly, the word recall task was designed to measure one’s ability to encode new information and retain meaningful word-pairings; for this study, participants
were provided with the angry words and asked to recall the neutral words that were previously associated with it. It may be the case that these tests of learning are not tapping into the forms of learning most affected by invalidating experiences during a therapy session.

If the learning tasks we tested are not representative of real-world learning in the context of psychotherapy, then the null results we observed may speak only partially to a lack of impact by validation and invalidation on learning new information and skills in therapy. Other forms of learning within a therapy session may include generation of solutions for a specific problem, modeling of skillful behaviors, or integrating new information into an existing conceptualization. Attentional shifting and information encoding are only two forms of learning among many, and experiences of validation and invalidation may differentially affect these forms of learning.

Because no studies to date have directly tested the impact of validation and invalidation on learning task performance, little is known about which forms of learning may be affected by negative interpersonal exchanges such as invalidation. Our study is a first step toward examining these effects; further testing using additional learning tasks that tap into different forms of therapeutic learning are clearly warranted. While our results do not support the current theory regarding the role of invalidating experiences on cognitive functioning, they do raise important questions about the types of learning which may be affected, as well as the interpersonal characteristics required for greatest impact when invalidated.

The results of the present study differ somewhat from other initial research on the impact of validation and invalidation on affect, and also do not align with the theorized
cognitive effects of such experiences. Lynch and colleagues (2006) theorized that validation would increase one’s ability to acquire new information at that moment. This is believed to take place via validation’s theoretical potential to reduce emotional arousal (Fruzzetti, 2004). Validating a client who is experiencing emotional distress may serve to reduce the intensity of emotional arousal at that moment, facilitating effective processing and better retention of in-session information and skills. It may be the case that the theorized reductions in emotional arousal following experiences of validation do not impact the forms of learning utilized in the present study. Alternatively, it is possible that the impact of validation on emotional arousal is less robust or differs from the theory in some other meaningful way; further studies of the impact of both validation and invalidation on emotional arousal are needed to clarify these relationships in a larger context of results.

Another important finding from the present study was that validation did not reduce self-reported negative affect, nor did invalidation increase it. This stands in contrast to initial research in this area by Shenk (2007), who did find that experiences of validation led to lower self-reported negative affect and lower heart rate, when compared with participants in an invalidation group. He concluded from his study that experiences of validation and invalidation influence self-reported negative affect. Our results did not support this finding; rather, we observed stronger differences in positive affect. This discrepancy raises important questions about the conditions necessary for positive or negative emotional impact under validating and invalidating circumstances.

One potential explanation for this difference between findings may be the nature of the interactions between experimenter and participant. Shenk (2007) found that the
effects of validation and invalidation on negative affect were strongest over time, across multiple instances of invalidation. Shenk’s study utilized a longitudinal design, incorporating multiple instances of invalidating responses from the experimenter, whereas in the present study, invalidating responses were limited to a single four-minute section of the protocol. It may be the case that a single, longer instance of invalidation has less affective impact than do repeated, shorter instances of invalidation from the same individual. Lastly, because so few studies have directly investigated the effects of invalidation on negative affect, little exists in the way of empirical evidence to support any particular set of findings. Additional research is needed to determine the effects of validation and validation on affect with any degree of confidence.

Thirdly, we found that invalidation led to greater reductions in positive affect than did the validation condition. The broaden-and-build theory of positive emotions may provide a potential explanation for the greater decreases in positive affect seen in the invalidation group. The broaden-and-build theory (Fredrickson, 2004) states that positive affect facilitates a wide array of approach behaviors, such as interest, willingness, curiosity, and openness to new information. Additional therapy-enhancing approach behaviors have been identified in the research literature, including: flexibility, creativity, efficiency, interpersonal understanding, and positive reinterpretation (Isen, 2001; Linley & Joseph, 2004). Because positive affect is crucial to the development of adaptive behaviors and “enduring personal resources,” which may be used to cope with later hazards (Fredrickson, 2004; Garland, Fredrickson, Kring, Johnson, Meyer, & Penn, 2010), invalidation may serve to reduce client’s ability to build and sustain effective functioning, one of the fundamental goals of nearly all psychotherapy. Little research has
been done regarding the effects of validation and invalidation on positive affect, so this finding highlights an important direction for future research.

**Implications**

If our findings regarding positive affect are also seen in clinical samples, the resulting reductions in positive affect stemming from both intentional and unintentional invalidation may narrow behavioral repertoires and hinder willingness and engagement in treatment. The presence of positive affect has been theorized to be an important contributor to (and generator of) change events within the therapeutic process (Fitzpatrick & Stalikas, 2008). It may be the case that experiences of emotional invalidation from the therapist reduce clients’ willingness to actively engage in the therapeutic process, increasing the likelihood of emotional “shutdown” and making them less likely to seek solutions to treatment goals and challenges.

Fredrickson (2004) emphasized the function of positive affect as a signal to continue on in a line of thinking or action. Reductions in positive affect following experiences of invalidation may also threaten the therapy process by increasing the likelihood of session no-shows, lateness, or premature termination, all of which will negatively impact progress toward therapy goals. The impact of invalidating experiences on positive affect, and in turn its effects on behaviors related to both the therapeutic relationship and progress toward treatment goals, remain intriguing questions to be tested in future studies.

It may also be the case that the potential reductions in positive affect that occur following invalidation from one’s therapist hinder one’s ability to re-engage in the therapy process following interpersonal disruptions in treatment, such as
misunderstandings or conflict. Linley and Joseph (2004) reviewed research on positive affect and recovery from adversity, and found that participants reporting higher positive affect were more likely to experience “adversarial growth” following a trauma, including positive coping strategies such as stress-related growth and benefit-finding, than participants with less positive affect. It is possible that invalidation, which in itself can be an adversarial event, may further negatively impact clients’ psychological functioning by hindering their ability to cope with later adversarial events such as a rupture in the therapeutic relationship.

These findings are consistent with a study conducted by McCollough and colleagues (1991) examining positive and negative patient-therapist interactions and their implications for various therapy outcomes. They concluded that interventions followed by positive affective responses predicted improvement at the end of treatment, whereas self-protective reactions were correlated with negative treatment outcomes. These results highlight the possibility that invalidated clients may “shut down” cognitive and/or emotional responses and harm the treatment process by disrupting goal progress.

Limitations

Because the present study was conducted with an undergraduate population, rather than a treatment-seeking sample, our ability to generalize findings to the treatment-seeking population is limited. In particular, it is likely that the sample differed from the treatment-seeking population in terms of rate of psychopathology and/or emotion dysregulation. It is likely that the undergraduate population we sampled from is more emotionally and psychologically healthy than would be observed in a clinical sample;
lower emotional intensity and/or reactivity may influence our results if participants were less affected by the invalidating responses offered by the experimenter.

In this same vein, participants may also be less affected by the invalidation manipulation due to the nature of the interaction itself. In a treatment setting, the client has chosen to engage in the therapeutic process with an individual they believe will be helpful, whereas the participants in the present study were fulfilling a course requirement, without expectation of establishing a relationship with, nor receiving assistance from, the experimenter. The nature of the relationship in which invalidation occurs is likely to affect how strongly one is impacted by experiences of invalidation. Also, the stage of the relationship at which invalidation occurs may also affect its impact, ranging from the very first session of treatment to wrap-up sessions following months of successful (or unsuccessful) therapeutic collaboration. Further research in this area should test the effects of validation and invalidation within an existing therapeutic relationship across various time points to test these questions.

It is also possible that learning did not vary by condition because the tasks were simply too easy or because participants were not fully engaged in completing them. We have some evidence that our tasks were sufficiently challenging to most participants. First, the mean number of words recalled at time 1 (including all three conditions) was only 6.07 of a total of 15 possible; even at 15 minutes post-presentation, participants were correctly recalling less than half the presented word pairs. Second, of the 98 participants analyzed on the emotion word card sorting test, 89 subjects (90.8%) completed all eight rule trials within the 15 minute time window, and nine (9.2%) did not. Both the low word recall average and the observed variability in learning task performance indicate some
variance in individual performance. In terms of active engagement in the learning tasks, it remains possible that some participants simply did not attempt the learning tasks with their full ability; of the nine individuals who did not successfully complete all trials, four were identified as outliers and were omitted from analysis, in an attempt to limit the influence of such participants on our final sample.

Finally, our angry story manipulation relied upon recall of a previous anger-inducing event rather than a current situation, potentially resulting in a less-intense emotional response that would be experienced with real-time anger in the present moment. Compared with the intense emotions sometimes experienced by clients as they describe ongoing interpersonal difficulties and challenge their own maladaptive habits and cognitions, the angry story told by study participants may not have been as strongly experienced. Some individuals may not have been very emotionally affected by this later telling of the angry story, particularly if the situation had already been resolved or if much time had passed. Using a retrospective angry story may have lessened the emotional intensity of the manipulation, leading to reduced self-reported affect.

**Future Directions**

Several questions were raised by the present study. If differences in learning task performance were not observed due the utilization of non-representative forms of learning task assessment, what aspects of the types of learning that occur during psychotherapy are most crucial to include in tests of this learning? To what extent does the quality of the therapeutic relationship affect the cognitive impact and/or degree of emotional dysregulation experienced by the receiver of the validation or invalidation? Finally, what forms of invalidation occur most frequently in real-world psychotherapy?
Are more-frequent, lower levels of invalidation more damaging to therapy than the occasional, more-intense invalidating comment? We are seeking answers to these questions, as well as many others, as we design the next phases of this line of research.

In terms of future research, we are interested in testing the SRVIS with clinical samples to determine whether self-report of invalidation correlates with established observational coding measures of invalidation. The next step in this line of research will be to code the video recordings of our experimental sessions using Fruzzetti’s Validating and Invalidating Behavior Coding Scale (VIBCS; Fruzzetti, 1997). We will then compare the self-report ratings of invalidation provided by the participant to observer ratings of the experimental session to determine the degree of concordance between these two ratings. We aim to determine the concurrent validity of the SRVIS as compared with an established observer-rating coding system, to assess the potential of the SRVIS for research use in this area. We are also interested in comparing participants’ self-reported emotional experiences with their physiological responses to the same interactions, to examine the moment-to-moment relationship between experiences of invalidation and physiological arousal in greater detail.

Furthermore, we are interested in testing self-reported validation and invalidation as predictors of treatment behaviors, particularly those proposed to be associated with the experience of positive affect, such as dropout, session attendance, homework completion, and satisfaction with treatment. The primary goals of this line of research are to develop and refine the SRVIS as well as learn more about the clinical implications of experiences of validation and invalidation. We plan to examine the effects of validation and invalidation on positive affect within a treatment-seeking sample to determine if positive
affect is reduced for a client population under invalidating conditions. Reduced positive affect stemming from in-session experiences of invalidation have the potential to reduce vulnerable self-disclosures in-session, open communication with the therapist, willingness to engage in stressful techniques such as prolonged exposure, or a host of other ways of “narrowing” one’s behavioral repertoire at that moment.

**Conclusions**

While our results did not support our initial hypotheses that validation would lead to better learning task performance, and invalidation to poorer performance, we did discover that, in this study, invalidation led to greater reductions in positive affect compared to validation, which may influence participants’ willingness to engage in approach behaviors. This has potential implications for treatment because successful attainment of treatment goals relies heavily on the active participation of the client in the therapy process. If invalidating responses can reduce positive affect, therefore making approach behaviors such as openness, willingness, and creativity less likely, then such invalidation by the therapist interferes with successful treatment. Efforts on the part of the therapist to limit or prevent clients’ inadvertent experiences of invalidation will likely pay off by reducing barriers to treatment and enhancing the therapy relationship by maintaining positive affect throughout the therapy process.

Further research is needed to determine if the results we obtained with an undergraduate sample are also observed with a sample of participants who are currently receiving psychological treatment. Additional research should also seek to identify the relationship factors (interpersonal, temporal, and otherwise) that may increase or decrease the magnitude of a person’s emotional and cognitive responses to invalidation. Further
clarification of the complex relationships among validation, invalidation, mood, and cognition will provide important clues to inform therapeutic strategies and facilitate effective treatment.
References


Appendix A: Validation and Invalidation Scripts
Validation Script

You should immediately begin the validation script once the story recall task is over. Position yourself, remaining seated, so that you are near the participant, facing them (with them facing you). Begin with:

- Starter prompt: *Now I’m going to ask you about what you just completed. Can you tell me what you wrote about just now?*

Once they reply/begin to reply, say

“Sure. That seems like a pretty good reason to get upset.”

(If they don’t report any negative feelings, ask them if there was anything they didn’t like or anything that made them uncomfortable. Then proceed off of that.)

They may try to defend/explain their feelings, to which you reply:

“That’s a pretty common response. Tell me more about why you felt that way.”

Be sure to nod often and make encouraging, pleasant faces to show that you agree with and understand their emotional responses.

As they try to explain further, gently ease in and provide a quick summary of what they were just saying, stating that you “just want to make sure you are understanding them 100%.” Ask them if you got it right.

At this point, we’re hoping they’re feeling pretty validated. Follow up with several of the following responses. **Pay attention to the time (validate for 4 minutes).**

- Right, right.
- Ok. Sure. Yep …
- I’m not surprised you felt that way.
- I hear that a lot.
- It seems like you were pretty angry/betrayed/frustrated/sad/devastated/upset! (whatever they are reporting)
- I hear these types of responses all the time.
- Yeah, it seems like you handled the situation pretty well.
- This is a pretty good example of an angry story!
- No wonder you… (highlight truth of their actions somehow)
- I can see why that would make you/him angry.
- From what you’re saying, it seems like you acted in a reasonable/fair/mature way.
- Other people often usually feel/ see like you did.
- Do you think other people would feel the same way? (agree with them that they would)
- Do you think you would probably feel the same way if it happened again now? (agree)
- Are there other explanations for that? Oh yeah, well that makes sense too.

End prompt: “Well thank you for sharing that with me. We’re almost the end of the study, so will you please fill out these two surveys?”
Invalidation Script

You should immediately begin the invalidation script once the task is over. Position yourself, remaining seated, so that you are near the participant, facing them (with them facing you). Begin with:

- Starter prompt: Now I’m going to ask you about what you just completed. Can you tell me what you wrote about just now?

Once they reply/begin to reply, say

“Really? That doesn’t really seem like something to get (that) upset about.”

(If they don’t report any negative feelings, ask them if there was anything they didn’t like or anything that made them uncomfortable. Then proceed off of that.)

They may try to defend/explain their feelings, to which you reply:

“That’s just a really unusual response. Tell me more about why you feel/felt/ that way/ think the lawyer felt that way.”

Be sure to make faces of surprise to show how strange their emotional responses are.

As they try to explain further, stare off into space/at the clock/write in notebook for a while, then reply with “Wait, what?” when they stop talking. Ask them to repeat what they just said.

At this point, we’re hoping they’re getting a bit flustered/ irritated. Follow up with several of the following responses. Pay attention to the time (invalidate for 4 minutes).

- Really? (said negatively)
- That’s not that bad.
- Hmm… (in a way that would make them nervous)
- I’m surprised you feel that way/think he feels that way.
- Well, it seems to me that you’re not angry, you’re just “____.”
- I haven’t heard those responses before.
- Yeah, you/he could have handled that better.
- Is this the best example that you have?
- No wonder they/ (highlight fallacy of their actions somehow)
- I don’t see why that would make you/him angry.
- But you’re not really sure…
- What you’re saying strikes me as really odd.
- Other people don’t usually feel/ see it that way.
- It didn’t really have anything to do with you, did it?
- What do you think it is about you that might make you angry in this situation?
- Do you think other people would feel the same way?
- Are there other explanations for that? Oh yeah, well that makes more sense.

End prompt: “Anyways, that’s almost the end of the study. The last step now is to fill out these two surveys.”
Appendix B: Study Forms
Demographic Questionnaire

Participant Number: ____________
Age: _______ Gender: ____________
Telephone: ______________________

Racial/Ethnic background:
_____ African or African-American
_____ Asian or Pacific-Islander
_____ Caucasian or of European ancestry
_____ Latino or Hispanic
_____ American Indian or other tribal affiliation
_____ Bi- or Multi-Racial
_____ Other (please specify): _________________________________________

Nation in which you were born: _______________________________________
Religious affiliation (if any): ___________________________________________
Year in school and major: _____________________________________________

Current relationship status (circle one):
   a) single
   b) in a relationship, not cohabitating
   c) in a non-married relationship, cohabitating
   d) married, cohabitating
   E) divorced or widowed
      If answered (b, c, or d): years in current relationship: _____
      If answered (b, c, or d): quality of current relationship:
         a) poor (fighting, unhappiness, stress about partner, etc)
         b) moderate (neither unhappy nor happy, or mixed feelings)
         c) strong (supportive, source of happiness)

Current relationship with family of origin (circle one):
   a) No relationship (i.e. no contact)
   b) Strained relationship, conflicts and/or negative feelings
   c) Mixed relationship, both positive and negative feelings
   d) Strong relationship, continued support and positive feelings
Story Recall Prompt

Tell us about a time that you were very angry.
We would like you to think for one minute, in as much detail as you can, about a time that you were very angry. Go over the event in your head, including as much information about the event as you can, paying particular attention to the emotions you were feeling at the time. After one minute of thinking time, the researcher will tell you to begin writing. You will then write about the event for three minutes, including as many details as you can. If you finish early, please re-read your writing focus on what you were feeling at the time. It is okay if you don’t finish your writing by the end of the three minutes.

Please type your response below:
Self-Reported Validation and Invalidation Scale (SRVIS)

Please rate the following ten statements using the scale below:

<table>
<thead>
<tr>
<th>Scale</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Never</td>
</tr>
<tr>
<td>1</td>
<td>Rarely</td>
</tr>
<tr>
<td>2</td>
<td>Sometimes</td>
</tr>
<tr>
<td>3</td>
<td>Often</td>
</tr>
<tr>
<td>4</td>
<td>Almost Always/Always</td>
</tr>
</tbody>
</table>

1) Was the experimenter paying attention to you?
2) Was the experimenter interested in what you had to say?
3) Did the experimenter take your responses seriously?
4) How well were you understood by the experimenter?
5) Was the experimenter responsive to your emotions?
6) Did the experimenter tell you what you should think or feel?
7) Did the experimenter see your responses as abnormal or inaccurate?
8) Did the experimenter increase your negative feelings?
9) Was the experimenter condescending or contemptuous toward you?
10) Did the experimenter see you as more fragile than you really are?
Word Recall Forms

TIME 1
Please fill in the blanks with the accompanying word from the previously-presented list of word pairs. Answer as many as you can remember.

1) Fight
2) Yell
3) Attack
4) Sock
5) Conflict
6) Cry
7) Swear
8) Hurt
9) Fret
10) Mad
11) Stress
12) Rude
13) Drama
14) Curse
15) Shock
TIME 2 (24 hours post-session)

On a scale from one to ten, how would you rate your current mood? (circle one)

<table>
<thead>
<tr>
<th>Worst I’ve Ever Felt</th>
<th>Neither Positive Nor Negative</th>
<th>Best I’ve Ever Felt</th>
</tr>
</thead>
<tbody>
<tr>
<td>0   ---- 1   ---- 2   ---- 3   ---- 4   ---- 5   ---- 6   ---- 7   ---- 8   ---- 9   ---- 10</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Telephone script: “I would like to ask you to recall the list of word pairs presented to you in yesterday’s REP session. Please fill in the blanks with the accompanying word from the previously-presented list of word pairs. Answer as many as you can remember. I will say a word, then wait for you to respond with the word it was paired with or to say, “I don’t know” before moving to the next word. Are you ready to begin?”

1)  Fight ______________________
2)  Yell ______________________
3)  Attack _____________________
4)  Sock ______________________
5)  Conflict ____________________
6)  Cry ________________________
7)  Swear _____________________
8)  Hurt ______________________
9)  Fret ______________________
10) Mad _______________________ 
11) Stress _____________________
12) Rude ______________________
13) Drama _____________________
14) Curse _____________________
15) Shock _____________________
Manipulation Check Forms

On a scale from one to ten, how would you rate your current mood? (circle one)

<table>
<thead>
<tr>
<th>Worst I’ve Ever Felt</th>
<th>Neither Positive Nor Negative</th>
<th>Best I’ve Ever Felt</th>
</tr>
</thead>
<tbody>
<tr>
<td>0  ----  1  ----  2  ----  3  ----  4  ----  5  ----  6  ----  7  ----  8  ----  9  ----  10</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Time: ________
On a scale from 0 to 10:

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Somewhat</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>9</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

1). How much do you like the experimenter? _____

2.) Did you experience any emotion in response to your interactions with the researcher? _____

   If so, please indicate the emotion(s) experienced (using the 1 – 10 scale above):

3.) anger _____

4.) shame _____

5.) joy _____

6.) resentment _____

7.) confidence _____

4.) Did you think this study session was difficult compared with other studies? _____

Lastly,

What do you think this study is trying to measure?

___________________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________

73
Appendix C: Tables
Table 1: Comparing Fruzzetti’s and Linehan’s Levels of Validation

<table>
<thead>
<tr>
<th>Level of Validation</th>
<th>Fruzzetti</th>
<th>Linehan</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>Attentive listening</td>
<td>Staying awake</td>
</tr>
<tr>
<td>Second</td>
<td>Functionally responding</td>
<td>Accurate reflection</td>
</tr>
<tr>
<td>Third</td>
<td>Clarifying</td>
<td>Clarifying</td>
</tr>
<tr>
<td>Fourth</td>
<td>Recontextualization</td>
<td>Validation of past learning</td>
</tr>
<tr>
<td>Fifth</td>
<td>Normalizing</td>
<td>Normalizing</td>
</tr>
<tr>
<td>Sixth</td>
<td>Radical genuineness</td>
<td>Radical genuineness</td>
</tr>
<tr>
<td>Seventh</td>
<td>Reciprocal vulnerability</td>
<td></td>
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<tr>
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<td>33</td>
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<td>Age in Years</td>
<td>19.00 0.98</td>
<td>21.21 3.12</td>
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<tr>
<td>Pre-PANAS-PA</td>
<td>27.21 8.80</td>
<td>29.30 7.02</td>
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<tr>
<td>Pre-PANAS-NA</td>
<td>14.73 4.35</td>
<td>13.76 4.27</td>
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<tr>
<td>AIM</td>
<td>3.59 0.57</td>
<td>3.62 0.49</td>
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<td>DERS</td>
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<td>75.70 17.91</td>
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<td>IIP</td>
<td>55.07 24.93</td>
<td>59.03 27.56</td>
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<td>MDEES</td>
<td>3.45 0.34</td>
<td>3.31 0.39</td>
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<td>PAI-BOR</td>
<td>24.97 11.49</td>
<td>24.21 10.08</td>
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Table 3: Pearson’s Correlations Among Outcome Variables

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<th>NA</th>
<th>Pre Mood</th>
<th>Post Mood</th>
<th>F/u Mood</th>
<th>Word Recall 1</th>
<th>Word Recall 2</th>
<th>Error/Resp</th>
<th>FMS 3</th>
<th>% CR</th>
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<tr>
<td>Error/Resp</td>
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<tr>
<td>FMS 3</td>
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<tr>
<td>% CR</td>
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Table 4: Distribution of Participants across Condition and Experimenter

<table>
<thead>
<tr>
<th></th>
<th>Validation</th>
<th>Arousal</th>
<th>Invalidation</th>
<th>Total</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>12</td>
<td>9</td>
<td>11</td>
<td>32</td>
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</tr>
<tr>
<td>A</td>
<td>19</td>
<td>16</td>
<td>14</td>
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<td>K</td>
<td>2</td>
<td>8</td>
<td>8</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>Total N</td>
<td>33</td>
<td>33</td>
<td>33</td>
<td>99</td>
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</tr>
</tbody>
</table>


Table 5: Cart Sort Test Outcome Variables by Validation Condition

<table>
<thead>
<tr>
<th>Variable</th>
<th>Validation</th>
<th>Arousal</th>
<th>Invalidation</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M (SD)</td>
<td>M (SD)</td>
<td>M (SD)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Responses</td>
<td>117.75 (38.44)</td>
<td>117.66 (35.90)</td>
<td>115.67 (29.42)</td>
<td>0.04</td>
<td>.97</td>
</tr>
<tr>
<td>Errors</td>
<td>24.97 (27.99)</td>
<td>26.09 (27.54)</td>
<td>23.60 (26.08)</td>
<td>0.07</td>
<td>.94</td>
</tr>
<tr>
<td>Error/Resp</td>
<td>0.18 (0.10)</td>
<td>0.19 (0.13)</td>
<td>0.18 (0.12)</td>
<td>0.10</td>
<td>.91</td>
</tr>
<tr>
<td>FMS (3)</td>
<td>3.00 (3.76)</td>
<td>3.00 (4.27)</td>
<td>2.90 (3.46)</td>
<td>0.01</td>
<td>.99</td>
</tr>
<tr>
<td>FMS (5)</td>
<td>1.50 (2.27)</td>
<td>1.66 (2.95)</td>
<td>1.57 (2.18)</td>
<td>0.03</td>
<td>.97</td>
</tr>
<tr>
<td>% CR</td>
<td>83.69 (7.25)</td>
<td>82.47 (9.70)</td>
<td>82.97 (12.52)</td>
<td>0.12</td>
<td>.89</td>
</tr>
<tr>
<td>% CR- Rage</td>
<td>83.29 (11.98)</td>
<td>81.85 (11.56)</td>
<td>84.50 (10.70)</td>
<td>0.68</td>
<td>.51</td>
</tr>
<tr>
<td>% CR- Calm</td>
<td>83.24 (12.41)</td>
<td>81.69 (18.77)</td>
<td>80.19 (18.61)</td>
<td>0.26</td>
<td>.78</td>
</tr>
<tr>
<td>% CR- Love</td>
<td>84.43 (9.60)</td>
<td>84.99 (9.62)</td>
<td>87.37 (9.27)</td>
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<td>.74</td>
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<tr>
<td>Lrn-to-Lrn</td>
<td>.005 (.045)</td>
<td>.009 (.038)</td>
<td>.006 (.036)</td>
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<td>.38</td>
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</table>

Table 6: Angry - Neutral Word Pairs Utilized in the Word Recall Task

<table>
<thead>
<tr>
<th>Fight - Attic</th>
<th>Cry - Hay</th>
<th>Stress - Tires</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yell - Book</td>
<td>Swear - Fence</td>
<td>Rude - Film</td>
</tr>
<tr>
<td>Attack - Pencil</td>
<td>Hurt - Cone</td>
<td>Drama - Trail</td>
</tr>
<tr>
<td>Sock - Hate</td>
<td>Fret - Bean</td>
<td>Curse - Metal</td>
</tr>
<tr>
<td>Conflict - Green</td>
<td>Mad - Row</td>
<td>Shock – Tooth</td>
</tr>
</tbody>
</table>

Table 7: Mean Mood Ratings by Validation Condition

<table>
<thead>
<tr>
<th>Variable</th>
<th>Validation</th>
<th>Arousal</th>
<th>Invalidation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M (SD)</td>
<td>M (SD)</td>
<td>M (SD)</td>
</tr>
<tr>
<td>Baseline Rating</td>
<td>6.05 1.26</td>
<td>6.50 1.61</td>
<td>6.25 1.58</td>
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<tr>
<td>Manipulation Rating</td>
<td>5.85 1.29</td>
<td>5.42 1.50</td>
<td>5.69 1.63</td>
</tr>
<tr>
<td>Follow-Up Rating</td>
<td>7.30 1.25</td>
<td>6.00 1.87</td>
<td>6.63 1.15</td>
</tr>
</tbody>
</table>

N = 36.
Appendix D: Figures
Figure 1: Diagram of Study Design
Figure 2: Sample Card from Emotion Word Card Sorting Test

Figure 3: Mean SRVIS score by condition by experimenter (N = 98; validation = 33, arousal = 32, invalidation = 33). C, A, and K are the first initials of the three experimenters.
Figure 4: Mean Total Responses by Condition by Experimenter (N = 98, validation = 33, arousal = 32, invalidation = 33)

Figure 5: Mean words recalled by condition, at delays of 15 minutes and 24 hours post-manipulation (N = 43; validation = 12, arousal = 15, invalidation = 16)
Figure 6: PANAS PA score by condition (N = 99; validation = 33, arousal = 33, invalidation = 33)

Figure 7: PANAS NA score by condition (N = 99; validation = 33, arousal = 33, invalidation = 33)
Figure 8: Mean mood rating by condition across the protocol
(N = 39; validation = 10, arousal = 13, invalidation = 16)