THE MODERATING EFFECTS OF CLIENT INFORMATION PROCESSING STYLE
ON BENEFITS GAINED FROM DELIVERED AND INTERACTIVE
MMPI-2 FEEDBACK

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ABSTRACT

This study investigated the interaction between test feedback style (interactive and delivered) and a client’s information processing style (experiential and rational) based on Cognitive Experiential Self-Theory (CEST) with a sample comprised of 39 clients from a university outpatient clinic and a community outpatient clinic in a midsized, midwestern city. Participants were randomly assigned to one of three groups: interactive test feedback, delivered test feedback, and examiner attention control group. Participants attended three sessions (initial session, feedback session, follow-up session) with a doctoral-level examiner. Participants in the two experimental groups (interactive and delivered feedback) received test feedback on their MMPI-2 profiles based on their assigned feedback condition while participants in the control group were not provided with feedback until after the conclusion of the study. The instruments assessing client response to treatment over time consisted of process-oriented (client’s perception of counselor and session) and outcome-oriented (symptomatology and self-esteem) measures.

The results of two MANCOVAs (one for process and one for outcome variables) found no difference between participants who received test feedback and the control group. Partial support was found for the attribute by treatment interactions. There was some support for the matching effect of experiential information processing and interactive test feedback. This interaction was significant for self-esteem; individuals with higher levels of experiential information processing who received interactive feedback reported higher levels of self-esteem over time than those participants receiving delivered feedback or examiner attention only. The interaction of experiential
information processing and treatment group was also significant for symptomatic distress; however, this interaction was opposite to the hypothesized direction. A matching effect for rational information processing and delivered test feedback was not supported. Finally, the three-way interaction of test feedback style, information processing style, and time was not significant for the process- or outcome-oriented benefits.

The current study is one of the first studies to examine personality feedback with a community outpatient population. The lack of support for the benefits of personality feedback is noteworthy. In part, the results may be explained by low statistical power. Further examination of beta weights and directions of effects, however, suggest that even with a larger sample support for the benefits of personality feedback may not be found. These findings suggest caution should be exercised in generalizing previous results to a more severely impaired community population. Other limitations are discussed and implication for theory, research, and practice are provided.
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Chapter 1

Introduction

The purpose of this investigation is to study the impact of rational and experiential information processing styles (Epstein, 1990; Epstein, Pacini, Denes-Raj, & Heier, 1996; Pacini & Epstein, 1999) on the therapeutic benefits gained by outpatient clients receiving delivered or interactive Minnesota Multiphasic Personality Inventory-2 (MMPI-2; Butcher, Dahlstrom, Graham, Tellegen, & Kaemmer, 1989) feedback (e.g., El-Shaieb, 2005; Hanson & Claiborn, 2006; Hanson, Claiborn, & Kerr, 1997). In accordance with cognitive-experiential self-theory (CEST), there are two independent, yet interactive information processing systems that operate simultaneously and contribute uniquely to human behavior: the rational system and the experiential system (Epstein, 1990; Pacini & Epstein, 1999). It is hypothesized that clients with higher levels of rational information processing are more likely to benefit from delivered test feedback than interactive feedback or examiner attention only. In addition, clients with higher levels of experiential information processing are hypothesized to benefit more from interactive test feedback than from delivered feedback or examiner attention only. This study will examine whether matching clients to a test feedback style that is congruent to their information processing style will increase the therapeutic benefits of test feedback over time.
Background

Psychological assessment is a major activity of psychologists (Watkins, Campbell, Nieberding, & Hallmark, 1995) and its therapeutic impact has being increasingly examined in the last two decades (e.g., Allen, Montgomery, Tubman, Frazier, & Escovar, 2003; Finn & Tonsager, 1992; Hanson et al., 1997; Hanson & Claiborn, 2006; Hilsenroth, Peters, & Ackerman, 2004; Newman & Greenway, 1997). The practice of assessment was historically used to gather additional information about the client, assist in diagnostic decisions, and to guide treatment planning (Campbell, 1999). The information garnered from assessment instruments was used primarily to increase the clinician’s understanding of clients and their functioning, but the information was not necessarily shared with the client. In fact, some segments of the professional community actually discouraged disseminating test results to clients because it was believed the information had the potential to be harmful to clients (Forster, 1969; Klopfer & Kelley, 1946 as cited in Tallent, 1988, p. 47-48).

The increased use of assessment tests in the counseling process has redefined the role of the client in the assessment process (Campbell, 1999) and has led many clinicians to advocate for assessors to provide test results to clients either verbally or through a written report (Butcher & Perry, 2008; Finn, 1996; Fischer, 1972, 1979). In the process of counseling the test taker is considered “the primary user of the test results” (American Educational Research Association, American Psychological Association, & National Council on Measurement in Education, 1985, p. 55). It is from this perspective that counselors and counseling psychologists often use test results to “stimulate client exploration and empower clients to make their own decisions” (Campbell, 1999, p. 3).
The transformation of the client’s role in the assessment process is also partly due to recent conceptual support (Finn & Butcher, 1991; Finn, 1996; Lewak, Marks, & Nelson, 1990) and empirical support (Finn & Tonsager; 1992; Goodyear, 1990; Newman & Greenway, 1997) for the positive effects of test feedback to clients as well as the inclusion of test feedback in ethical guidelines for psychologists (American Psychological Association [APA], 1990).

Models of Assessment

There are two primary models of assessment utilized by psychologists: the information gathering model and the therapeutic model (Finn & Tonsager, 1997). The information-gathering model has a long history in psychology and is still used frequently in practice (Watkins et al., 1995). It is primarily concerned with gathering data, assisting in treatment planning and goal setting, and revitalizing therapy when there is an impasse or difficulty (Finn & Tonsager, 1997). The therapeutic model is a relatively new approach to psychological assessment although some clinicians have engaged clients in a similarly collaborative assessment process (see Fischer, 1970, 1972). Finn (1996) proposed a model of therapeutic assessment (TA) that emphasizes using assessment as a therapeutic intervention. This model views the psychological assessment process as collaborative and empathic, which is hypothesized to assist with symptom reduction.

Personality Test Feedback—Conceptual Literature

Discussions about the use of personality test feedback as a therapeutic intervention have been largely conceptual and practice-oriented (Butcher, 1990; Finn & Butcher, 1991; Lewak et al., 1990). Many authors have proposed that providing personality test feedback can result in numerous benefits to clients and the counseling
process. Lewak and colleagues (1990) suggested that test feedback results in clients experiencing relief as they feel understood, increases client involvement in therapy, improves communication between the client and clinician, and validates clients’ self-perceptions. Finn and Butcher (1991) summarized the benefits experienced by clients following test feedback based on their cumulative clinical experience. They reported that clients experience an increase in self-esteem, reduction in feelings of isolation, increase in feelings of hope, decrease in symptoms, greater self-awareness and understanding, and increase in motivation to seek mental health services and more actively participate in ongoing therapy.

**Personality Test Feedback—Empirical Literature**

Until recently, most empirical investigations of personality test feedback have focused on the effects of providing false personality feedback or Barnum statements to research subjects (for reviews, see Dickson & Kelly, 1985; Furnham & Schofield, 1987; Goodyear, 1990; Snyder, Shenkel, & Lowery, 1977). Several researchers have questioned the relevance of these studies as they lack ecological validity because the interpretive procedures deviate from what occurs in usual counseling practice (Furnham & Schofield, 1987; Hanson & Claiborn, 2006). Over the last 15 years, a number of studies have examined the impact of accurate personality test feedback provided to test takers (Allen et al., 2003; Ackerman, Hilsenroth, Baity, & Blagys, 2000; Allison, 2001; Barrett, 2003; Corner, 2004; El-Shaieb, 2005; Finn & Tonsager, 1992; Guzzard, 2000; Hanson & Claiborn, 2006; Hanson et al., 1997; Hilsenroth et al., 2004; Newman & Greenway, 1997; Rachal, 2000). These studies provide initial support for the benefits of test feedback to clients.
Finn and Tonsager (1992) conducted a groundbreaking study on how clients benefited from accurate personality feedback. The participants ($N = 60$) were randomly assigned to either an attention-only control group or an MMPI-2 test feedback experimental group. The feedback sessions followed Finn’s (1996) collaborative model of assessment. Participants who completed the MMPI-2 and received feedback reported a decrease in symptomatic distress, significantly higher levels of self-esteem, and more hope about their problems. Participants who reported feeling more positive about the assessment experience had a greater reduction in symptoms and increase in self-esteem. These findings were not related to time between testing, severity or type of psychopathology, or attitudes towards mental health professionals.

Newman and Greenway (1997) replicated Finn and Tonsager’s (1992) study with minimal changes to their design and measures. Any deviation from the original study served to strengthen the research, such as administering the MMPI-2 to both the control and experimental group to control for testing effects and using a psychometrically improved self-esteem instrument (i.e., Self-Liking/Self-Competence Scale; Tafarodi & Swann, 2001). Their findings were similar to the original study. Participants who received MMPI-2 test feedback experienced a significant decline in their symptomatic distress at the 2-week follow up and reported an increase in self-esteem immediately after the feedback session and at the 2-week follow-up. In addition, these therapeutic effects were not a result of the administration of the MMPI-2, level or type of psychopathology, or clients’ attitudes towards mental health professionals. They did not replicate the finding that clients who reported feeling more positive about the assessment experience
had a greater reduction in symptoms and an increase of self-esteem as reported by Finn and Tosager (1992).

An interesting finding in both the Finn and Tonsager (1992) and Newman and Greenway (1997) studies is that client benefits were augmented at the follow up session. There was no significant difference in symptoms between the experimental group (i.e., participants received test feedback) and the control group (i.e., participants received no test feedback) at Time 1 and Time 2 (Finn & Tonsager, 1992; Newman & Greenway, 1997). At the two-week follow-up (Time 3), however, there was a significant difference between the experimental and control groups, with the experimental group reporting significantly less symptomatic distress ($d = 0.79^1$) Finn & Tonsager, 1992; $d = 0.45^1$ Newman & Greenway, 1997). A similar trend occurred for the outcome variable of self-esteem. In Finn and Tonsager’s (1992) study, there was not a significant difference in self-esteem between the experimental and control groups at Time 1. Clients in the experimental groups, however, reported higher levels of self-esteem at both Time 2 and at the two-week follow-up (Finn & Tonsager, 1992). In Newman & Greenway’s (1997) study, there was a significant difference between the two groups at Time 1, with the experimental group experiencing significantly lower levels of self-esteem than the control group. However, the experimental group had similarly reported levels of self-esteem as the control group at Time 2 and significantly higher levels of self-esteem than the control group at the 2-week follow-up (Newman & Greenway, 1997). These results indicate that the positive effects of test feedback may not be realized or experienced immediately. It

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$^1$ Cohen’s $d$ was calculated from data reported in the study with the following equation: $d = 2t/\sqrt{DF}$
may be that test feedback as a therapeutic intervention is an active process in which understanding and acceptance of the feedback occurs over time. The elaboration likelihood model (ELM; Petty & Cacioppo, 1986) lends support to this process of change over time, which will be discussed in more detail later.

**Test Feedback Style**

The majority of empirical research seems to indicate that personality test feedback not only provides direct benefits to clients (e.g., symptom reduction, improved self-esteem, increased hope), but also positively contributes to the therapeutic process (e.g., positive evaluations of the examiner and session, rapport-building). Many researchers recently have begun to shift their focus to understanding “which aspects of the feedback session were responsible for the changes?” (Finn & Tonsager, 1992, p. 279). In an effort to address this question empirically, a small body of literature has turned its attention to investigating the effects of different styles of personality test feedback (Ackerman et al., 2000; Allison, 2001; Barrett, 2003; Corner, 2004; El-Shaieb, 2005; Guzzard, 2000; Hanson & Claiborn, 2006; Hanson et al., 1997; Hilsenroth et al., 2004). A significant portion of this literature is comprised of dissertations (Allison, 2001; Barrett, 2003; Corner, 2004; El-Shaieb, 2005; Guzzard, 2000). The two styles of feedback that have been examined most are interactive and delivered. The interactive feedback style is conceptually drawn from Finn’s (1996) therapeutic intervention model. An interactive feedback style encourages client collaboration and participation in the feedback session. In contrast, the delivered style consists of minimal client participation and emphasizes the examiner’s presentation of information garnered from the assessment test(s) (Hanson et al., 1997).
The research which has examined therapeutic differences between an interactive and delivered feedback style has been inconsistent regarding the effects of the two styles on clients’ evaluations of the test-interpretation session and perceptions of the counselor. Hanson et al. (1997) conducted one of the first investigations in the personality test feedback literature examining the impact of the two different test feedback styles on university honor students. Their goal was to examine “how clients cognitively consider the information they receive in test interpretations” (p. 400). Those participants who received interactive test feedback reported more positive evaluations of the session (i.e., depth of session) and counselor (i.e., expert, trustworthy, and attractive) than those participants in the delivered feedback group. Several other studies comparing an interactive and delivered test feedback style found similar positive outcomes for participants who received interactive test feedback (Ackerman et al., 2000; El-Shaieb, 2005; Guzzard, 2000; Hilsenroth et al., 2004). These positive client outcomes included deeper therapeutic alliance (Hilsenroth et al., 2004), lower attrition rate (Ackerman et al., 2000), more positive evaluations of session and counselor (El-Shaieb, 2005; Guzzard, 2000), and greater participant involvement (Guzzard, 2000).

In contrast to these findings, other research has not supported these findings (Allison, 2001; Barrett, 2003; Corner, 2004; Hanson and Claiborn, 2006). For example, Hanson and Claiborn (2006) found no significant difference between interactive and delivered feedback groups on participants’ perceptions of the session or the counselor. The authors hypothesized their findings may not have supported previous research because participants in their study only met with the counselor for one brief session (i.e., 30 minutes), giving the participants limited time to evaluate the session or counselor.
The other studies examining differences between interactive and delivered feedback involved three sessions with the counselor (e.g., El-Shaieb, 2005; Hanson et al., 1997).

Based on these investigations, an interactive test feedback style appears to provide additional benefits to clients, compared with delivered feedback, in regard to process variables. More specifically, clients’ perceptions of session depth and smoothness as well as perceptions of the counselor tend to be more favorable when they received interactive test feedback. Additionally, clients appear to exhibit more participation, develop an enhanced therapeutic alliance, and be less inclined to terminate treatment prematurely when they receive interactive test feedback. A strong conclusion regarding both process and outcome benefits of specific styles of test feedback, however, cannot be drawn due to the paucity of studies.

While the benefit of test feedback appears to have initial support, questions remain regarding the effectiveness of specific feedback styles for clients with different attributes. In other words are there moderating client attributes that determine who will benefit most from a delivered or interactive style of feedback?

**Client Attributes**

Few studies have examined how the benefits of personality test feedback are impacted by client variables. The study by Finn and Tonsager (1992) investigated whether a client’s level of private or public self-consciousness, severity or type of psychopathology, and attitudes toward mental health professionals affected the impact of test feedback. Private self-consciousness was defined as “the disposition, habit, or tendency to focus attention on the private, internal aspects of the self” (p. 281). Private self-consciousness was related to a decrease in symptomatology from feedback session to
follow-up, but was not related to changes in self-esteem. No significant relationship was found between either the severity or the type of psychopathology and changes in symptomatology or self-esteem. The results also indicated that there was not a significant relationship between clients’ attitudes toward mental health professionals and change scores in symptomatology or self-esteem.

Newman and Greenway (1997) also examined the client variables of private and public self-consciousness, severity and type of psychopathology, and attitudes towards mental health professionals. Their findings replicated those by Finn and Tonsager (1992) with one exception: They did not find a significant relationship between private self-consciousness and change scores in symptomatology or self-esteem.

Barrett (2003) investigated the interaction between test feedback style (interactive and delivered) and learning style (deep-elaborative or shallow-reiterative) to determine if matching feedback styles and learning styles would lead to greater benefits for clients. The clients’ perceptions of the session and the counselor, self-awareness, and satisfaction with the assessment process were examined. Her findings did not support an aptitude by treatment interaction. Test feedback style and learning style scores did not interact to differentially predict participants’ scores on the dependent measures. Additionally, test feedback style was not predictive of differences on any of the dependent measures (Barrett, 2003).

The investigation of the client variables that impact the effectiveness of test feedback is important to advance this area of research. While examination of specific client variables has begun, it is limited as noted by the paucity of studies discussed above. In addition, few theoretically derived client variables have been examined in light of the
different feedback styles (e.g., Barrett, 2003). Because personality assessment is primarily a cognitive and rational activity (e.g., sharing information regarding one’s personality), it seems that examination of an individual’s information processing style is an important, yet overlooked client variable. Of particular interest is the investigation of the moderating effects of an individual’s information processing style on the benefits received from delivered and interactive test feedback.

The process of matching specific characteristics of people and their environments is addressed by person-environment (P-E) fit theory (Ostroff, Shin, & Feinberg, 2002) or aptitude-treatment interaction (ATI) research (Goodyear, 1990). The P-E fit theory proposes that “congruence of person and environment is related to higher levels of stability, satisfaction, and achievement of the person” (Smart, Feldman, & Ethington, 2000, p. 49). While P-E fit theory has a long history in vocational and career literature, it also has important implications for the process of traditional psychotherapy. It addresses a portion of a well-known specificity question of psychotherapy: “What aspects of therapy and what kinds of therapy, provided how and by what kind of therapist, under what circumstances, for what kinds of patients with what kinds of problems, are likely to lead to what kinds of results?” (Orlinsky, Ronnestad, & Willutzki, 2004, p. 362). The proposed study will seek to provide empirical support for the P-E fit theory within the psychotherapy literature by examining whether matching a client’s information processing style with a congruent style of feedback will produce more benefits for the client.
Cognitive Experiential Self-Theory (CEST)

Cognitive-experiential self-theory (CEST), founded by Epstein (1983, 1990), provides one such person-environment matching paradigm for this study. Epstein theorized that there are dual, independent, yet interactive information processing systems: rational and experiential. CEST proposes that the two systems operate simultaneously and contribute uniquely to human behavior. The rational system is characterized by intentional, effortful and logical processing. It is a “deliberate, analytical system that operates primarily in the medium of language and is relatively affect-free” (Epstein & Pacini, 1999, p. 463). This system is generally oriented towards slower processing and delayed reaction. The rational system, however, is associated with more rapid and easier changes dependent on the strength of argument and new evidence presented.

The experiential system, on the other hand, is characterized by automatic, effortless and affective processing. Information is encoded in a “concrete, holistic, primarily nonverbal form; is intimately associated with affect; and is inherently highly compelling” (Epstein & Pacini, 1999, p. 463). The experiential system is associated with more rapid processing and is oriented towards immediate action. Unlike the rational system, however, it engages in slower, more difficult changes that occur with repetitive or intense experiences.

CEST has been used widely and researched as a dual processing theory (Epstein, 1994). Epstein and his colleagues have conducted numerous empirical studies, which generally have demonstrated the existence of two information processing systems (e.g., Kirkpatrick & Epstein, 1992; Morling & Epstein, 1997). The Rational-Experiential Inventory (REI) was developed based on CEST in an effort to measure individual
differences in experiential and rational thinking (Epstein et al., 1996). The initial empirical examinations of the REI provide support for the theoretical framework of the CEST (Epstein et al., 1996; Pacini & Epstein, 1999). The original version of the REI revealed two orthogonal factors corresponding to rational and experiential items, and supported the theory of CEST that the two types of thinking style are independent, but not opposite equivalents (Epstein et al., 1996). A revised version of the REI produced the same findings and produced a higher level of internal consistency among the items (Pacini & Epstein, 1999). Rational and experiential information processing styles have consistently been shown to be uncorrelated (e.g., \( r = -0.07 \), Epstein et al., 1996; \( r = -0.04 \), Pacini & Epstein, 1999). Consistent with CEST most individuals will be dominant in one of the two information-processing styles. In examining the psychometric properties of the REI, however, Pacini and Epstein (1999) noted, “As rationality and experientiality are orthogonal, it is possible for a person to be high on both or on either of these sets of attributes” (p. 985).

**Elaboration Likelihood Model**

As mentioned before, it is proposed that matching a client’s information processing style with a congruent style of feedback will result in augmented therapeutic benefits. It is, therefore, essential to understand how this process of change occurs for the client. The Elaboration Likelihood Model (ELM) is a social psychology theory of attitude change (Petty & Cacioppo, 1981; Petty & Cacioppo, 1986) that has made significant contributions to the field of counseling psychology. It has been particularly valuable in the effort to understand clients’ cognitive processing and attitude change during the counseling process (Cacioppo, Claiborn, Petty, & Heesacker, 1991;
According to the ELM, attitude change is produced when influential messages are processed along one of two distinct cognitive routes, the central or the peripheral route (Petty & Cacioppo, 1986). These routes form the poles of a continuum representing the likelihood of cognitive elaboration of an influential message. Elaboration refers to the extent to which a person thinks about issue-relevant information presented in persuasive communication (Petty & Cacioppo, 1986). The high elaboration likelihood end of the continuum is represented by the central route processing, while low elaboration likelihood end of the continuum is represented by the peripheral route processing (Petty & Cacioppo, 1986).

The central route processing involves effortful cognitive activity where the individual carefully attends to the information and draws on previous experience or knowledge to evaluate the true merits of the information presented (Cacioppo et al., 1991). When this occurs, the likelihood of elaboration is high. Information processed along the central route has been shown to produce attitude change that is more likely to be enduring, resistant to counter persuasion, and reflected in behavior change (Chaiken, 1980; McNeill & Stoltenberg, 1989; Petty & Cacioppo, 1986). On the other hand, peripheral route processing occurs when the individual is influenced by a simple cue in the persuasion context (e.g., an attractive source) without thinking much about the merits of issue-relevant information (Petty, Priester, & Wegener, 1994).

The ability to present information in a manner that produces cognitive processing along the central route appears to be important in both the counseling and assessment process. The ELM proposes that the likelihood of elaboration, and hence central route
processing, is increased when an individual has both the motivation and the ability to process the information (Petty & Cacioppo, 1986). An individual’s motivation has been proposed to be primarily driven by how much the individual is involved in the issue and how much he or she perceives the issue to be personally relevant. This occurs when the information presented appears to have significant consequences for the individual’s life. Research has generally supported the relationship between increased motivation and perceived personally relevant information (Petty & Cacioppo, 1979; Petty & Cacioppo, 1986; Stoltenberg & McNeill, 1984).

The ability to evaluate the information being presented is influenced by message complexity or comprehensibility (Eagly, 1974; Petty & Cacioppo, 1986), environmental distractions (Petty, Wells, & Brock, 1976), and message repetition (Cacioppo & Petty, 1979; Petty & Cacioppo, 1986). The client must be able to understand or comprehend the information provided by his or her therapist in order to intentionally process that information and experience enduring attitude change. The information, therefore, must be presented using familiar language in an environment free of distractions. Repeating the persuasive information also may enhance message processing because it provides clients with a greater opportunity to process the information (Petty & Cacioppo, 1986).

Based on the ELM, it seems reasonable that involving clients in the interpretation of their test results (i.e., the influence process) increases perceived personal relevance and thereby increases their motivation to think seriously about the test feedback. It follows that providing clients with test feedback in a manner that is congruent with their preferred information-processing style increases message comprehensibility, thereby increasing their ability to think seriously about the test feedback. Thus we can infer that providing
test feedback of the client’s personality in a manner congruent with his or her information processing style would facilitate high motivation and high ability to process the information. This, in turn, would increase the likelihood a client will follow the central route to persuasion resulting in more enduring attitude change and, therefore, increased benefits of test feedback over time (Petty & Cacioppo, 1986).

**Significance of the Study**

The proposed study is significant because it extends previous research findings into areas related to specific client attributes while advancing a basic, yet essential question of psychotherapy research: Which clients benefit from specific types of treatment? More specifically, does matching a client’s information processing style with a congruent test feedback style (i.e., delivered or interactive) result in additional benefits to the client? While the importance of providing career or personality test feedback to clients has been established (e.g., El-Shaieb, 2005; Finn & Tonsager, 1992; Goodyear, 1990; Hanson et al., 1997; Hanson & Claiborn, 2006; Newman & Greenway, 1997), there are inconsistent findings regarding the differential benefits of delivered and interactive personality test feedback (Hanon et al., 1997; Hanson & Claiborn, 2006). The current study seeks to investigate whether a client’s information processing style moderates benefits received from delivered and interactive test feedback.

According to the theoretical assumptions of P-E fit and the ELM, delivered test feedback would create a more congruent environment for clients with a higher level of rational information processing style and, therefore, would lead to more central route processing and subsequent greater process and outcome benefits for the client. The same line of reasoning would apply to clients with a higher level of experiential information
processing style matched with the more congruent environment provided by interactive test feedback. If it can be demonstrated that a matching effect occurs for a client’s information processing style and test feedback style, then counselors can modify their practice to provide test feedback that is optimally matched with their clients’ information processing style.

This study also seeks to examine the therapeutic benefits of test feedback over time as reported in prior research (Finn & Tonsager, 1992; Newman & Greenway, 1997) and supported by the ELM theory (Petty & Cacioppo, 1986). The present study will conduct a follow-up session (Time 3) two weeks after the feedback session (Time 2). If the positive effects of test feedback augment over time for clients who engage in central route processing (i.e., clients whose preferred information processing style is matching with a congruent test feedback style), the benefits should be greater for those clients at follow-up than immediately after a test feedback session.

**Hypotheses**

Based on the reviewed theoretical and empirical literature, the following hypotheses were generated regarding the effects of rational and experiential information processing styles on the process and outcome therapeutic benefits gained by outpatient clients receiving delivered or interactive MMPI-2 feedback, as well as examiner attention only. These hypotheses will be tested by randomly assigning outpatient clients to either delivered test feedback, interactive test feedback, or examiner attention only groups prior to the initial interview with an examiner.

(1) Clients in both test feedback groups will receive greater process and outcome benefits than clients in the examiner attention only group.
(2) Clients with higher levels of rational information processing are more likely to gain process and outcome benefits from delivered test feedback than interactive feedback or examiner attention only.

(3) Clients with higher levels of experiential information processing are more likely to gain process and outcome benefits from interactive test feedback than from delivered feedback or examiner attention only.

(4) In accordance with the ELM, the process and outcome benefits received by clients whose information processing styles are matched to congruent test feedback styles (see Hypotheses 2 and 3) will increase over time.
Chapter 2

Review of the Literature

This chapter will begin with an overview of test feedback, providing a brief history of the role of feedback in psychology as well as a discussion of the two primary models of assessment used in clinical practice. Next, a review of career test feedback literature will be presented with a focus on research investigating the relationship of counseling outcomes to treatment variables, which have been proposed to play a central role in understanding the process of test feedback. Specifically, research investigating test feedback style (i.e., treatment variable) will be reviewed. Test feedback style has been defined by Hanson (1997) as “the extent to which a counselor actively involves a client in the interpretation of his or her test results” (p. 2). Next, a review of the historical and current attitudes and behaviors related to personality test feedback will be provided. Then, test feedback literature examining client attributes and the interaction of client attributes and style of test feedback will be reviewed. Finally, the chapter will conclude by reviewing cognitive experiential self-theory (CEST), and it will be argued that the information-processing systems presented by this theory provide the needed theoretical framework to account for the process and outcome benefits gained by providing different styles of personality feedback to clients.
Research within both the career and personality assessment literature has demonstrated that providing test feedback to clients results in positive outcomes (e.g., Finn & Tonsager, 1992; Goodyear, 1990). Goodyear (1990) found that “clients who receive test interpretations—regardless of format or of the particular outcome criterion employed—do experience greater gains than do those in control conditions” (p. 242). Researchers have investigated a number of variables to determine the specific mechanisms in the test feedback process that contribute to client change (e.g., Hanson et al., 1997; Hanson & Claiborn, 2001). One area of particular interest in the test feedback literature, especially within the career literature, has been test feedback modality (or test feedback style) (e.g., Forster, 1969, Rogers, 1954, Rubinstein, 1978, Wright, 1963). The results across these studies, however, have been inconsistent and one test feedback style has not been found to be optimal across diverse settings and populations (Goodyear, 1990). The investigation of the interaction between test feedback style and client attributes may hold the key to advancing this promising area of research. This research has often been referred to as aptitude-treatment interaction (ATI) research (Goodyear, 1990) or person-environment (P-E) fit theory (Ostroff et al., 2002). Given the fundamental role of test feedback in counseling practice (Campbell, 1999; Duckworth, 1990), it is important that research continue examining the interaction of these two classes of variables in the test feedback process.

Test Feedback in Psychology

Psychological testing is an integral and unique professional service provided by psychologists (Goodyear, Murdock, Lichtenberg, McPherson, Koetting, & Petren, 2008; Kaplan & Saccuzzo, 2009). The use of psychological testing serves numerous purposes
in response to a broad range of referral questions raised across a number of fields within psychology (Weiner, 2003). Psychological testing and the process of communicating the results of such testing have a long history which dates back to the early 20th century. At the turn of the century, a group of psychologists were eager to apply principles of psychology within society (Savickas & Baker, 2005). The psychological test proved to be the first marketable application in psychology and, by the early 1900s, some psychologists promoted the use of psychological testing in such fields as education, law, and business (Munsterberg, 1914). The vocational guidance tradition as well as industrial-organizational psychology was a considerable influence in these movements. It was the use of psychological testing in the military, however, that provided a degree of public validation of testing. The world wars proved to be an opportunity for these psychologists to use psychological testing to assist the military in selection, placement, and the mental testing of military personnel (Klimoski & Zukin, 2003; Savickas & Baker, 2005).

The use of psychological testing in the United States expanded significantly following the two world wars. This growth occurred in traditional clinical settings such as mental health clinics and vocational centers and in applied psychology areas such as industrial organizational, educational, and forensic psychology (Drummond & Jones, 2006; Kaplan & Saccuzzo, 2009). The standard practice of psychological testing in a multitude of settings necessitated that psychologists regularly provide feedback of test results to their clients. In the present day, psychologists regularly use formal testing and test feedback to assist businesses with personnel selection, schools with educational placement decisions, courts with legal decisions, and individuals in making vocational
and personal decisions. Psychological tests are used to measure various characteristics of individuals, including cognitive ability, personality, vocational abilities and interests, achievement, and neuropsychological functioning (Kaplan & Saccuzzo, 2009).

Counseling psychologists have a particularly long history of providing test feedback in traditional clinical settings given their roots in vocational counseling. The advances in psychological testing in vocational guidance served as a catalyst in the development of counseling psychology and were quickly adopted as an essential component of counseling psychology’s identity (Dixon, 1987; Watkins, Campbell, & McGregor, 1988). The field of counseling psychology has long been recognized as a merger between psychology and vocational guidance (Dixon, 1987). At counseling psychology’s inception, the primary role of counseling was to assist students in making education or vocational choices based on psychological testing. In fact, it was not uncommon for counseling centers in the 1930s and 1940s to be referred to as Counseling and Testing Centers (Hood & Johnson, 2007). Accordingly, test feedback has been a central component of career testing and there is a long history of research investigating how the process of the feedback session impacts outcomes related to vocational concerns. Prior to reviewing that literature, it is important to outline two primary models of assessment in clinical settings which guide the process of test feedback with clients.

**Models of Assessment**

Psychological assessment regardless of approach is utilized as a means to obtain accurate information about clients. Two primary approaches to the clinical use of psychological assessment have been discussed in the literature and form the basis for the entire process of assessment (Finn & Tonsager, 1997). The information-gathering model
and the therapeutic assessment model are unique approaches to psychological assessment which by definition impact the test feedback process differently.

The significant difference between the information-gathering model and therapeutic assessment model lies in the overall purpose of gathering the information. In the information-gathering assessment model, psychological assessment is primarily conducted for diagnostic purposes, decision making, and communication between professionals. Thus, in this approach, the “client” may be someone other than the person with whom the assessment is conducted. For example, the assessment may have been requested by an agency, the court, the school, or a lawyer, who is then the identified client (Weiner, 2003). Within the therapeutic model of assessment, the ultimate goal is to “gather accurate information about clients…and then use this information to help clients understand themselves and make positive changes in their lives” (Finn, 1996, p. 3). In a therapeutic assessment, therefore, the identified client is the person who participates in the testing, not a third-party (Weiner, 2003). The information-gathering model has historically been the primary approach to psychological assessment for clinical use.

This fundamental difference between these two approaches impacts the purpose and practice of providing test feedback to clients. Test feedback within a traditional approach involves providing “deductive, unilateral interpretation of the assessment data” using test data, observations, and historical information about the client without clients’ input in the interpretive process (Finn & Tonsager, 1997, p. 378). The examiner then provides recommendations to clients based on these unilateral interpretations. In contrast, test feedback in therapeutic assessment is “considered a primary, if not the primary element to the assessment process” (Maruish, 2002, p. 39). It is a dynamic and
collaborative process in which the clients are viewed as experts on themselves and their input is continuously being sought throughout the entire assessment process in an effort to better understand the nature of their problems. The feedback process is ongoing and the examiner engages in dialogue with the client as opposed to “delivering” the test results in a brief verbal summary or written report (Finn & Tonsager, 1997).

The differences between these approaches to the assessment and feedback process have been a focus of research in career and, more recently, personality assessment. Particularly, researchers have been interested in the role of client in the feedback process. A substantial body of literature in career and vocational assessment has investigated how varying level of client participation through different methods of providing test feedback impacts client outcomes. Vocational psychology has contributed to advancing psychologists’ understanding of the intrinsic value and process of providing test feedback to clients. This literature will be reviewed because the strong history and central use of test feedback in career assessment provides a base from which recent advances in the personality test feedback literature can be better understood.

**Career Test Feedback**

Some of the earliest empirical studies investigating test feedback involved vocational testing. This is not surprising given the significant influence of vocational psychology to psychological testing. In fact, until recently, the majority of research on test interpretation involved career assessments. An older review of research on the effects of test interpretation by Goodyear (1990) confirmed this trend and concluded that, “There has been relatively little research on test interpretation that occurs in personal counseling or psychotherapy. It may be that in this context test interpretation is more
difficult to isolate as a discrete intervention than in career counseling” (p. 250). Over the last 20 years, however, a growing body of research has narrowed this gap in the literature by investigating the impact of test feedback in more traditional personal counseling settings (e.g., Allen et al., 2003; Ackerman et al., 2000; Finn & Tonsager, 1992; Hanson & Claiborn, 2006; Greenway & Newman, 1997; Hilsenroth et al., 2004; Poston & Hanson, 2010).

The method of providing career test feedback historically was largely based on the information-giving model and “resulted in a rather directive, authoritarian type of counseling” (Dressel & Matteson, 1950, p. 693). As the use of tests in counseling, particularly for vocational guidance, increased so did the variation in how test interpretation was provided. A survey at one counseling center found that, “Individual counselors claimed to vary their test interpretation procedure greatly in terms of the needs and personality of the individual client” (Dressel & Matteson, 1950, p. 693). In part due to the client-center movement, the practice of test interpretation expanded and shifted to include more client participation in the feedback process (Rogers, 1946). While increasing client participation in the counseling process had been supported in both conceptual and empirical literature (e.g., Carnes & Robinson, 1948, Danskin & Robinson, 1954, Forgy & Black, 1954, Kamm & Wrenn, 1950), there was little evidence that increasing the role of the client in the test feedback process resulted in more positive outcomes. As a result, several research studies used different styles of test feedback to vary client participation in the feedback process in an attempt to further understand the process of test interpretation. This may have also occurred in response to the American Psychological Association’s Ad Hoc Committee on Confidentiality of Records’
recommendation in an interim report released in 1962 that research be conducted on the impact of providing test feedback, including investigating the effect of different methods of feedback (Forster, 1969).

A seminal study by Dressel and Matteson (1950) investigated the impact of using a client-directed approach in the test feedback process. This feedback style was characterized by many of the key aspects which define the therapeutic assessment model. Participants were encouraged to ask questions, relate their own experiences to the findings, and provide their own hypotheses related to the test data. The researchers examined how the level of client participation during the feedback process impacted client self-understanding, final vocational choice, and satisfaction with the interpretation process. Following the feedback session (Time 1) and at a two month follow-up session (Time 2), the participants were readministered the self-understanding measure as well as vocational security and counseling satisfaction measures. The results of the study found no relationship between client participation and satisfaction with the interpretation process. The study, however, indicated that increased client participation was associated with greater self-understanding and certainty about career choice at the two month follow-up (Time 2), but not immediately following the feedback session (Time 1). The failure to observe an immediate positive effect of test feedback is a finding present in subsequent studies of test feedback (e.g., Finn & Tonsager, 1992; Newman & Greenway, 1997).

While the study provided initial empirical support for the benefits of increasing client participation and direction in the test feedback process over time, the absence of a control group did not isolate client participation as the active ingredient of the positive
client outcomes. These results may reflect the active process underlying test feedback in which the benefits of the feedback are achieved over time through increased understanding and acceptance. This process of change over time is supported by the elaboration likelihood model (ELM; Petty & Cacioppo, 1986).

Subsequent studies investigating the role of client participation in the career test feedback process focused more on comparative treatments (e.g., Gustad & Tuma, 1957; Rogers, 1954; Rubinstein, 1978). While control groups were often not included in these studies, the research allowed for a comparison of different methods of providing feedback and their independent effect on client outcomes. The research on client participation in test feedback focused on two primary comparisons: test-centered versus client-centered (Rogers, 1954; Rubinstein, 1978) and individual versus group (Folds & Gazda, 1966; Rubinstein, 1978; Wright, 1963).

Research on career test feedback generally found poor outcome results (e.g., client self-understanding related to vocational factors) when test feedback was given using a more traditional information-giving model with an emphasis on test results (Berdie, 1954; Froechlich & Moser, 1954; Johnson, 1953). In response, comparative research focused on two primary styles of feedback to vary degree of client participation in the feedback session. These styles often reflected the information-giving and therapeutic assessment models previously discussed. The feedback styles are often labeled as test-centered (or delivered) and client-centered (or interactive). The test-centered feedback style is characterized by minimal client participation, being primarily directed by the counselor, and a primary focus on test data. This contrasts with the client-
centered style, which emphasizes client participation, the role of the client in directing the session, and non-test data (Rubinstein, 1978).

Research examining these two styles of feedback in career testing has generally produced inconsistent findings. It does appear, however, that receiving test results regardless of test feedback style appeared to increase clients’ self-understanding of abilities and interests (Rogers, 1954; Rubinstein, 1978). Holmes (1964), similar to Dressel and Matteson (1950), found that the most client-directed feedback method requiring client participation resulted in greater recall of results than those students receiving primarily counselor-directed feedback. This finding provides support that greater client participation and client directing of session (e.g., selecting order of tests to be interpreted, providing self-estimates prior to feedback, eliciting client feelings and attitudes related to actual and estimated scores) results greater self-understanding (i.e., longer retention of test information). Contrary to these findings, other studies failed to demonstrate that increasing client’s participation in the feedback process (e.g., client-centered style) improved clients’ self-understanding on various vocational indicators or vocational certainty (Gustad & Tuma, 1957; Rogers; Rubinstein). There is some evidence that individuals who received client-centered feedback rated their counseling experience more favorably, but not their perception of their counselors, than those who received test-centered feedback, (Rubinstein). Holmes similarly found no significant differential effects between the feedback methods on student attitudes toward the counselor or towards the value of receiving test information.

Differences in the methods, sample, and counseling outcomes of these studies make it difficult to compare the results. Rogers (1954) used only one counselor to
conduct all feedback sessions; therefore, it is unclear whether the results are reflecting counselor effects rather than an absence of test interpretation differences. Holmes (1964) and Gustad and Tuma (1957) included multiple styles of feedback varying in degree of client and counselor directing the session and participation as well as degree of focus on test materials. Similar to Dressel and Matteson’s (1950) attempt to elicit client participation, clients in the self-evaluative feedback group in Rogers’ study were encouraged to consider the test results in relation to their experiences, to discuss how the test results either are congruent or discrepant with nontest evidence, and then to summarize the test results. Rubinstein (1978), on the other hand, does not describe any criteria other than the absence of test materials to differentiate integrative from traditional feedback. Additionally, the sample used by Rubinstein was comprised of students from a vocational psychology course while most other studies primarily used college freshman. Gustad and Tuma was the only study with a clinical sample of male undergraduate students who had actively sought vocational guidance. With regard to counseling outcomes, most studies examined self-understanding, generally defined as the student’s ability to recall test scores (Holmes, Rogers, Rubinstein, Gustad & Tuma). Other outcomes measures included satisfaction with counseling session (Rubinstein), attitude towards counselor (Holmes, Rubinstein), value of receiving test information (Holmes), and vocational certainty (Rubinstein).

Research on career test feedback has also compared the effectiveness of provided feedback in an individual versus group setting. The research has consistently found that both individual and group approaches to providing feedback result in positive outcomes for clients (Folds & Gazda, 1966; Rubinstein, 1978; Wright, 1963). Providing test
feedback, regardless of whether given in individual or group modality, results in improved accuracy of self-ratings (Folds & Gazda; Rubinstein; Wright) and vocational choice certainty (Rubinstein). There have been few differential effects of test feedback found between individual or group settings on outcome measures. Wright found students in the group setting retained more knowledge from tests than did students seen individually. This result, however, may be more related to the fact that the group modality was primarily informational than due to the effect of group interaction. The one consistent difference found between the two modalities can be found in reported satisfaction with the feedback session. Students receiving individual feedback tend to be more satisfied (Wright). Specifically, they rated coverage and clarity of test information, warmth of the relationship, and value of the test interpretation higher (Folds & Gazda; Wright). A positive relationship, therefore, appears to exist between student satisfaction and individual or personal attention given to a student. In Folds and Gazda’s study, this satisfaction was present despite the interactive nature of the individual and group feedback. This suggests that face-to-face individual attention predicts satisfaction even beyond an interactive, client-centered feedback approach.

The research on test interpretation style related to career counseling outcomes is generally inconsistent. The most consistent findings are (a) career test feedback regardless of delivery style results in positive outcome benefits (e.g., greater self-learning, satisfaction with counseling) to clients, and (b) individual career test feedback tends to result in more favorable ratings of the counseling experience than group test feedback. It is less clear whether a specific style of feedback (e.g., delivered versus interactive) provides additional benefits to clients. Additionally, the studies reviewed had
samples comprised of college students, most of whom were not actively seeking vocational guidance. This sample is not surprising given the focus of the research on vocational issues, the resolution of which is a primary task in late adolescence/early adulthood. It is, however, difficult to externalize these results to an adult clinical population.

The benefits of test feedback to clients in a clinical setting have been consistently demonstrated in the career assessment literature. This body of literature served as a precursor to personality test feedback research and provided a strong foundation on which personality test feedback could be more fully understood. The provision of personality test results was not a regular practice historically due to concern about the impact of the results on clients. As a result, research on test feedback in this area is relatively new and questions still remain regarding the mechanisms in the feedback process which provide the most benefit to clients.

**Personality Test Feedback**

A significant movement occurred in the 1980s and 90s within personality assessment literature as research on personality test feedback became more prominent. For several decades, ample conceptual literature discussed the importance of personality test feedback in the counseling process (e.g., Duckworth, 1990; Finn & Butcher, 1991; Fischer, 1972, 1979), but the empirical support for clinical observations was limited (Goodyear, 1990). This likely was partially due to the fact that personality testing was not historically used as a standard practice to understand people as the focus was more often on intelligence, aptitude, achievement, and vocational interests (Butcher, 2010).
Additionally, the prevalent attitude in the field discouraged dissemination of personality test results to clients (Forster, 1969).

**Historical attitudes and behaviors.** Personality testing in traditional clinical settings is often used for diagnostic purposes and treatment planning and historically followed an information gathering assessment model (Finn & Tonsager, 1997; Weiner & Greene, 2008). Indeed, the basic premise behind the development of several prominent personality measures (e.g., MMPI, Rorschach Test) was that groups of individuals could be differentiated based on their responses to the measures (DeLamatre & Schuerger, 1999; Exner, 2003). The ultimate goal of the developers of the MMPI (Hathaway & McKinley, 1943) “was to efficiently place people into diagnostic categories…” (DeLamatre & Schuerger, 1999, p. 15). This goal was not realized with the MMPI as clients often produced profiles with multiple scale elevations and differed in diagnosis from the criterion group. This is not to say that the measure did not provide useful diagnostic information; it simply was unable to provide valid diagnostic differentiation the developers intended. Similarly, the Rorschach Test was developed by Herman Rorschach (1921) with the hypothesis that groups of individuals would be differentiated based on their responses to inkblots when given the prompt, “What might this be?” One of his basic postulates was that this approach would result in a reliable method of differentiating schizophrenia. The initial research produced by Rorschach as well as more recent research supports the use of the Rorschach Test for diagnostic purposes, particularly in classifying schizophrenia (Exner, 2003; Hilsenroth, Eudell-Simmons, DeFife, & Charnas, 2007). Based on the diagnostic information gathered from the tests, a course of treatment was determined often with little input from the client (e.g., Fischer,
The use of personality tests in this manner rarely involved providing the test results to the client (Fischer, 1994). Rather, the focus was on facilitating communication among professionals and providing information to the clinician in order to make decisions about the client (Campbell, 1999; Finn & Tonsager, 1997).

While personality testing was generally accepted in traditional clinical settings, the use of personality test feedback did not have the same level of acceptance. The direct feedback of personality test results has not always been a widely accepted practice and clinicians were once generally discouraged from providing clients with these test results. Within the counseling literature, some writers discussed the potential negative consequences associated with giving client direct feedback (Forster, 1969). This was especially true for projective personality tests (e.g., Berndt, 1983).

A study conducted by Berndt (1983) surveyed the assessment practices of psychologists who were members of the Society of Personality Assessment. The study’s findings demonstrated lack of consensus on what type of personality test results should be provided to clients, and, if so, how much should be shared. The results indicated that the psychologists rarely refused to discuss results of testing ($M=1.84$, $SD=1.23$ on a 5-point Likert scale with 1=never and 5=always). There was more ambiguity regarding how much and what type of information should be shared. For example, there was less certainty about whether information should be withheld that the psychologists believed would be detrimental to the client ($M=3.23$, $SD=1.33$) or whether any and all information should be shared with the belief that testing is a supplement to therapy ($M=3.47$, $SD=1.15$). Additionally, the type of test impacted whether test results were shared.

When using the 2 “least likely” points on the 5-point Likert scale for each test, projective...
tests were the least likely to be shared, Rorschach (41%), Projective Drawings (38%), and the Thematic Apperception Test (34%) when compared to IQ instruments (8%) or the Minnesota Multiphasic Personality Inventory (20%). Berndt identified that most respondents could be categorized into two groups. One group was characterized by those who believed clients should be given most, if not all, information regardless of whether it was positive and negative. The second group agreed with giving clients some test feedback, but had differing opinions regarding the amount to be shared. While many of these psychologists advocated sharing as much as could be used by the client, there was a wide degree of variance on the fragility of clients. Berndt summarized his findings by stating, “How much information is shared is often determined by an interaction of a variety of factors, including the patient's personal and cognitive strengths, the nature of the specific tests administered, the purpose of the assessment, and factors related to the tester (e.g., temperament, work load, perceived role, and of course, habit)” (Berndt, 1983, p. 585).

It was thought that since a client was unable to change ingrained traits and dynamics identified by the assessment, it was prudent to avoid causing the client distress or frustration by sharing the results with him or her (Fischer, 1972). Significant disagreement existed among clinicians about whether clients were able to manage the emotional connotations of the information and “the fragility of clients” (Berndt, 1983, p. 584). Pope (1992) proposed that clinicians may have been uncomfortable discussing unflattering or negative results or presenting results that were ambiguous and left some questions unanswered. Additionally, Fischer (1972) suggests that clinicians often chose not to disclose test results for personal reasons, including “the effort and time required,
possible loss of role status, risk of being proven wrong, the chance of a lawsuit” (p. 365). These concerns prevailed for many years despite the absence of empirical evidence (Forster, 1969).

Fischer (1972) proposed that the basis for withholding psychological findings is the influence of the natural sciences in the development of the mental health professions. She states the following:

…the prevailing attitude has been that it must be the trained outsider, rather than the experiencing person, who knows what is "really real." Although the client's experience or understandings are helpful in explaining his behavior, they are assumed by mainstream scientists to be only epiphenomena, shadows of natural science processes. From this perspective (as well as from the history of medical practices), it follows logically that the professional, knowing more than the client, must assume major responsibility for him. (p. 365)

This perspective highlights the debate between two primary traditions to approaching personality assessment: nomothetic and idiographic. Nomothetic personality assessment focuses on traits or dimensions that are common to a group of people and refers primarily to how individuals compare to one another (Weiner & Greene, 2008). Lohman and Rocklin (1995) note, “A nomothetic description of an individual’s personality would specify the extent to which he or she was characterized by a set of attributes shared by all people” (p. 457). This approach to assessment involves comparisons between the assessment findings for the individual being examined and assessment findings obtained from groups of people with certain known characteristics (Weiner, 2003). These comparisons can be obtained through “…deviations from
established norms, scale scores, rankings, and the degree of fit within diagnostic categories” (p. 112, Haynes & O’Brien, 2000). Based on these comparisons, inferences about the individual client can be formed. For example, using nomothetic personality assessment one may infer “the client responded similarly to individuals who are distressed and feel unable to cope with their circumstances” based on normative data. This approach suggests personality can be more accurately assessed through quantitative and empirical guidelines (Weiner & Greene, 2008).

In contrast, an idiographic approach to personality assessment views personality traits as unique and individual to each person and emphasizes the measurement and analysis of variables for a single person (Haynes & O’Brien, 2000). An idiographic description of an individual’s personality would detail the structure of that individual person’s traits (Lohman & Rocklin, 1995). Weiner (2003) states idiographic interpretations often “...comprise statements that attribute person-specific meaning to assessment information on the basis of general notions of psychological processes...” (p. 15). Using this approach, the individual would be compared only to herself using data collected on specific variable(s), which may be collected at multiple time points. For example, the individual may be given the MMPI-2 prior to treatment, during treatment, and post-treatment and her scores would be compared to determine whether any change occurred over time. This approach can also be focused more on qualitative procedures, such as card sort techniques and individual case studies; it also is by contrast more person-focused (Wiener & Greene, 2008; Weiner, 2003).

The nomothetic approach has primarily dominated the natural sciences and psychology’s attempt to mirror the natural sciences resulted in an emphasis on
quantitative data and statistical reliability and validity of assessment instruments to the neglect of the individual’s experience or understanding (Finn & Tonsager, 1997; Fischer, 1972). By the middle of the twentieth-century, the humanistic movement was challenging these assumptions, and assessment using more of an idiographic and client-centered approach was being actively researched using career assessment and collaborative feedback approaches (e.g., Dressel & Matteson, 1950; Folds & Gazda, 1966; Rubinstein, 1978; Wright, 1962). Currently, most scholars and researchers within psychology propose that nomothetic and idiographic approaches are complementary rather than exclusionary, and advocate for the integration of the two approaches when conducting psychological assessment (e.g., Haynes & O’Brien, 2000; Weiner, 2003). Due to controversy surrounding the feedback of personality testing, the provision of test feedback using an integration of these approaches occurred later after several prominent scholars noted success in clinical settings (e.g., Finn & Butcher, 1991; Finn, 1996; Fischer, 1972; Lewak et al., 1990).

**Current attitudes and behaviors.** A paradigm shift occurred towards the last quarter of the century as many respected clinicians advocated for evaluators to provide feedback of personality test results, through verbal or written means, to clients (e.g., Butcher & Perry, 2008; Finn, 1996; Fischer, 1972, 1979). The inclusion of test feedback in American Psychological Association’s (APA) *Ethical Principles of Psychologists and Code of Conduct* (APA, 1990) and *Standards for Educational and Psychological Testing* (AERA, APA, NCME, 1985) likely contributed to this change in attitude. This shift in attitude towards personality test feedback was initially based on clinical experience and conceptual literature. The benefits of providing clients with personality test results were
increasingly discussed by numerous clinicians in the counseling literature (e.g., Butcher, 1990; Butcher & Perry, 2008; Finn & Butcher, 1991; Finn, 1996; Fischer, 1972, 1979; Lewak et al., 1990). It was suggested that test feedback provided process (e.g., rapport, client cooperation) and outcome (e.g., increased self-esteem, decreased symptomatology) benefits to clients. There was, however, no empirical research supporting these proposed benefits from test feedback. Finn and Tonsager’s (1992) seminal study addressed this gap in the literature and provided empirical evidence to support the claims within the conceptual literature regarding the benefits of personality test feedback to clients. Since Finn and Tonsager’s study, a growing body of empirical literature continues to confirm these initial findings with adults, children, and families (e.g., Ackerman et al., 2000; Allen et al., 2003; Hanson et al., 1997; Hilsenroth et al., 2004; Newman & Greenway, 1997; Peters, Handler, White, & Winkel, 2008; Smith & Handler, 2009; Smith, Wolf, Handler, & Nash, 2009; Tharinger et al., 2009; Wygant & Fleming, 2008).

The practice of providing test results to clients has become a relatively common procedure for most psychologists. A recent study (Smith, Wiggins, & Gorske, 2007) investigated the test feedback practice of psychologists (N=719) who regularly conduct assessments as part of their professional activities (members of the International Neuropsychological Society, the National Academy of Neuropsychology, and the Society for Personality Assessment). The results of the study indicate that most psychologists (71.3%) usually or almost always provide verbal feedback to their clients, and more than one-third (39.5%) usually or almost always perceived that clients assisted them in understanding or interpreting the test results (Smith et al., 2007). Similarly, another study (Curry & Hanson, 2010) conducted a national survey investigating the test
feedback practice and training of psychologists in practice. The author also found that a majority of psychologists regular provide some form of feedback to their clients. Verbal feedback was the most common method of providing test results as nearly 92 percent of the psychologists gave feedback “sometimes” or more often [“sometimes” (26.1%), “usually” (30.6%), or “every time” (35%)]. Interestingly, for those respondents who received their degree in clinical psychology, those who were awarded their degree earlier had a lower likelihood of providing verbal feedback. In regard to training related to test feedback, a significant number of psychologists (approximately one-third) felt that their educational coursework and clinical experiences were little to no help in preparing them to provide test feedback (Curry & Hanson, 2010).

This shift in practice has occurred not only in clinicians’ willingness and responsibility to give results of personality assessment to clients, but also in the manner in which they are provided. There has been a significant movement towards providing feedback using a therapeutic assessment model with a stronger emphasis on an idiographic approach than traditional approaches to assessment (e.g., Finn, 1996; Fischer, 1994). While this approach acknowledges the importance of the statistical properties of psychological tests, “it also views tests as opportunities for dialogue between assessors and clients about clients’ characteristic ways of responding to usual problem situations and tools for enhancing assessors’ empathy about clients’ subjective experiences” (p. 378, Finn & Tonsager, 1997). Thus, feedback of tests results is provided from both an idiographic and nomothetic approach.

The primary purpose for conducting these assessments and providing test feedback is for therapeutic change. This contrasts with the more tradition purpose of
personality assessment as a means to obtain diagnostic information or plan the course of treatment for clients. The two models, however, are not mutually exclusive and can be complementary to one other as many assessments have both informational and therapeutic goals. Thus, diagnostic clarity and treatment planning may be outcomes of a therapeutic assessment, but these outcomes are subsumed under the primary goal of creating therapeutic change through client understanding and insight (Finn & Tonsager, 1997).

The therapeutic assessment model has a brief history compared to the information gathering model. The humanistic movement of the 1950s and 1960s is a significant contributor to therapeutic assessment and feedback as a brief intervention. This was by most accounts an unexpected influence of the humanistic approach as clinicians from this tradition often perceived psychological assessment as antithetical to their core belief that practice should be client-centered. Indeed, many humanistic clinicians were opposed to psychological assessment as it represented “a dehumanizing, reductionistic, artificial, and judgmental process,” and on a whole, avoided its use in therapeutic work (Finn & Tonsager, 1997, p. 377). Other psychologists, however, stressed the potential therapeutic benefits of psychological assessment if the process was shifted to be more client-centered (e.g., Butcher, 1990; Butcher & Perry, 2008; Finn & Butcher, 1991; Fischer, 1972; Lewak et al., 1990).

Therapeutic assessment was created from this perspective. The focus of assessment was the therapeutic relationship, clients’ subjective experiences and context of their problems, and assisting clients in developing a new way of thinking and feeling
about self and others (Finn & Tonsager, 1997). Finn and Martin (1997) described therapeutic assessment as:

…collaborative, interpersonal, focused, time limited, and flexible. It is…very interactive and requires the greatest of clinical skills in a challenging role for the clinician. It is unsurpassed in a respectfulness for clients: collaborating with them to address their concerns (around which the word resolves), acknowledging them as experts on themselves and recognizing their contributions as essential, and providing to them usable answers to their questions in a therapeutic manner…The ultimate goal of therapeutic assessment is to provide an experience for the client that will allow him/her to take steps toward greater psychological health and a more fulfilling life. This is done by (a) recognizing the client’s characteristic ways of being, (b) understanding in a meaningful, idiographic way the problems the client faces, (c) providing a safe environment for the client to explore change, and (d) providing the opportunity for the client to experience new ways of being in a supportive environment. (p. 134)

A recent body of conceptual and practice-oriented literature has explored the use of therapeutic assessment in a variety of settings and with diverse populations, including forensic settings with families and children (Brown & Dean, 2002), behavior health care settings (Finn & Martin, 1997; Maruish, 2002), neuropsychological settings (Gorske, 2008; Gorske & Smith, 2009), and with populations such as children and adolescents (Handler, 2007; Tharinger et al., 2008) and couples (Uhinki, 2001). Additionally, there is growing empirical support for the therapeutic assessment model and for the use of
psychological assessment as a therapeutic intervention in general. A more thorough review of this empirical literature will be provided later in the chapter.

A recent meta-analysis (Poston & Hanson, 2010) reviewed 17 published studies (comprised of 1,496 participants total) that examined psychological assessment as a therapeutic intervention. The studies involved psychological assessment in various settings, primarily in university counseling centers and university outpatient counseling centers with over half of the studies comprised of undergraduate samples. The range of assessment across the studies, however, was broad and included career, personality, couple, alcohol, and suicide assessment. The authors defined “psychological assessment as a therapeutic intervention” as those studies that included formal psychological testing and provided test feedback of the results to the participants. The results of the meta-analysis revealed a significant overall Cohen’s $d$ effect size of .42. This overall effect size was determined by taking the mean of reported effect sizes in each study and then aggregating those effect sizes across studies by using a standardized mean difference effect size (i.e., weighted mean effect size). The weighted mean effect size was used because of the varying ways in which studies defined dependent variables of therapeutic benefit (e.g., symptom reduction, increase in self-understanding, improved therapeutic alliance). Additionally, two-thirds (66%) of the treatment group means were higher than the control and comparison group means. The authors categorized the client outcomes measured as process-oriented (i.e., within-session, face-to-face client/therapist interactions), outcome-oriented (i.e., effects of the treatment, or a specific intervention, and/or treatment-associated changes), or combined process/outcome-oriented (i.e., focused on both the client/therapist interactions and the effects of treatment). Effect sizes
were calculated for each of these client outcomes (i.e., process-oriented, outcome-oriented, and combined process/outcome-oriented) and significant treatment group effects were found across all client outcomes. The largest effect was found for process-oriented variables ($d = 1.12$), followed by combined process/outcome variables ($d = .55$) and outcome-oriented variables ($d = .37$). All of these weighted mean effect sizes were found to be statistically significant at the .01 level.

The therapeutic assessment model has been a significant contributor to a surge of empirical studies beginning in the 1990s investigating personality test feedback. This research has investigated the benefits of therapeutic assessment to clients receiving personality test feedback as well as the differential effectiveness between the therapeutic assessment model and the traditional information giving model.

**Personality test feedback research.** Studies examining the impact of personality test feedback generally fall into two categories of research: a) investigation of the impact of providing personality feedback using therapeutic assessment approach (e.g., interactive feedback), and b) investigation of the differential effects of providing feedback using a therapeutic assessment model versus an information gathering model (e.g., delivered feedback). A review of these two areas of research will be provided with a critical analysis of the studies. Research investigating the impact of personality feedback provided in personal counseling environment with a variety of populations (e.g., undergraduate students, clients in university outpatient clinics or community mental health centers) will be reviewed.

Finn and Tonsager’s (1992) landmark study provided initial support for the benefits of giving actual personality test feedback to clients. The results indicated that
clients who received feedback using a therapeutic assessment model reported decreased symptomatic distress, improved self-esteem, and increased hope as compared to the attention-only, control group. The large effect \( (d = .85^2) \) of these results, when effect sizes for the dependent variables (symptomatology, self-esteem, and hope) were averaged, is impressive given that it is comparable to effects found in psychotherapy in general \((d = .80; \text{Wampold, 2001})\). Prior to this study, nearly all empirical investigations within the personality assessment literature examined the impact of providing false feedback or “Barnum statements” to participants (for reviews, see Dickson & Kelly, 1985; Furnham & Schofield, 1987; Goodyear, 1990; Snyder, Shenkel, & Lowery, 1977). The results of Finn and Tonsager’s study challenged previous notions that providing actual, genuine personality test feedback would be detrimental to clients. As a result, a number of studies set out to replicate these findings and explore other therapeutic benefits of personality test feedback.

As covered extensively in chapter one, Newman and Greenway (1997) replicated Finn and Tonsager’s (1992) study using the therapeutic assessment model, and their results supported Finn and Tonsager’s conclusions. Newman and Greenway’s findings indicated the providing clients with personality test feedback resulted in improvement in symptomatic distress (two-week follow up) and increase in self-esteem (immediately following feedback and at two-week follow up). The only finding they did not replicate was the relationship between positively rating the assessment experience and a reduction in symptomatic distress and an increase in self-esteem.

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\text{Cohen’s } d = \frac{2t}{\sqrt{DF}}
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Three other controlled studies (Allen et al., 2003; Rachal, 2000; Tharinger et al., 2009), which were not covered extensively in chapter one, comparing therapeutic assessment to a control group were identified in the personality test feedback literature. A recent dissertation (Rachal) compared a feedback intervention to a counseling-only intervention to determine if personality test feedback provided clients with additional benefits above those provided by common therapeutic factors. Both interventions were administered following manualized interventions. This procedure diverged from previous research where the experimental group received a manualized feedback intervention, and was compared to an unstructured attention-only group (Finn & Tonsager, 1992) or a delayed-feedback control group (Newman & Greenway, 1997). The study also differed from prior research in that it was comprised of a nonclinical sample. The participants were undergraduates who reported a personal problem, concern, or issue (e.g., relationship problems, career issues, stress, or low self-esteem) and were not receiving counseling or taking psychotropic medication. Regardless of whether feedback or common factors were provided, Rachal reported the counseling sessions were evaluated favorably, participants’ symptomatology decreased, and counselors were perceived to be influential. Rachal concluded that providing test feedback to individuals does not necessarily result in unique process and outcome benefits beyond those received from common therapeutic factors.

Rachal (2000) found that MMPI-2 feedback was associated with more reliable change in symptomatic distress, but these findings were not statistically significant. The impact of comparing a test feedback group against a counseling-only group (Rachal) instead of an unstructured attention-only group (Finn & Tonsager, 1992) or a delayed-
feedback control group (Newman & Greenway, 1997) appears to decrease what were previously thought to be unique benefits gained from test feedback. To illustrate, Rachal observed a small effect ($d = .19$) between the test feedback group and the counseling-only group for symptomatic distress at follow-up (Time 3). Studies which compared the test feedback group to an unstructured attention-only group (Finn & Tonsager) or a delayed-feedback group (Newman & Greenway) found a large and medium effect ($d = .78$ and .45, respectively) between the treatment and control groups for symptomatic distress at follow-up (Time 3). While the small effect size in Rachal’s study may support the author’s conclusion that the additive benefit of test feedback is limited when compared with common therapeutic factors, it also may be related to the use of a nonclinical sample. His study collected data from undergraduate students who reported a personal problem, but who were not currently receiving counseling. The pretest scores indicate both groups (counseling-only and counseling plus feedback) reported mild initial distress (mean scores were near the clinical cutoff scores), which limits the amount of change that can occur.

Allen et al. (2003) conducted an experiment investigating the impact of feedback on rapport-building and self-enhancement using a therapeutic assessment approach. Similarly to Rachal (2000), this study utilized a convenience sample of non-clinical, undergraduate students. Participants were randomly assigned to the experimental or control group. The test feedback group was compared to an examiner-attention control group, which received information about the personality measure instead of feedback. The results of the study indicated that those participants who received personality feedback obtained higher scores on rapport and self-enhancement measures. Participants
receiving personality test feedback reported a stronger rapport with the examiner \((d = .72)^3\), less negative feelings about the assessment process \((d = .65)\), more positive feelings about the assessment session \((d = 2.58)\), a greater sense of self-verification \((d = 1.53)\) and self-efficacy/self-discovery \((d = .46 \text{ and } 1.51, \text{ respectively})\), and higher levels of self-esteem \((d = .50)\) and self-liking \((d = .70)\) than participants who did not receive personality test results.

This study differed in several ways from previous research, including the personality measure used and methodology, making it difficult to compare the results. Allen et al. (2003) used the Millon Index of Personality Styles (MIPS; Weiss et al., 1994), which was designed for use with non-clinical individuals. The methodology also differed from previous studies. Participants were provided with feedback immediately following administration of the personality measure (i.e., one time point) and the “post-assessment discussion session” consisted of 15-minutes with the examiner. Additionally, participants were provided with an audiorecording and written descriptive interpretation of their first and second most elevated scales or description of the MIPS as a testing instrument in the experimental and control group, respectively. Based on the description in the article, it was unclear if the examiner also presented the results or simply answered any questions the participants had after listening to the audiorecording and reviewing the written report. Therefore, while the effect sizes ranged from medium to large, it is difficult given the non-clinical sample and brief mode of feedback to know whether these results are generalizable to a clinical sample.

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3 Cohen’s \(d\) was calculated from data reported in the study with the following equation: \(d = 2\sqrt{\eta^2 / (1-\eta^2)}\)
Tharinger et al. (2009) is the only controlled published research to date examining the effectiveness of therapeutic assessment with children. The study included 14 clinically referred children (ages 8 to 11) with emotional and behavior problems who were referred from the waiting list of an outpatient, public community mental health clinic as well as their female caregivers. The study found that both children and their mothers reported satisfaction with the assessment process, improvements in their perceptions of the child’s symptomatology (Cohen’s $d$ ranging from 0.28 to 0.74) and family functioning (Cohen’s $d$ ranging from 0.38 to 0.50), and the mothers reported more positive ($d = 0.58$) and less negative emotion ($d = 1.18$) toward their child’s challenges and future (Tharinger et al., 2009).

The study provides initial support for the effectiveness of therapeutic assessment with children and their families. This study, however, differs most noticeably from previous research. A salient difference is the amount of time devoted to test administration and the assessment process in general. The assessment process occurred over a three-month period with an average of eight 1.5-hour sessions for an average of 12 hours of direct service for each participant. This is a significantly larger amount of time devoted to each participant by multiple researchers. In previous research, the amount of time spent with participants ranged from one to three sessions, with the time in each session ranging from a few minutes to an hour. Additionally, participants were given multiple assessment instruments based on the relevance to the assessment questions posed in each individual case. Most of the assessment instruments on which feedback was provided were projective personality assessment measures (e.g., Thematic Apperception Test, Roberts Apperception Test, Rorschach, idiographic sentence
completions). These differences make it difficult to compare the results to research involving limited sessions with participants who receive test feedback on one to two assessment measures.

The other studies identified which examined the impact of providing personality test feedback using therapeutic assessment are single case designs (Hamilton et al., 2009; Peters, Handler, White, & Winkel, 2008; Smith & Handler, 2009; Smith, Handler, & Nash, 2010; Smith, Wolf, Handler, & Nash, 2009; Tharinger et al., 2007; Wygant & Fleming, 2008). These studies include diverse populations, ranging from individuals to families, and children to adults. The researchers in these studies with the exception of Wygant and Fleming (2008) administered multiple assessment measures, including personality, similarly to Tharinger et al. (2009).

Most of the case studies (i.e., single case designs) investigated the effectiveness of therapeutic assessment with families and children (Hamilton et al., 2009; Smith & Handler, 2009; Smith et al., 2010; Smith et al., 2009; Tharinger et al., 2007). All of these found family therapeutic assessment to be effective. Smith and Handler noted this effectiveness based on the observed collaborative nature of the feedback session and the parents’ expressed insight into their daughter’s behavior and changes they needed to make in how they approached her. Smith et al. (2009) and Smith et al. (2010) used a time-series, single-case experimental design. The results of both studies indicated improvement in the child’s identified problematic behavior. The effect sizes were generally small to medium. Tharinger et al. (2007) found that therapeutic assessment resulted in a significant decrease (over one standard deviation) in externalizing symptoms for an 11-year-old girl as measured by the Behavior Assessment System for Children-2
(BASC-2). Her parents also noted qualitative improvements in her behavior and an improvement in family functioning. The child reported increased hope and improved self-perception, and a decrease in family conflict and an increase in family communication. Similarly, Hamilton et al. (2009) demonstrated the effectiveness of therapeutic assessment with an 8-year-old girl and her parents. The results indicated a decrease in the child’s internalizing and externalizing symptoms from the clinical range to the normal range following therapeutic assessment. The parents and the child all reported a decrease in family conflict and her parents noted more positive feelings about their daughter’s challenges and future and less negative affect regarding her.

Two additional single case designs examined the impact of personality test feedback using therapeutic assessment with an adult population. Both of the studies (Peters et al., 2008; Wygant & Fleming, 2008) involved 25-year-old men who had severe mental health concerns. Peters et al. involved a case study of a man who was referred by his therapist after working together for approximately 2 months as “therapy had ceased to progress” (p. 421). The client was administered several assessment measures, including the MMPI-2 and the Rorschach (Exner, 2003). The client completed five sessions, including an intake session, a session devoted to developing assessment questions, and three sessions devoted to testing, prior to the feedback session. The examiner qualitatively noted increased insight by the client during the feedback session, and the report of the client’s therapist a few months following the evaluation was “an increase in rapport as well as commitment to therapy” (p. 432). Based on these improvements, the authors concluded that therapeutic assessment can be effective with more severely ill clients, even with less experienced clinicians.
Similarly, Wygant and Fleming (2008) investigated the clinical effectiveness of therapeutic assessment with a 25-year-old, Caucasian man who had recently been discharged from a 24-hour crisis stabilization unit following a suicide attempt. Unlike, the previous single case study (Peters et al., 2008), the therapeutic assessment process consisted only of the initial session) prior to the feedback session. The initial session was characterized by explaining the rationale and process of the evaluation, and asking the client to develop questions he would like answered through the assessment. The client was given the MMPI-2 (Butcher et al., 2001) and the Incomplete Sentences Blank (Rotter & Rafferty, 1950) following the initial session, and then provided feedback on the measures, with an emphasis on information obtained through the Restructured Clinical (RC; Tellegen et al., 2003) scales one week later. The authors concluded based on qualitative observations that the client obtained greater insight following the therapeutic assessment. The authors suggest that use of the MMPI-2, and RC scales in particular, within a therapeutic assessment model have clinical value in “conceptualizing the client’s emotional experience and explaining personality characteristics in a very accessible manner” (p. 117).

There is strong support for the benefits to clients receiving personality test feedback using a therapeutic assessment approach. A growing body of single n design case studies and experimental research indicates that providing personality feedback using a therapeutic assessment approach results in a range of client benefits, including decreased symptomatology, increased self esteem, increased hope, stronger rapport with examiner, more positive evaluations of session and examiner, greater sense of self-verification, self-efficacy/self-discovery, greater family functioning than receiving no
feedback. These results have been consistent across adult populations as well as with children and their families with the exception of Rachal (2000) who sampled from a nonclinical population. The majority of research examining therapeutic assessment with children and families and with adults with more severe psychopathology has used single case designs. While this research provides valuable information, it has limitations related to generalizability. More controlled, experimental research is needed to better understand the impact of therapeutic assessment on these populations.

Another body of research in the personality test feedback literature has investigated the differential effects on client outcomes using two styles of feedback, delivered and interactive, which are based on the information-gathering and therapeutic assessment models, respectively (Ackerman et al., 2000; Allison, 2001; Barrett, 2003; Corner, 2004; El-Shaieb, 2005; Guzzard, 2000; Hanson & Claiborn, 2006; Hanson et al., 1997; Hilsenroth et al., 2004). The differences between these test feedback styles are similar to those identified in the career test feedback literature. Delivered test feedback is primarily directed by the examiner, involves minimal client participation, and emphasizes the test data while interactive test feedback emphasizes client participation, a collaborative feedback session, and non-test data (Finn & Tonsager, 1997). While research is relatively consistent regarding the benefits of providing personality test feedback, it is less clear what mechanisms are responsible for these benefits (e.g., Hanson, 1997). There is initial support for the process-oriented benefits (e.g., more positive evaluation of session and counselor, deeper therapeutic alliance) of providing feedback using an interactive, client-centered approach over a delivered test feedback
Research has demonstrated that an interactive test feedback style (i.e., therapeutic assessment model) results in greater participant involvement (Guzzard, 2000), higher ratings of session impact and counselor attractiveness (El-Shaieb, 2005; Guzzard, 2000; Hanson et al., 1997), lower attrition rate (Ackerman et al., 2000), and an enhanced therapeutic alliance (Hilsenroth et al., 2004) than delivered feedback (e.g., information gathering, traditional assessment). One study found delivered feedback resulted in greater benefits compared to interactive feedback (Allison, 2001). This study found that participants in the delivered feedback group were able to list more relevant and favorable thoughts (i.e., recall test information) during the feedback session than participants in the interactive feedback group. This finding may reflect a matching effect of the delivered feedback (e.g., focus on test data) and outcome (e.g., recall of test data). Another study, however, did not find the same result when comparing participants in interactive and delivered feedback group on thought listing (Hanson & Claiborn, 2006). Other research has found no differences in outcomes between providing delivered or interactive feedback (Barrett, 2003; Corner, 2004; Hanson & Claiborn, 2006).

Similar to other test feedback literature, the limited and diverse nature of the personality test feedback research makes it difficult to draw clear and strong conclusions. The studies differ from one another in methods, sample, and outcomes measured. Ackerman et al. (2000) was a subsample of Hilsenroth et al. (2004) and, as such, the studies have the same methodology. Both studies used participants who were admitted to a psychodynamic psychotherapy treatment team (PPTT) at a university outpatient clinic.
In both of these studies, participants in the information gathering (i.e., delivered) group were administered a flexible battery of one to three self-report psychological measures (which generally included a personality measure) while participants in the therapeutic assessment (i.e., interactive) group were administered a standard assessment protocol, which included the Rorschach. These two studies differ from all the others studies in which participants were only given one personality measure (i.e., MMPI-2 or PRF) and were only provided feedback on the respective instrument. In Ackerman et al. (2000) and Hilsenroth et al. (2004), participants met with the examiner for two to three sessions during the assessment phase, which was followed by psychotherapy with the same individual who conducted the assessment. None of the other studies had a psychodynamic influence or had participants continue with psychotherapy following the assessment phase. Most of the studies used an undergraduate, non-clinical sample (Allison, 2001; Guzzard, 2000; Hanson & Claiborn, 2006; Hanson et al., 1997).

There were some similarities in the outcomes measured. For example, ratings of the session and/or counselor were measured in nearly all of the studies (Ackerman et al., 2000; Corner, 2004; El-Shaieb, 2005; Hanson & Claiborn, 2006; Hanson et al., 1997; Hilsenroth et al., 2004; Guzzard, 2000). These ratings were almost always obtained from a self-report measure completed by clients. Guzzard (2000), however, used ratings from observers alone on counselor influence and from clients and observers on session impact. Other outcomes measured include thought listing (Allison, 2001; Hanson et al., 1997), symptomatology (El-Shaieb, 2005), self-esteem (El-Shaieb, 2005), ratings of the assessment process (Corner, 2004; El-Shaieb, 2005), attrition rate (Ackerman et al.,
The results are most consistent regarding the benefits to clients using an interactive test feedback style with regard to process variables (e.g., quality of session, counselor attractiveness, therapeutic alliance, adherence to treatment). The small literature base comparing these two styles of feedback, however, makes it difficult to form strong conclusions. The differences among the studies regarding the methods, outcomes measured, and sample increase the complexity of understanding how different feedback styles impact client outcomes. Few studies have sampled from severe or chronic mental health populations. Additionally, very few studies have examined how specific client characteristics interact with a delivered or interactive style of feedback. Personality test feedback research investigating more severely impaired participants will be discussed followed by a review of test feedback literature that has investigated the interaction of client attributes with test feedback (i.e., treatment) on client outcomes.

**Research on populations with severe psychopathology.** The research within the personality test feedback literature includes samples from a limited range of populations, which is in part due to the relatively recent research focus in this area. As mentioned previously, several of the studies used a non-clinical, undergraduate sample (Allen et al., 2003; Allison, 2001; Barrett, 2003; Guzzard, 2000; Hanson & Claiborn, 2006; Hanson et al., 1997, Rachal, 2000). Of these studies, the students were primarily female and White with the exception of Allen et al. who used a primarily Hispanic sample. The studies which sampled from a clinical population were primarily drawn from university counseling centers (El-Shaieb, 2005; Finn & Tonsager, 1992; Newman &
Greenway, 1997) or university outpatient clinics (Ackerman et al., 2000; El-Shaieb, 2005; Hilsenroth et al., 2004). The only studies that used a clinical sample from a community mental health center were Tharinger et al. (2009) and the case studies reviewed (Peters et al., 2008; Smith & Handler, 2009; Smith et al., 2009; Wygant & Fleming, 2008). Based on these sampled populations, it is unclear whether severity of psychopathology is a moderating variable for personality test feedback outcomes.

Finn and Tonsager (1992) and Newman and Greenway (1997) reported their clinical, undergraduate samples were comprised of clients experiencing significant psychopathology. They asserted this based on the MMPI-2 profiles obtained. In Finn and Tonsager’s study, 91% of the sample had MMPI-2 profiles with one or more elevated clinical scales (>65T). They classified 34% of the profiles as “neurotic” pathology and 31% as “psychotic” according to the scheme developed by Lachar (1974). Newman and Greenway reported a similar level of psychopathology in their sample with 87% and 80% of the experimental and control groups, respectively, having one or more clinical scales elevated (>65T). Using the same approach of classification as Finn and Tonsager, Newman and Greenway classified 22% of the profiles as “neurotic” pathology and 32% as “psychotic.” The results of both studies indicated that the provision of personality test feedback resulted in a decrease in symptomatology and an increase in self-esteem and hope.

The studies that have examined an adult sample in a university outpatient clinic setting (non-undergraduate) have demonstrated similar results (Ackerman et al., 2000; Hilsenroth et al., 2004). In these studies, pathology was determined by Diagnostic and Statistical Manual of Mental Disorders (4th ed. [DSM-IV]; American Psychiatric
Association, 1994) Axis I diagnoses. Ackerman et al. reported that mood disorder (39%) and V code relational problems (22%) accounted for two-thirds of the group receiving delivered feedback. Similarly, in the interactive (i.e., therapeutic assessment model) group, mood disorders (53%) and V code relational problems (18%) accounted for nearly three-fourths of the diagnoses. Hilsenroth et al. reported that their sample evidenced a level of psychological/emotional distress primarily in the mild to moderate range of impairment, which they argue is commensurate with samples drawn from other university outpatient clinics. The primary diagnoses in the sample included mood disorder (65%), adjustment disorder (14%), and V Code relational problem (10%). Both of these studies found that providing personality feedback to clients resulted in benefits to clients, including lower attrition rate (Ackerman et al.) and improved therapeutic alliance (Hilsenroth et al.). It, however, is difficult to compare the severity of pathology between these studies and the studies drawn from clinical undergraduate samples due to differences in measuring level of pathology (i.e., MMPI-2 profiles versus DSM-IV Axis I diagnoses).

The only published, experimental clinical study identified that utilized a sample from a community mental health clinic (not university-based) was Tharinger et al. (2009). This sample was comprised of children aged 8 to 11 with “moderate to serious social, emotional, or behavioral concerns that included depression, oppositional and conduct problems, trauma reactivity, encopresis, anxiety, and strained parent-child relationship” (p. 239). The authors did not identify how they operationalized “moderate” or “serious” concerns. The study found that providing children and their mothers with assessment feedback (including personality feedback) resulted in benefits to both the children and
their families (e.g., significant improvements in the mother and child’s perception of the
child’s symptomatology and family functioning).

The only studies investigating an adult population with severe psychopathology in
a mental health community clinic setting were two case studies. While these studies
(Peters et al., 2008; Wygant & Fleming, 2008) demonstrated positive client outcomes, the
results were qualitative and have limited generalizability. Thus, it is unclear whether
these results are generalizable to a more diverse sampling of an adult community mental
health population.

While there is support for the benefits of personality feedback to adult clients with
severe pathology in a university counseling center and university outpatient clinic, it is
unclear whether these results generalize to clients with severe psychopathology in a
community mental health population. The case studies reviewed provide preliminary
support for the potential benefits of providing personality test feedback to adults with
more severe mental health concerns. There is a need, however, for more controlled,
experimental research to confirm these initial, qualitative findings.

**Research on Client Attribute x Treatment Interaction**

Another key area of research in the test feedback literature has investigated how
specific client attributes impact the interpretation process. Most of the client variables
examined, however, are not theoretically derived. This research has occurred in the
career test feedback literature investigating a range of attributes, including the extent of
client participation in test interpretation process (Dressell & Matteson, 1950; Rogers,
1954), intelligence (Froechlich & Moser, 1954; Rogers, 1954), personality traits as
measured by various measures (Kivlighan & Shapiro, 1987; Tuma & Gustad, 1957), the
difference between ability and achievement (Forster, 1969), and GPA (Hay, Rohen, & Murray, 1976). In the personality test feedback literature, client attributes of self-consciousness (private and public) (Finn & Tonsager, 1992; Newman & Greenway, 1997), severity or type of psychopathology (Finn & Tonsager; Newman & Greenway), attitudes towards mental health professionals (Finn & Tonsager; Newman & Greenway), learning styles (Barrett, 2003), client level of affiliation (Guzzard, 2000), need for cognition (Allison, 2001), and introverted versus extraverted personality styles (Corner, 2004) have been examined in light of their moderating effects on the test feedback process. While the above studies underscore an increased interest in the client’s role in test feedback, only a few of the client attributes studied have been found to have a significant effect. Research on client attributes found to have a significant effect on the test feedback process in the career and personality test feedback literature will be reviewed.

A growing body of test feedback literature has examined the interaction effect between client characteristics and treatments. Researchers have acknowledged for some time the value of this research in advancing knowledge of test feedback. Sharf (1974) proposed that treatment variables and client variables must be examined in order to understand the test interpretation process. Other researchers have argued similarly that investigating the interaction between client attributes and treatments is crucial to obtaining a meaningful understanding of the counseling process (e.g., Orlinsky et al., 2004; Rubinstein, 1978). Aptitude-treatment interaction (ATI) research (Goodyear, 1990) or person-environment (P-E) fit theory (Ostroff et al., 2002) is used more frequently in the psychotherapy literature, particularly with treatment of alcohol and drug addiction
(Clarkin & Levy, 2004) and there are relatively few studies examining this interaction in the test feedback literature (e.g., Barrett, 2004, Rogers, 1954). There is empirical support that client participation, intelligence, personality traits, private self-consciousness, and need for cognition are client variables which moderate benefits gained by clients receiving test feedback.

**Career test feedback.** Research examining the level of client participation related to ability to recall test results has produced inconsistent findings. One of the first aptitude-treatment studies in the test feedback literature (Dressel and Matteson, 1950) identified a positive relationship between the level of client participation and recall of test information at a 4-week follow-up session. Rogers (1954) investigated the interaction between test feedback style (test centered versus self-evaluative) and level of participation in feedback session (active versus nonresponsive) on participants’ level of self-understanding. The study demonstrated a P-E fit as there was a significant interaction between test feedback style and level of participation. Students who were identified as active participators in the self-evaluative feedback session achieved greater self-understanding than active participators in the test-centered feedback session or the nonparticipators (i.e., unresponsive) in either test feedback group. The study, however, did not describe how participants were identified as “active” and “unresponsive.” Based on this study’s findings, it appears that the client attribute of active participation results in greater self-understanding when the results are provided in a more client-centered or interactive manner (Rogers). Other studies, however, have not found a significant relationship between client participation and self-learning (e.g., Rubinstein, 1978).
Clients with more intelligence have been found to have greater self-understanding (Froehlich & Moser, 1954; Rogers, 1954) as measured by greater accuracy in recalling their test scores. This finding was consistent regardless of the method of test feedback (Rogers, 1954). Given that more intelligent individuals would be expected to have greater recall of information in general, this finding is not surprising.

Specific personality traits of clients have been found to impact client learning in a test interpretation session (Tuma & Gustad, 1957). This study investigated the interaction of similarities and differences in personality traits between counselors and clients. Those clients who were above average on their scores on dominance, social presence, and social participation evidenced increased self-learning. All three of the counselors in the study also were above average in their scores on these traits. The results are based on correlational data making it difficult to ascertain whether these clients achieved greater self-learning due to their similarities with the counselors or due to their higher than average scores on the traits of dominance, social presence, and social participation. It is unclear, therefore, whether they would have achieved similar or better results with counselors whose scores were lower on these traits or whether the improvement in self-learning was solely a function of their higher than average scores on the noted personality traits.

Another study examined the interaction of personality type and test interpretation on the outcome of vocational identity (Kivlighan & Shapiro, 1987). The study used a self-help career counseling intervention using the Self-Directed Search (SDS) which is self-administered and self-scored. Similar to other career test feedback studies, the participants in the study were not seeking career counseling, but screening criteria (e.g.,
self-declared need for help) were used to increase the sample’s approximation to a client population. The results indicated a significant interaction effect between personality type as measured by the students’ Holland codes and test interpretation style. Specifically, students with investigative and conventional high-point codes were most likely to benefit from a self-help career intervention. Given the highly self-directed, structured, and low-support nature of test feedback in this study, it is likely that this “feedback environment” would be most comfortable or congruent for individuals with Investigative (I) or Conventional (C) personality types and less congruent for those individuals with a Social (S), Enterprising (E), or Artistic (A) personality types.

**Personality test feedback.** Within the personality test feedback literature, level of client participation has been indirectly investigated by using a therapeutic assessment model when providing clients with test feedback. One of the basic premises of therapeutic assessment is the interactive and collaborative nature of the test feedback process (Finn & Tonsager, 1997), which implicitly assumes greater client participation. Research examining the impact of personality test feedback using therapeutic assessment has consistently found positive outcomes for clients, including decreased symptomatology (Finn & Tonsager, 1992; Newman & Greenway, 1997; Tharinger et al., 2009), increased self-esteem (Allen et al., 2003; Finn & Tonsager, 1992; Newman & Greenway, 1997), greater sense of self-verification and self-efficacy (Allen et al., 2003), increased hope (Finn & Tonsager, 1992; Newman & Greenway, 1997), enhanced therapeutic alliance (Allen et al., 2003; Hilsenroth et al., 2004; Peters et al., 2008), positive evaluations of session and counselor (Allen et al., 2003; El-Shaieb, 2005; Hanson et al., 1997; Tharinger et al., 2009), parents’ report of more positive and less
negative emotion toward their child’s challenges and future (Tharinger et al., 2009), and improved family functioning (Smith et al., 2009; Tharinger et al., 2009).

Finn and Tonsager (1992) investigated the impact of several client attributes, including level of private or public self-consciousness, severity or type of psychopathology, and attitudes toward mental health professionals, on client outcomes. The only attribute found to impact client outcomes was private self-consciousness, which was defined as “the disposition, habit, or tendency to focus attention on the private, internal aspects of the self” (p. 281). Clients with higher levels of private self-consciousness were found to have lower levels of symptomatology from Time 2 to 3 (feedback to follow-up). The results indicated there was no significant relationship between public self-consciousness, severity or the type of psychopathology, or clients’ attitudes toward mental health professionals and clients’ change scores in symptomatology or self-esteem. Newman and Greenway (1997) replicated Finn and Tonsager’s study and investigated identical client variables. They, however, found that none of the variables impacted change scores in symptomatology or self-esteem.

A recent dissertation investigated the interaction of test interpretation style and need for cognition on cognitive response and recall (Allison, 2001). Need for cognition has been defined as the extent to which individuals engage in and enjoy effortful cognitive activities (Petty, Brinol, Loersch, & McCaslin, 2009). The results found an interaction effect for clients’ ability to recall personality test results. Those individuals with a low need for cognition who received delivered (test-centered) interpretations were most successful at recalling test information. The interaction of low need for cognition with interactive interpretations demonstrated the worst recall of test information.
**Summary.** These results of these studies from the career and personality test feedback literature provide support for the person-environment fit theory (Holland, 1973) and demonstrate the potential value in conducting research investigating P-E fit. The research thus far suggests that creating an environment (i.e., test feedback style) congruent to active participation, a person’s intelligence, personality characteristics, private self-consciousness, or need for cognition provide greater benefit to the client. Research investigating this interaction can improve our ability to provide effective personality test feedback by matching clients’ individual attributes to a congruent style of feedback. While this research is informative, there is a clear need for further research examining the interaction between specific client attributes and style of test feedback, particularly with personality test feedback.

Several other studies, however, have failed to demonstrate a P-E fit in the career test feedback literature between test feedback style and achievement discrepancy (Forster, 1969), and in the personality test feedback between test feedback and level of public self-consciousness, severity or type of psychopathology, and attitudes toward mental health professionals (Finn & Tonsager, 1992; Newman & Greenway, 1997), private self-consciousness (Newman & Greenway, 1997), learning styles (Barrett, 2000), level of affiliation (Guzzard, 2000), and introverted and extroverted personality styles (Corner, 2004). Additionally, aside from Kivlighan & Shapiro’s study, only two other studies (Allison, 2001; Barrett, 2003) were identified that examined a theoretically derived client variable (need for cognition and learning style, respectively) and its effect on the personality test feedback process. Barrett’s study failed to identify an interaction
effect between different styles of feedback (i.e., delivered and interactive) and learning styles on clients’ perception of session and counselor, self-awareness, and satisfaction.

Despite numerous calls for research in this area, it is clear that additional research examining the interactional effect of theory-derived client attributes and style of feedback is needed. The effectiveness of providing personality test feedback to clients is heavily dependent on the ability of the assessor/counselor to communicate the results in a manner that the client can comprehend and process. Within this exchange, the client’s information processing style is a client attribute which may be of significant importance.

Information Processing Style

Scholars and researchers from various disciplines in psychology have consistently identified two fundamentally different information processing systems. These systems have been labeled and named differently, but they are broadly defined in similar terms. One has been referred to as intuitive, heuristic, natural, automatic, schematic, prototypical, narrative, implicit, imagistic-nonverbal, experiential, mythos, and first-signal system and the other as thinking-conceptual-logical, analytical-rational, deliberative-effortful-intentional-systematic, explicit, extensional, verbal, logos, and second-signal system (Epstein et al., 1996). A significant body of empirical and theoretical literature has been produced to explain these processing systems while relatively little effort has been spent on measuring individual differences related to the degree people operate primarily in one mode or the other (Epstein et al). One specific theory that has investigated these individual differences and sought to understand how these differences impact how people interact with their environment is the cognitive-experiential self-theory (CEST).
CEST proposes that people adapt to their environments through use of two information-processing systems: the rational system and the experiential system (Epstein, 1994). The two systems operate simultaneously and are interactive, influencing one another in both content and process (Epstein & Pacini, 1999). The rational system, which is primarily conscious, operates through logic and represents events in abstract symbols, words, and numbers. The experiential system, which is preconscious, operates through heuristics (i.e., cognitive shortcuts) and represents events in the form of concrete images, metaphors, and narratives (Epstein, 1990). It is a crude system characterized by rapid, automatic, and efficient processing of information with the ability to take immediate action at its lower levels of operation. At its higher reaches, it is responsible for intuitive wisdom and creativity, especially in conjunction with the rational system (Epstein, 1994). This is in contrast to the rational system, which is characterized by slower processing and is oriented toward more deliberate and delayed action making it generally inefficient to cope with events in everyday life (Epstein & Pacini, 1999). This system operates primarily in the medium of language and is analytical, effortful, affect-free, and highly demanding of cognitive resources (Epstein, 2003).

The experiential system has a long evolutionary history and is present in non-human, higher-order animals for the purpose of adapting to their environments. It is invoked when quick decisions need to be made as it is not possible to be thorough when immediate action is required. Epstein (1991) stated,

“When an individual is confronted with a situation that, depending on past experience, is appraised as significant for the person’s welfare, the person experiences certain feelings or vibes. The vibes motivate behavior to enhance the
feeling state if it is a pleasant one and to terminate it if it is an unpleasant one. The whole process occurs with great rapidity, so that to all appearances the behavior is an immediate reaction to the eliciting stimulus. The same process guides the behavior of higher-order infrahuman animals. In the case of humans, however, the vibes produce not only tendencies to act in certain ways, but also tendencies to think in certain ways. Thus, people are less in control of their conscious thinking than they like to believe.” (p. 122)

This system is more complex in humans because of their highly developed cerebral cortex (Epstein, 1990). It is an automatic learning system in which adaptation occurs by learning from experience rather than by logical inference. By learning experientially, this system can cope effectively with daily problems which are too complex to be analyzed into their components (Epstein, 2003). Information is encoded in the experiential system in two ways: “as memories of individual events, particularly events that were experienced as highly emotionally arousing, and also in a more abstract, general way” (Epstein, 2003, p. 160).

The rational system, on the other hand, has a relatively brief evolutionary history and its “long-term adaptability from an evolutionary perspective remains to be demonstrated” (Epstein & Pacini, 1999, p. 463). It adapts through logical inference and “it makes possible planning, long-term delay of gratification, complex generalization and discrimination, and comprehension of cause-and-effect relations” (Epstein, 2003, p. 16). A growing body of literature provides support for these two modes of processing information within both laboratory research and real-life phenomena (e.g., Denes-Raj & Epstein, 1994; Epstein, 1992, 1994, 1998; Epstein, Lipson, Holstein, & Huh, 1992;
Kirkpatrick & Epstein, 1992; Pacini, Muir, & Epstein, 1998). Table 1 presents a comparison of the operating principles of the two systems.

Research has consistently demonstrated support for two independent and interactive information processing systems. This has occurred across a range of research focuses, including irrational reactions to unfavorable arbitrary outcomes, the ratio-bias phenomenon, sequential processing, and global, associationist judgments. In arbitrary outcome-oriented processing research (Epstein et al., 1992; Tversky & Khaneman, 1983), participants were presented with vignettes with alternate versions of events that have the same negative arbitrary outcome that is not a consequence of the protagonist’s behavior. The findings of this research consistently demonstrated that participants indicate that the protagonist in the vignette would consider behavior that preceded a negative outcome as more foolish if it involved a near miss, an unusual response, an act of commission, or a free choice that was not present in a matching opposite condition. This phenomenon occurred “…despite the fact that from a logical perspective the differences in the two versions should not matter…” (Epstein, 1994, p. 717). This phenomenon was present when participants were asked to respond how they themselves would react and how most other people would react (Epstein et al., 1992). This was true despite the fact that the outcome was arbitrary and that the participants recognized that the reactions they endorsed were irrational. When participants were asked to respond to the vignettes from the perspective of a logical person, however, the phenomenon nearly disappeared (Epstein et al., 1992). The researchers found that the greater the emotional intensity of outcomes, the more participants responded using the experiential system. Additionally,
Table 1
Comparison of the Experiential and Rational Systems

<table>
<thead>
<tr>
<th>Experiential System</th>
<th>Rational System</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Behavior mediated by vibes from past experiences.</td>
<td>5. Behavior mediated by conscious appraisal of events.</td>
</tr>
<tr>
<td>8. Slower to change; changes with repetitive or intense experience.</td>
<td>8. Changes more rapidly; changes with speed of thought.</td>
</tr>
<tr>
<td>9. More crudely differentiated; broad generalization gradient; categorical thinking.</td>
<td>9. More highly differentiated; dimensional thinking.</td>
</tr>
<tr>
<td>11. Experienced passively and preconsciously; seized by our emotions.</td>
<td>11. Experienced actively and consciously; in control of our thoughts.</td>
</tr>
</tbody>
</table>


“once responding in the mode of the experiential system was activated, it influenced responding in the rational mode (i.e., people believed their nonrational, experientially determined judgments were rational)” (Epstein, 1994, p. 717).

The ratio-bias phenomenon research refers to the judgment of a low probability event as more subjectively improbable if represented by an equivalent ratio of small
numbers (e.g., 1 in 10) rather than large numbers (e.g., 10 in 100) (Denes-Raj et al., 1995; Kirkpatrick & Epstein, 1992; Pacini, Muir, & Epstein, 1998). The findings were replicated in a more extreme version of these studies in which a significant portion of participants chose a lower probability (e.g. 9% or 5% instead of 10%) option if the ratio involved higher absolute numbers (e.g., 9 in 100 instead of 1 in 10) (Denes-Raj & Epstein, 1994). Many of the participants who made nonoptimal choices described a conflict between objectively knowing which option had the better odds and the bowl with more winners (i.e., higher absolute number). These experiments provided support for the presence of the rational and experiential systems of information processing proposed by CEST and that the two systems can be in conflict with one another. Additionally, these studies provide support for the ability of the experiential system to overrule the rational system even when individuals are aware of the rational response to a situation.

Sequential processing research provided evidence of two independent, yet interactive information processing systems by asking participants to list the first three thoughts that came to mind after presenting them with vignettes that described arbitrary negative outcomes (Epstein, 1993). The consistent pattern identified was that the first thought was generally representative of the experiential system while the third thought was usually representative of the rational system. This experiment provides support for CEST as the experiential system is proposed to be a rapid and automatic system whereas the rational system is a more reflective and deliberate system.

Research investigating global, associationistic judgments investigates the “tendency of people to evaluate others holistically as either good or bad people rather than to restrict their judgments to specific behaviors or attributes” (Epstein, 2003, p. 171).
The research on this heuristic indicates that individuals form global-person-evaluation based on arbitrary outcomes (Epstein, 1994). Similar to previous research, these findings were augmented when the emotional consequences were increased and this phenomenon was greatly reduced when participants were asked to evaluate the vignettes presented from the perspective of a logical person. This recognition by the participants provides further support that individuals are intuitively aware of two information processing systems (i.e., experiential and rational systems). Additionally, these findings demonstrate that information processing using the experiential system increases in situations with greater emotional involvement and that individuals have a predisposition to use overgeneralizations when evaluating individuals based on arbitrary outcomes which are out of the control of the individual. These overgeneralizations occur despite the fact that people can identify their responses are irrational (i.e., know better in their rational system) (Epstein, 1994).

The research conducted to test the hypotheses of CEST has been consistent in supporting the presence of two information processing systems that are independent and interactive. While both systems contribute to behavior and conscious thought, their relative contribution can vary from none to complete dominance by either one of the systems (Epstein & Pacini, 1999). The relative dominance of one system over the other is dependent on a number of factors, including individual differences in styles of thinking and situational variables (Epstein et al., 1996). The ability and preference for using the two information processing systems have been hypothesized to be relatively stable dispositions characterized by two primary thinking styles. Ability and preference for rational information processing is described as “need for cognition,” which is associated
with the tendency to engage in and enjoy cognitive activities and rational processing. The ability and preference for experiential information processing is described as “faith in intuition,” which is associated with the tendency to engage in and enjoy experiential processing (Epstein et al., 1996).

Research has supported individual differences in rational and experiential thinking styles through the development of the Rational-Experiential Inventory (REI; Epstein et al., 1996; Pacini & Epstein, 1999). The REI has been shown to have good psychometric properties and to be a valid measure for identifying individual differences in the degree and effectiveness with which people rely on one system or the other (Epstein et al., 1996; Pacini & Epstein, 1999). Research has demonstrated an inverse relationship between the rational scale and heuristic processing and a positive relationship between the experiential scale and heuristic processing (Epstein, 2003). Additionally, rationality and experientiality have been shown to be orthogonal (i.e., uncorrelated). It is, therefore, possible for an individual to be high on both or on neither of these dimensions (Pacini & Epstein, 1999).

These preferences in thinking styles may impact an individual’s receptivity to different styles of presenting information. Epstein (1994) states: “Messages that are influential and appealing to individuals who process information primarily in the experiential mode may be incongruent and ineffective for individuals who have a tendency to process information primarily in the rational mode, and vice versa” (p. 720-721). Rosenthal and Epstein (2000) conducted a study to test this hypothesis in a study investigating the impact of matching message style to thinking style. The authors identified women with high scores on rationality and low scores on experientiality and
women with the opposite pattern on the REI. The two groups of women were subdivided to receive information designed to appeal to the rational or experiential mode of information processing. The messages presented included information on the danger of breast cancer and the importance of self-examination. The rational message focused on presenting actuarial and other objective information, whereas the experiential message emphasized personal appeals and vivid individual cases. The client outcome measured was the participants’ intent to regularly conduct breast self-examinations. Consistent with the hypothesis, the results of the study indicated that the women who received messages which were matched to their thinking style (e.g., rational message to an individual with a high score on rationality) reported greater intention to conduct breast self-examinations. The preference for a thinking style is thus highly relevant to the test feedback process in the effort to optimize benefits to clients. The two primary feedback styles discussed in the literature, delivered and interactive, provide uniquely different environments.

The delivered test feedback style is characterized by a focus on test data, being highly counselor directed, and a primarily teaching/learning environment (Rogers, 1954; Rubinstein, 1978). This style focuses on presenting information in a manner which requires conscious learning from an explicit source of information (i.e., researcher) and logical inference. This style of feedback operates in a manner that is verbal, affect free, effortful, and demanding of cognitive resources. It, therefore, would follow that providing test feedback in a delivered style (based on information-gathering model) would create a congruent or matching environment for individuals who have a dominant rational information processing style.
The interactive test feedback style, on the other hand, is characterized by a focus on the client’s experiences in relation to the data, being client-directed, and a primarily collaborative and experiential learning environment (Finn & Tonsager, 1997). This approach is consistent with humanistic principles in which the emphasis is on demonstrating respect for the client, developing a collaborative relationship with the client, and engaging in a discussion about test results instead of presenting the findings as objective truth (Finn & Tonsager, 2002). Clients are encouraged to form questions about themselves that they would like answered by the assessment process and a test result is presented as theory that can be modified, accepted, or rejected by a client (Finn & Tonsager, 2002). The information provided in this approach is presented in the context of clients’ past or current experiences and emphasizes nonverbal concrete representations, such as images, feelings, and scenarios, and how they relate to test data (Finn, 1996). This style of feedback operates in a manner that is partially non-verbal, associated with affect, concrete, and places minimal demand on cognitive resources. It, therefore, would follow that providing test feedback in an interactive style (based on the therapeutic assessment model) would create a congruent or matching environment for individuals who have a dominant experiential information processing style.

**Conclusions and Goals of the Study**

In summary, empirical literature within career and personality literature consistently indicates that providing clients with test feedback results in process (e.g., rapport-building, satisfaction with examiner and session) and outcome benefits (e.g., symptom reduction, improved self-esteem, increased hope, greater self-learning) to clients (e.g., Dressel & Matteson, 1950; Finn & Tonsager, 1992; Holmes, 1964; Newman
& Greenway, 1997). The results are less consistent with respect to client outcomes when different methods of providing feedback are investigated (e.g., Gustad & Tuma, 1957; Hanson & Claiborn, 2006; Rogers, 1954; Rubinstein, 1978). The two styles of feedback most often investigated in the test feedback literature, delivered and interactive, generally reflect the two models of assessment outlined (i.e., information-gathering and therapeutic assessment).

More recently in the personality test feedback literature, person-environment (P-E) fit research has been more prominent. The interaction of treatments and client attributes appears to be an important area of research to better understand how to optimize benefits to clients receiving test feedback. Research has investigated the interactive effect of test feedback style and client attributes, including need for cognition (Allison, 2001) and learning style (Barrett, 2003) in the personality test feedback literature. While this research is promising, particularly those studies examining theoretically derived client attributes related to how individuals interact with their environment (e.g., Allison, 2001; Barrett, 2003; Kivlighan & Shapiro, 1987), there is an absence of this research examining an adult, clinical population in a community-based setting aside from two case studies. The majority of research examined in this literature review utilized a nonclinical or clinical student population. Furthermore, no studies were identified that examined the mediating role of different styles of information processing based on CEST on benefits clients gain from receiving the two different styles of test feedback. The current investigation intends to examine the interaction effect of the two information processing styles (rational and experiential) based on CEST and two styles of test feedback (delivered and interactive) on benefits gained by clients.
The specific goals of the current investigation are: 1) to examine the interaction effect of informational processing style and test feedback style in a clinical, community-based sample, 2) to examine whether clients with dominant rational information processing style obtain greater benefits when matched with delivered feedback, 3) to examine whether clients with higher levels of experiential information processing style obtain greater benefits when matched with interactive feedback, and 4) to examine whether the benefits gained by clients whose information processing styles are matched to congruent test feedback styles will increase over time.
Chapter 3

Methods

This chapter describes the methodology for the proposed study. First, a description of the experimental and researcher participants is provided. Second, the measures used for the study are described and a review of their psychometric properties is presented. Third, a description of the procedure is provided. This includes training procedures for researchers who delivered the test feedback, a procedural manipulation check, and the data collection process. Finally, the experimental design is described.

Experimental Participants

This section describes the client participants in the current study. First, a description of the participants included in the final sample ($N = 39$) is presented. Next, the attrition group is described and analyses investigating the differences between the final sample and the attrition group on demographic variables and MMPI-2 scale scores are presented. Third, site differences are examined by presenting the results of analyses investigating the differences between the two sites on demographic variables and MMPI-2 scale scores. Later, in the results section, site differences are analyzed for the dependent measures. Finally, an a priori statistical power analysis to determine the number of participants needed is presented.
Client participants. Participants were 39 outpatient clients from a midwest community outpatient clinic ($n = 16$) and a midsized, midwestern public university outpatient clinic used for training graduate students ($n = 23$). The distribution of the clients across the research groups is as follows: 13 were assigned to the interactive feedback group, 14 were assigned to the delivered feedback group, and 12 were assigned to the control group. The final client count was 4 men and 9 women in the interactive feedback group, 8 men and 6 women in the delivered feedback group, and 5 men and 7 women in the control group. The mean age of participants in each of the groups was as follows: 35.2 ($SD = 12.0$) in the delivered group, 39.1 ($SD = 10.0$) in the interactive group, and 37.1 ($SD = 11.25$) in the control group. The groups were not significantly different in age or sex composition. The mean age of the final sample was 37.1 ($SD = 11.0$; range of 19 to 58). The sample was 89.7 percent Caucasian, 5.1 percent African-American, 2.6 percent Asian-American, and 2.6 percent Latino/a. The categorical, demographic variables for the final sample ($N = 39$) are presented in Table 2.

Attrition of participants. The initial number of participants was 49, but 10 clients were dropped from the analyses for the following reasons: Three were dropped due to invalid MMPI-2 profiles (i.e., $? > 30$, or $L > 10$, or $F > 21$, or $K > 26$, or $VRIN \geq 12$), three because a researcher failed to follow the treatment protocol, two because of failure to complete one or more of the measures, and two because of dropout before the third session. The distribution of the dropped clients across the research groups is as follows: Two clients were from the delivered feedback experimental group, three clients from the interactive feedback experimental group, and five clients from the control group. The term “attrition group” refers to participants who were excluded from the final
Table 2

*Categorical Variables for Participants in the Final Sample and Attrition Group*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Final sample</th>
<th>Attrition group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( N^a ) (%)</td>
<td>( n^b ) (%)</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>17</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>43.6%</td>
<td>42.9%</td>
</tr>
<tr>
<td>Female</td>
<td>22</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>56.4%</td>
<td>57.1%</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>5.1%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Asian American</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>2.6%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Caucasian</td>
<td>35</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>89.7%</td>
<td>85.7%</td>
</tr>
<tr>
<td>Latino/a</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>2.6%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Native American</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>0.0%</td>
<td>14.3%</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 12 years</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>10.3%</td>
<td>14.3%</td>
</tr>
<tr>
<td>12 years</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>17.9%</td>
<td>28.6%</td>
</tr>
<tr>
<td>13-16 years</td>
<td>23</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>59.0%</td>
<td>57.1%</td>
</tr>
<tr>
<td>16 + years</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>12.8%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Relationship status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>18</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>46.2%</td>
<td>28.6%</td>
</tr>
<tr>
<td>Married</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>12.8%</td>
<td>28.6%</td>
</tr>
<tr>
<td>Separated</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>10.3%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Divorced</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>30.8%</td>
<td>42.9%</td>
</tr>
<tr>
<td>Prior counseling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>32</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>82.1%</td>
<td>71.4%</td>
</tr>
<tr>
<td>No</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>17.9%</td>
<td>28.6%</td>
</tr>
</tbody>
</table>

*Note.* \( N^a = 39 \), \( n^b = 7 \)

analysis for reasons other than researcher error. Therefore, even though only two participants were technically removed due to attrition, the attrition group was comprised of 7 of the 10 participants who were not included in the final analysis. The three participants excluded from the final analysis due to inadequate treatment adherence (i.e., researcher error) were not included in attrition analyses. This decision was made in order
to most accurately determine if there was a difference between participants who completed the study and those participants who were excluded from the study for reasons other than researcher error. The categorical, demographic variables for the attrition group \((n = 7)\) are presented in Table 2. The mean age of the attrition group was \(41.0 (SD = 17.0)\).

Six \(t\)-tests were conducted using Bonferroni adjusted alpha levels of .008 per test (.05/6) to determine if the final sample and attrition group differed from one another on the covariates and dependent variables. The results of the \(t\)-tests as well as the weighted means\(^4\) and standard deviations\(^5\) for the covariates and dependent variables for the final sample and the attrition group at Time 1 are presented in Table 3. The results indicated that the final sample and attrition group differed from one another on the REI (rational scale), SLSC-R, and the SCL-90-R. The final sample had a higher mean score on the REI (rational scale) and SLSC-R indicating higher levels of rational information processing and ratings of self-esteem. The attrition group had a higher mean score on SCL-90-R indicating higher levels of symptomatic distress. The mean MMPI-2 profiles for the final sample and for the attrition group are presented in Figures 1 and 2. Table 4 provides the means and standard deviations for the MMPI-2 scales for both groups. Multiple \(t\)-tests were conducted using Bonferroni adjusted levels of .004 per test (.05/14) to determine if the final sample and attrition group differed significantly from one another on the MMPI-2 scales. These analyses indicated that the attrition group had higher mean scores on the F Scale, Scale 7 (Ps), and Scale 8 (Sc). This is consistent with

\(^4\) Weighted means calculated by the following equation: \(M = \sum w_i x_i\)

\(^5\) Standard deviations calculated by the following equation: \(SD = \sqrt{\sum w_i^2 \sigma_i^2}\)
Table 3

Descriptive and Inferential Statistics of the Study Variables for the Final Sample and the Attrition Group at Time 1

<table>
<thead>
<tr>
<th>Measure</th>
<th>Final sample</th>
<th>Attrition group</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>REI, rational scale</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>3.32</td>
<td>2.79</td>
<td>.004*</td>
</tr>
<tr>
<td>SD</td>
<td>0.38</td>
<td>0.26</td>
<td></td>
</tr>
<tr>
<td>REI, experiential scale</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>3.63</td>
<td>3.02</td>
<td>.272</td>
</tr>
<tr>
<td>SD</td>
<td>0.38</td>
<td>0.19</td>
<td></td>
</tr>
<tr>
<td>SLSC-R</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>47.92</td>
<td>33.33</td>
<td>.003*</td>
</tr>
<tr>
<td>SD</td>
<td>6.62</td>
<td>4.23</td>
<td></td>
</tr>
<tr>
<td>SCL-90-R</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>1.14</td>
<td>2.31</td>
<td>.000*</td>
</tr>
<tr>
<td>SD</td>
<td>0.37</td>
<td>0.52</td>
<td></td>
</tr>
<tr>
<td>CRF</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>75.56</td>
<td>67.57</td>
<td>.027</td>
</tr>
<tr>
<td>SD</td>
<td>4.62</td>
<td>6.93</td>
<td></td>
</tr>
<tr>
<td>SEQ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>51.41</td>
<td>49.00</td>
<td>.563</td>
</tr>
<tr>
<td>SD</td>
<td>6.00</td>
<td>5.55</td>
<td></td>
</tr>
</tbody>
</table>

Note. Higher scores equal higher levels of rationality, experientiality, self-esteem, symptomatology, and better ratings of counselor and session. REI = Rational Experiential Scale; SCSL-R = Self-Competency/Self-Liking Scale-Revised; SCL-90-R = Symptom Checklist-90-Revised; CRF = Counselor Rating Form; SEQ = Session Evaluation Questionnaire. aN = 39, b n = 7, c n = 6. *p < .008.

the finding that the attrition group reported higher levels of symptomatic distress. The differences on the MMPI-2 scales, however, may be an artifact of three participants in the attrition group who were excluded from the study due to elevated F Scale scores. Clinical interviews supported corresponding psychotic behavior for only one of these three participants.
Figure 1. MMPI-2 mean profile for the final sample ($N = 39$).

Figure 2. MMPI-2 mean profile for the attrition group ($n = 7$).
Table 4

Descriptive and Inferential Statistics of the MMPI-2 Scales for the Final Sample and the Attrition Group

<table>
<thead>
<tr>
<th>Scale</th>
<th>Final sample</th>
<th>Attrition group</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>VRIN</td>
<td>55.26 (9.08)</td>
<td>54.57 (10.69)</td>
<td>.859</td>
</tr>
<tr>
<td>F</td>
<td>65.69 (13.78)</td>
<td>91.00 (28.41)</td>
<td>.001*</td>
</tr>
<tr>
<td>L</td>
<td>54.59 (10.04)</td>
<td>48.14 (7.31)</td>
<td>.113</td>
</tr>
<tr>
<td>K</td>
<td>46.08 (9.01)</td>
<td>44.00 (12.77)</td>
<td>.601</td>
</tr>
<tr>
<td>Hs</td>
<td>62.56 (15.04)</td>
<td>75.57 (13.67)</td>
<td>.039</td>
</tr>
<tr>
<td>D</td>
<td>69.13 (15.33)</td>
<td>84.00 (13.59)</td>
<td>.210</td>
</tr>
<tr>
<td>Hy</td>
<td>62.69 (16.58)</td>
<td>74.71 (5.77)</td>
<td>.066</td>
</tr>
<tr>
<td>Pd</td>
<td>66.46 (13.07)</td>
<td>79.71 (8.16)</td>
<td>.013</td>
</tr>
<tr>
<td>Mf</td>
<td>52.56 (8.80)</td>
<td>53.86 (5.64)</td>
<td>.711</td>
</tr>
<tr>
<td>Pa</td>
<td>63.31 (14.69)</td>
<td>82.57 (20.52)</td>
<td>.004</td>
</tr>
<tr>
<td>Ps</td>
<td>64.54 (13.08)</td>
<td>85.29 (9.20)</td>
<td>.000*</td>
</tr>
<tr>
<td>Sc</td>
<td>65.23 (12.96)</td>
<td>92.86 (21.24)</td>
<td>.000*</td>
</tr>
<tr>
<td>Ma</td>
<td>53.31 (9.66)</td>
<td>58.43 (16.75)</td>
<td>.259</td>
</tr>
<tr>
<td>Si</td>
<td>57.87 (9.28)</td>
<td>69.86 (12.97)</td>
<td>.005</td>
</tr>
</tbody>
</table>

*Note. \(^a\)N = 39, \(^b\)n = 7. \(*p < .004*

Site differences. Demographic, categorical variables for participants at each site are presented in Table 5. The mean MMPI-2 profiles for participants at each site are available in Figures 3 and 4. Table 6 provides the means and standard deviations for the MMPI-2 scales for each site. Multiple \( t \)-tests were conducted using Bonferroni adjusted levels of .004 per test (.05/14) to determine if the sites differed significantly from one another on the MMPI-2 scales. The lack of statistical differences between the two sites on MMPI-2 scores suggests that there were no differences between participants at each site regarding personality and emotional functioning. The dependent variables studied in the experimental design (SLSC-R, SCL-90-R, CRF-S, SEQ) are analyzed for site differences in the results chapter to assess the impact of site as a confounding variable on
Table 5
Categorical Variables for Participants at Multiple Sites

<table>
<thead>
<tr>
<th>Variable</th>
<th>University outpatient clinic</th>
<th>Community outpatient clinic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( n^a )</td>
<td>(%)</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>9</td>
<td>39.1%</td>
</tr>
<tr>
<td>Female</td>
<td>14</td>
<td>60.9%</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>1</td>
<td>4.3%</td>
</tr>
<tr>
<td>Asian American</td>
<td>1</td>
<td>4.3%</td>
</tr>
<tr>
<td>Caucasian</td>
<td>20</td>
<td>87.0%</td>
</tr>
<tr>
<td>Latino/a</td>
<td>1</td>
<td>4.3%</td>
</tr>
<tr>
<td>Native American</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 12 years</td>
<td>1</td>
<td>4.3%</td>
</tr>
<tr>
<td>12 years</td>
<td>3</td>
<td>13.0%</td>
</tr>
<tr>
<td>13-16 years</td>
<td>15</td>
<td>65.2%</td>
</tr>
<tr>
<td>16 + years</td>
<td>4</td>
<td>17.4%</td>
</tr>
<tr>
<td>Relationship status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>12</td>
<td>52.2%</td>
</tr>
<tr>
<td>Married</td>
<td>3</td>
<td>13.0%</td>
</tr>
<tr>
<td>Separated</td>
<td>3</td>
<td>13.0%</td>
</tr>
<tr>
<td>Divorced</td>
<td>5</td>
<td>21.7%</td>
</tr>
<tr>
<td>Prior counseling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>19</td>
<td>82.6%</td>
</tr>
<tr>
<td>No</td>
<td>4</td>
<td>17.4%</td>
</tr>
</tbody>
</table>

Note. \( n^a = 23, n^b = 16 \)

these measures.

**Power analysis.** A statistical power analysis, when calculated prior to the execution of a study, estimates the likelihood that the study will yield a statistically significant effect (Borenstein, Rothstein, & Cohen, 2001). Statistical power is influenced by three factors: alpha level, sample size, and effect size within the population.
Figure 3. MMPI-2 mean profile for the university outpatient clinic sample ($n = 23$).

Figure 4. MMPI-2 mean profile for the community outpatient clinic sample ($n = 16$).
### Table 6

**Descriptive and Inferential Statistics of the MMPI-2 Scales for Participants at Multiple Sites**

<table>
<thead>
<tr>
<th>Scale</th>
<th>University outpatient clinic&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Community outpatient clinic&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M(SD)</td>
<td>M(SD)</td>
</tr>
</tbody>
</table>
| VRIN  | 55.96 (10.49)                            | 54.25 (6.75)                            | .570  
| F     | 62.00 (11.14)                            | 71.00 (15.74)                           | .043  
| L     | 54.96 (7.44)                             | 54.06 (13.18)                           | .789  
| K     | 46.96 (9.26)                             | 44.81 (8.77)                            | .472  
| Hs    | 58.39 (11.76)                            | 68.56 (17.46)                           | .036  
| D     | 63.57 (14.43)                            | 77.13 (13.21)                           | .005  
| Hy    | 58.09 (13.04)                            | 69.31 (19.18)                           | .036  
| Pd    | 65.78 (9.66)                             | 67.44 (17.16)                           | .703  
| Mf    | 53.22 (7.75)                             | 51.63 (10.33)                           | .585  
| Pa    | 60.57 (13.72)                            | 67.25 (15.58)                           | .165  
| Ps    | 60.43 (11.66)                            | 70.44 (13.09)                           | .017  
| Sc    | 60.39 (11.55)                            | 72.19 (11.92)                           | .004  
| Ma    | 52.26 (8.45)                             | 54.81 (11.29)                           | .424  
| Si    | 56.74 (8.82)                             | 59.50 (9.96)                            | .368  

*Note.* <sup>a</sup>n = 23, <sup>b</sup>n = 16. *p < .004

of interest. These factors along with power form a closed system. This signifies that once three of any of these factors is known, the fourth factor can always be determined (Borenstein et al., 2001).

A power analysis was performed in order to determine the sample size sufficient to detect a small medium effect size between treatment groups. GPower software (Faul, Erdfelder, Lang, & Buchner, 2007) was used to conduct this analysis using Cohen’s guidelines (Cohen, 1988). A review of the research comparing an interactive versus delivered feedback style as well as research examining the moderating effect of client attributes on the test feedback process served as the basis for predicting the effect size for this a priori power analysis. Research examining the differential effects of interactive
and delivered test feedback that was judged to be most similar to the present investigation obtained effect sizes ranging from small (0.08) to large (1.57) (Ackerman et al., 2000; Hanson & Claiborn, 2006; Hanson et al., 1997; Hilsenroth et al., 2004). The statistical tests used in these studies were converted to a standard effect size by use of the $d$ effect index yielding a weighted average effect size of 0.42 (median effect size = 0.34)$^6$. These studies, however, did not examine interaction effects. Research examining interaction effects in the test feedback literature were identified and effect sizes for the interaction effects were calculated and ranged from small (0.12) to large (1.12) (Finn & Tonsager, 1992; Newman & Greenway, 1997; Rogers, 1954)$^7$. The statistical tests used in these studies were converted to a standard effect size by use of the $d$ effect index yielding a weighted average effect size of 0.78. Of the research identified that investigated client attributes, only one study was identified where effect sizes could be calculated for the interaction effects (Rogers, 1954). The weighted average effect size in this study was .31. Given the age of this solitary study, the decision was made to use the main effect for the test feedback condition. Therefore, it was determined that a medium effect size of .42 would be adopted as an a priori determination of statistical power in the current investigation.

The power analysis was performed with conventional power of 0.80, alpha level of 0.05, and an a priori estimated effect size of 0.42. It was estimated that an $N$ of 58 participants was needed to identify a statistically significant effect (Faul et al., 2007).

---

$^6$ Cohen’s $d$ calculated by the following equations: $d = 2\sqrt{\eta^2}/\sqrt{(1-\eta^2)}$ and $d = 2\sqrt{(\chi^2/(N-\chi^2))}$

$^7$ Cohen’s $d$ calculated by the following equation: $\eta^2 = df_{between} \times F / df_{between} \times F + df_{within}$ and $d = 2\sqrt{\eta^2}/\sqrt{(1-\eta^2)}$
Data for this study were collected over a nine-month period (October 2008 to June 2009) during which an initial sample size of 49 was obtained. Due to attrition factors outlined above, the final sample size included 39. The decision was made to discontinue data collection after nine months due to the challenges and expected protracted timeframe of obtaining additional participants.

**Researcher Participants**

**Researchers.** The researchers who administered the MMPI-2 and provided verbal feedback to the participants were five female and three male doctoral students, including the principal investigator, enrolled in an American Psychological Association accredited Counseling Psychology Ph.D. program at a midsized, midwestern university. The age of the researchers ranged from 25 to 32 with a mean age of 27.8 ($SD = 2.25$). All of the researchers identified as Caucasian and had completed at least one year of doctoral studies, following completion of a two-year master’s degree. Six of the researchers were second-year doctoral students, one was a third-year doctoral student, and one was a fourth-year doctoral student. In order to be eligible to serve as a researcher, the doctoral students had to have successfully completed a graduate-level objective personality course, which focused almost entirely on the MMPI-2, and be identified by faculty as proficient clinicians in MMPI-2 interpretation and feedback.

**Raters.** Two female master’s level graduate student raters were recruited to judge researchers’ adherence to manualized delivered or interactive test feedback styles, or an attention-only control group. These graduate students were enrolled at a midsized, midwestern university in a Council for Accreditation of Counseling and Related Educational Programs (CACREP) accredited master’s level counseling program. Raters
had successfully completed 18 hours of graduate-level courses and were willing to attend weekly supervision meetings.

Measures

**Minnesota Multiphasic Personality Inventory-2 (MMPI-2).** The MMPI-2 (Butcher et al., 1989) is the restandardized version of the MMPI and the most frequently used and researched measure of personality (Greene, 2000). The MMPI-2 was designed to be used with people ages 18 and over to assess a number of the major patterns of personality and emotional disorders. The MMPI-2 consists of 567 true or false items that can be administered through paper-and-pencil, audiocassette, or computer format. The test taker’s responses are scored on 10 clinical scales and four validity scales. The clinical scales assess the major categories of psychopathology while the validity scales assess the individual’s test-taking attitudes (Greene, 2000). For the purposes of this study, the MMPI-2 was used as a component of one of the manipulated independent variables (i.e., feedback). Similar to previous studies investigating MMPI-2 feedback (Finn & Tonsager, 1992; Newman & Greenway, 1997), MMPI-2 profiles were considered invalid if they met specific raw score exclusion criteria: ? > 30, or L >10, or F > 21, or K > 26, or VRIN ≥ 12.

The psychometric properties, including external validity, of the MMPI-2 have been shown to be adequate (Butcher, Graham, Williams, & Ben-Porath, 1990; Ben-Porath, McCully, & Almagor, 1993). The test-retest coefficients for the clinical scales range from .58 to .92 for a sample of 82 men, and from .58 to .91 for a sample of 111 women (Butcher et al., 1989). In a large review of treatment studies using the MMPI/MMPI-2, the MMPI-2 was found to be a valid and reliable measure for evaluation.
and treatment planning (Rouse, Sullivan, & Taylor, 1997). Additionally, the restructured clinical scales of the MMPI-2 have been shown to have good psychometric properties and discriminant validity (Simms, Casillas, Clark, Watson, & Doebbeling, 2005). Research has repeatedly demonstrated the appropriate reliability and validity of the MMPI-2 (see Butcher et al., 1989).

**Symptom Check List 90-Revised (SCL-90-R).** The SCL-90-R (Derogatis, 1994) was used to measure clients’ current level of symptomatic psychological distress. The SCL-90-R measures psychopathology in terms of three global indexes of distress and nine primary symptom dimensions. There are 90 symptoms printed on two sides of a single page that are described briefly (e.g., “Pains in heart or chest,” “Blaming yourself for things”). Subjects are instructed to indicate for each symptom “how much discomfort that problem has caused you” during the last week on a 5-point scale ranging from 0 (“not at all”) to 4 (“extremely”). Scores are obtained for three global indexes (i.e., Global Severity Index, Positive Symptom Total, Positive Symptom Index) as well as nine primary symptom dimensions (Derogatis, 1994).

Several factor analytic studies conducted with various populations (e.g., outpatient, inpatient) have found that the first factor accounts for a large proportion of the total variance and have been unable to replicate the nine postulated symptom dimensions of the SCL-90-R (e.g., Brophy, Norvell, & Kiluk, 1988; Cyr, McKenna-Foley, & Peacock, 1985). In addition, high intercorrelations were found among the factors (Brophy et al., 1988). Based on these findings, several researchers have suggested that the SCL-90-R measures a general dimension of psychopathology and should be used as a
The current study used the Global Severity Index (GSI) score, which combines information on a number of symptoms and intensity of distress and is calculated by averaging the test taker’s ratings of all 90 items, to measure clients’ current levels of symptomatic psychological distress. The GSI has been recommended as a useful psychotherapy change measure (Derogatis, 1994) and is most commonly used in therapy outcome research (Elliott et al., 2006). The SCL-90-R has been found to be responsive to clinically significant change (Schmitz, Hartkamp, & Franke, 2000).

The convergent validity has been demonstrated for the SCL-90-R using the Beck Depression Inventory (BDI) (Brophy et al., 1988) and the Middlesex Hospital Questionnaire (MHQ) (Boleloucky & Horvath, 1974) for comparison. All the symptom dimensions of the SCL-90-R, which comprise the GSI, were significantly correlated (.46 to .73, p < .00001) to the BDI. The GSI was significantly correlated (.92) to the MHQ, which is a general measure of psychological distress. The reliability of the GSI as estimated by the Spearman-Brown correction for split-half reliability was .94 (Brophy et al., 1988). Test-retest reliability over a two-week interval was .91 for the GSI was 0.91 (Derogatis, 1993). Another study found that a ten-week test-retest of the GSI with 103 outpatients was .83, indicating that it is a stable measure over time (Horowitz et al., 1988). The internal consistency for the GSI was .98 (Time 1), .98 (Time 2), and .98 (Time 3) in the current investigation.

**Self-Liking/Self-Competence Scale—Revised (SLCS-R).** The SLCS-R (see Appendix A; Tafarodi & Swann, 2001) measures two dimensions of global self-esteem:
self-liking and self-competence. Self-liking represents one’s sense of social worth and self-competence refers to one’s sense of personal efficacy or power. The SLCS-R is a 16-item measure with eight items corresponding to each subscale (i.e., self-liking, self-competence). The items are rated on a 5-point Likert scale ranging from strongly disagree (1) to strongly agree (5).

Tafarodi and Swann (2001) compared four competing theoretical models of global self-esteem using a confirmatory factor analysis (CFA). The results generated were similar for men and women. Goodness of fit indices unanimously indicated that the two-factor Competence-Liking model is the best fit. The revised Competence-Liking model had a high latent factor intercorrelation of .78, which is a slight improvement over the estimate of .82 found with the original SLSC (Tafarodi & Swann, 1995), but is still relatively high. Therefore, the total score from the SLSC-R was used as a measure of the client’s current self-esteem for both men and women in this study.

The SLCS-R was found to have adequate internal consistency and test-retest reliability (Tafarodi & Swann, 2001). Cronbach’s alpha coefficient for self-competence items was .83 for women and .82 for men. The alpha coefficient for self-liking items was .90 for women and .90 for men. Based on these findings, the SLCS-R appears to be an equally reliable instrument across both men and women. The three-month test-retest correlations for the self-competence and self-liking were .78 and .75, respectively, indicating stability over time (Tafarodi & Swann, 2001). After correcting for attenuation due to internal inconsistency the three-month stability estimates increased to .94 for self-competency and .83 for self-liking (Tafarodi & Swann, 2001). The internal consistency
for the SLSC-R was .86 at Time 1, .92 at Time 2, and .92 at Time 3 in the current investigation.

Tafarodi and Swann (2001) examined the convergent and discriminant validity of the SLCS-R using a multitrait-multimethod matrix. The authors collected information on the SLCS-R from college students as well their mothers and fathers using a parallel from of the SLCS-R with items modified to refer to the student involved in the study. The convergent validity of the SLCS-R was supported by significant correlations obtained between reporters (i.e., student, mother, father). For self-competence, self-report ($\alpha = .83$) correlated with mother’s report ($\alpha = .84$) at .34 and father’s report ($\alpha = .88$) at .35. For the construct of self-liking, self-report ($\alpha = .90$) correlated with mother’s report ($\alpha = .91$) at .45 and father’s report ($\alpha = .93$) at .39. In addition, the two parents’ reports of self-competence and self-liking were correlated at .57 and .46, respectively (Tafarodi & Swann, 2001). Discriminant validity of the SLCS-R was established by comparing a Unidimensional Reporter and Competence-Liking-Reporter models (see Tafarodi & Swann, 2001).

**Session Evaluation Questionnaire (SEQ).** The SEQ-Form 4 (see Appendix B; Stiles, 1980) is a self-report measure of client reactions to a specific counseling session. The measure is comprised of two independent scales of session depth and smoothness, which are assessed by five bipolar adjectives for each index. The bipolar adjectives are arranged in a seven-point semantic differential format and participants are asked to “circle the appropriate number to show how you feel about this session.” Differential pairs of adjectives include “deep-shallow” from the session depth scale and “pleasant-unpleasant” from the session smoothness scale (Stiles & Snow, 1984). The instrument is
scored by summing all items within each index (i.e., depth and smoothness) after reverse-scoring adjective pairs that are led by the positive adjective; higher scores indicate the client’s perception of a greater degree of session depth or smoothness (Hanson & Claiborn, 2006).

The internal consistencies of the two independent scales, session depth and smoothness, have been reported to range from .87 to .93 (Stiles & Snow, 1984). Sessions rated by clients as high in depth have been found to be significantly correlated with higher levels of satisfaction and a higher return rate after an initial counseling interview (Tryon, 1990). These results did not generalize to higher levels of session smoothness (Nash & Garske, 1988 as cited in Tryon, 1990). For the purposes of this study, only the session depth scale was used as this study is primarily concerned with the client’s perceived value or impact of a session. The internal consistency of the session depth scale was .86 at Time 1 and .82 at Time 2 in the current investigation.

Counselor Rating Form—Short Form (CRF—S). The CRF-S (see Appendix C; Corrigan & Schmidt, 1983) is a 12-item measure of clients’ perceptions of three social influence attributes: expertness, attractiveness, and trustworthiness. Each attribute subscale (i.e., expertness, attractiveness, trustworthiness) is comprised of 4 items, which are rated on a 7-point scale ranging from 1 (not very) to 7 (very). Clients are asked to “mark an “X” at the point on the scale that best represents how you viewed the therapist” on 12 items (e.g., sociable, prepared, sincere). The total score is obtained by summing all items in the instrument, resulting in a total score range of 12 to 84, with higher scores correspond to more positive perceptions of the counselor (Corrigan & Schmidt, 1983).
The total score of the CRF-S was used in this study given the high intercorrelations among the attribute subscales (Tracey, Glidden, & Kokotovic, 1988).

The internal consistency of the CRF-S has been consistently found to be adequate. Research with clinical populations has reported alpha coefficients of .95 (Tracey et al., 1988) and .96 (Hanson & Claiborn, 2006) for the CRF-S total score. In the current investigation, the internal consistency of the CRF-S was .85 (Time 1) and .94 (Time 2). Tracey et al. (1988) conducted a factor analysis of the CRF-S and concluded that a two-step hierarchical model accounted for the high intercorrelations among the factors. Their results indicated that two levels of factors were represented in the CRF-S. The three relatively independent factors of expertness, trustworthiness, and attractiveness comprise the first level. In addition, to these factors, a significant “global positive-evaluation factor that reflects the extent to which the counselor is viewed in a good light” was found (Tracey et al., 1988). The factor structure for this global evaluation factor was the most sound as all items loaded uniformly high on this factor. These results were consistent across clinical and nonclinical samples. This study provides support for the use of CRF-F as a unidimensional measure of the clients’ positive perception of the counselor.

**Rational-Experiential Inventory (REI).** The REI (see Appendix D; Pacini & Epstein, 1999) measures rational and experiential thinking styles derived from CEST (Epstein, 1983, 1990). The REI is a 40-item instrument comprised of two primary scales, Rationality and Experientiality, which both consist of ability and engagement subscales. The four subscales are labeled Rational Ability, Rational Engagement, Experiential Ability, and Experiential Engagement and 10 items are included in each subscale. Rational Ability indicates a reported high level of ability to think logically and
analytically (e.g., “I am much better at figuring things out logically than most people”). Rational Engagement refers to one’s reliance on and enjoyment of analytical and logical thinking (e.g., “I enjoy solving problems that require hard thinking”). Experiential Ability refers to a reported high level of ability with respect to one’s intuitive impressions and feelings (e.g., “I believe in trusting my hunches”). Experiential Engagement indicates one’s reliance on and enjoyment of feelings and intuitions in making decisions (e.g., “I like to rely on my intuitive impressions”). Scores from the overall Rationality and Experientiality scales were used in this study and were obtained by summing the appropriate ability and engagement subscales and then averaging the test taker’s ratings of the 20 items for the overall Rationality and Experientiality scales, respectively (Pacini & Epstein, 1999). The original format of the REI used a separate answer sheet. This format, however, was changed for the purpose of convenience in the proposed study. The participants were asked to circle their responses on the five-point Likert scale provided next to each item.

Pacini and Epstein (1999) showed the internal consistency reliability of the Rationality and Experientiality scales to be good (α = .90 and .87, respectively). A different study, comprised of 24 depressed outpatients, found that the internal consistency was .94 for the Rationality scale and .92 for the Experiential scale (Lampropoulos, Segal, Garson, & Carney, 2006). The six-month test-retest reliability for the sample was very good (Rationality scale \( r = .89 \), Experiential scale \( r = .81 \); Lampropoulos et al., 2006). The internal consistency was .92 for the Rationality scale and .93 for the Experientiality scale in the current investigation.
A series of studies provided support for the construct validity of the REI (Epstein et al., 1996; Pacini & Epstein, 1999). The studies found a nonsignificant correlation between the Rationality and Experientiality scales, which supports the CEST assumption that the two information processing systems are independent. In addition, factor analyses in both studies confirmed the two-factor structure, supporting the claim that rationality and experientiality information processing are independent and uncorrelated (Epstein et al., 1996; Pacini & Epstein, 1999). The predictive validity of the REI also was demonstrated by the independent contributions of the rationality and experientiality processing in predicting a number of personality variables, coping behavior, adjustment, and academic performance (Epstein et al., 1996; Pacini & Epstein, 1999). Evidence of discriminant and convergent validity has been supported by a number of studies (Burns & D’Zurilla, 1999; Epstein et al., 1996; Pacini & Epstein, 1999).

The correlates of Rationality and Experientiality were identified by comparing the REI with several other instruments (e.g., The Basic Beliefs Inventory, The Big Five, The Emotional Expressivity Scale, Categorical Thinking Scale) (Pacini & Epstein, 1999). Rationality was “most strongly associated with positive adjustment (e.g., low neuroticism, high ego strength and self-esteem); openness to new ideas and experiences; a sense of control, meaningfulness, and direction in one’s life; and conscientiousness. Experientiality was most strongly associated with interpersonal relationships including extroversion, trust, and emotional expressivity” (Pacini & Epstein, 1999, p.976).

**Demographic form.** A demographic form (see Appendix E) was used to collect information from clients about their age, sex, race, education, and previous counseling and assessment experience.
Procedure

**Manualized treatments.** The manual for the interactive feedback group (see Appendix F) was adapted from an unpublished test feedback manual (Hanson, 2001). The manuals for the delivered feedback group and the control group (see Appendix G and H, respectively) were developed by the principal investigator for the purpose of this study.

**Researcher and rater recruitment and training.** Doctoral students who had been identified by faculty as proficient clinicians in MMPI-2 interpretation and feedback were asked to participate as researchers in this study. Students who participated as researchers enrolled in a three-credit, independent study course designed for the proposed study under the supervision of the faculty mentor, Dr. Paul Spengler, for this study. The two masters’ students who served as treatment adherence raters were chosen after responding to an e-mail requesting volunteers seeking to gain research experience. They completed an interview with the principal investigator prior to being selected as raters.

The researchers received two hours of training on each manualized test feedback style (i.e., interactive, delivered, control; Hanson, 2001), and three hours of training on the MMPI-2, focusing on administration and interpretation. The researchers were shown taped feedback sessions modeling the two experimental conditions (i.e., interactive, delivered). The researchers conducted two mock feedback sessions (i.e., interactive, delivered), which were rated by the principal investigator to ensure treatment adherence. The intent of the training on the MMPI-2 was to review the instrument and ensure all students were current in their understanding of the MMPI-2.
After successfully completing the training, each doctoral student was randomly assigned clients based on their scheduled availability, with an effort to assign each researcher an equal number of clients from each condition (i.e., delivered feedback, interactive feedback, attention-only). Following the feedback session with the client, the researchers wrote a brief report of the MMPI-2 results for each participant assigned to them, under the supervision of a licensed psychologist. This report was usually provided to the clients at the follow-up session (Time 3). In a few cases, however, the report was not reviewed and revised by the follow-up session. When this occurred, the principal investigator mailed the reports to the clients. The students who served as researchers were unaware of the experimental hypotheses of the study, with the exception of the principal investigator. The principal investigator, however, was unaware of the participant’s information processing style as the measure of this variable (i.e., Rational-Experiential Inventory) was not scored until the completion of the study.

Researchers attended weekly supervision with the author of this study and her faculty mentor. These meetings consisted of providing supervision of MMPI-2 feedback and written reports for each participant. Specifically, MMPI-2 profiles were reviewed as well as the test feedback method to be used prior to each test feedback session. Significant attention was given to addressing questions and challenges related to executing each test feedback approach for specific MMPI-2 profiles. Concerns related to the study as well as logistical details were also addressed during supervision.

The number of participants assigned to each researcher ranged from 3 to 8 clients ($M = 4.7$, $SD = 2.2$). Every effort was made to distribute clients equally to researchers; however, due to researchers’ schedules, client availability, and the attrition of clients for
various reasons, researchers saw an unequal number of clients. Initially, every researcher met with a client in each of the three groups (interactive feedback, delivered feedback, control). After clients were dropped because of the reasons outlined above, two researchers did not meet with clients in one group. The distribution of clients across the three conditions to researchers is presented in Table 7.

The raters received two hours of training on rating the three treatments (i.e., interactive, delivered, control). The raters were shown two taped feedback sessions (identical to the training videos shown to the researchers) modeling the two experimental conditions. The training videos were used to assist the raters in identifying proper implementation of procedures on the treatment adherence checklists (see Appendix I, J, and K). The raters, blind to the experimental hypotheses of the study, then listened to audiotaped sessions of each researcher administering all interventions (i.e., interactive, delivered, attention-only) and completed adherence checklists to ensure treatment

<table>
<thead>
<tr>
<th>Researcher</th>
<th>Interactive</th>
<th>Delivered</th>
<th>Control</th>
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<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>2</td>
<td>0</td>
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<tr>
<td>8</td>
<td>3</td>
<td>1</td>
<td>0</td>
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</table>
adherence. Training with the raters continued until they reach 95% agreement with the principal researcher’s ratings.

**Treatment adherence.** The raters completed a checklist corresponding to the treatment (i.e., interactive, delivered, control) for the mock sessions. The raters listened to an audio recording of the sessions and indicated adherence or non-adherence to each procedure by writing *yes* or *no*, respectively, next to the procedure. The interrater reliability of the counselor adherence checklist was evaluated and any discrepancies between the two coders were resolved by mutual agreement during regular meetings. Any deviations from the standard procedure resulted in the exclusion of those data from further analysis and appropriate feedback was provided to the researchers. A researcher who was rated at a substandard level (i.e., failing to execute three or more procedures) on an administered manualized treatment protocol received an hour of additional training from the principal investigator on that specific treatment protocol.

**Therapist recruitment.** An informational letter (see Appendix L) explaining the research study was distributed to therapists and medical staff at all data collection sites. The letter informed the staff how to refer their clients to the study and provide them with contact information for the principal researcher and her faculty mentor. In addition, the principal researcher also attended staff meetings at both sites to explain the study and answer any questions.

**Participant recruitment.** Participants were offered the opportunity to receive free psychological assessment by participating in the proposed study. Participants were recruited over a nine-month period. Staff at data collection sites provided interested individuals with informational letters about the study (see Appendix M). Participants
were informed that if they chose to participate they would complete several psychological tests, including the MMPI-2, and receive verbal feedback about their MMPI-2 results from a counseling psychology doctoral student under the supervision of a licensed psychologist faculty mentor. Participants were informed that their participation involved three meetings over a 4-week period. They also were told that they would receive one dollar after completion of the initial meeting, two dollars after completion of the second meeting, and five dollars after completion of the third meeting. Participants from the community mental health clinic were primarily referred by psychiatrists and, in some cases, had not expected to be referred to the study.

If a client expressed interest in participating in the study, the initial meeting was scheduled by his or her counselor or by the medical staff where the individual was receiving services. The participant was randomly assigned to one of three groups: the experimental group receiving delivered test feedback, the experimental group receiving interactive test feedback, or the control group receiving attention-only and delayed feedback. Participants who consented were contacted via telephone 24-hours in advance of all of the scheduled meetings by researchers to remind them of the appointments. The date and time of all scheduled appointments were recorded on a client contact form (see Appendix N). Control group participants were given the opportunity to take the MMPI-2 and receive test feedback at the completion of their participation in the study.

At the initial meeting, all client participants were asked to complete a consent form that corresponds to their assigned group (i.e., treatment or control; see Appendix O and P), respectively) prior to their participation in the study. The consent form contained a brief explanation of the matching procedure (experimental or control), confidentiality,
and potential risks and benefits of the study. Participants were informed that their participation in the research project was voluntary and they could withdraw without penalty at any time. Participants were also assured that their decision of whether or not to participate would not influence their receipt of therapeutic services. Clients were excluded from participation in the study who were under the age of 19, presented as significantly impaired (e.g., actively psychotic, inebriated) at any of the meetings, were unable to read at least an eighth-grade level, and had been referred for psychological testing by Child Protective Services or any other third party independent of the community mental health center or university outpatient clinic. A decision was made to exclude 18-year-old clients since they can be given either the MMPI-2 or MMPI-A. This allowed the study to focus solely on the benefits gained by MMPI-2 feedback. Participants also were excluded if they had less than eight years of formal education since the highest reading level of the MMPI-2 is at the eighth-grade level. Butcher et al. (1989) suggest that most clients who have had at least eight years of education can take the MMPI-2 with little to no difficulty. Participants were also asked to read the first five items on the MMPI-2 as an informal assessment of their ability to read at the eighth grade level. These exclusion criteria did not result in any of the participants being excluded from the study. Data was collected from October 2008 through June 2009. The decision was made to discontinue data collection in June 2009 due to the challenges of recruiting participants in these applied settings.

**Experimental conditions: Clients receiving MMPI-2 feedback.** Participants in the experimental conditions had an initial meeting (Time 1; see Figure 3) with an advanced counseling psychology student. During this 45-minute interview, the
discussion followed either the interactive or delivered manualized treatment protocol (see Appendix F and G, respectively) depending on which group the client was randomly assigned. The clients then completed the MMPI-2, REI, SCL-90-R, and SLCS-R. The second meeting (Time 2; see figure 1) occurred approximately one week after the initial meeting. During this meeting, the advanced counseling psychology student with whom the client met at Time 1 provided MMPI-2 feedback following the respective manualized treatment protocol. The style of feedback (i.e., delivered or interactive) varied depending on which group the client is randomly assigned. Following the feedback session, participants completed the SCL-90-R, SLCS-R, SEQ, and CRF-S. The final meeting (Time 3; see figure 1) occurred approximately two weeks after the feedback session. During this follow-up session, participants completed a subset of the initial measures (SCL-90-R, SLCS-R). All sessions were audiotaped.

**Control condition: Clients receiving delayed MMPI-2 feedback.** At Time 1 (see figure 3), participants in the control condition met with an advanced counseling psychology student for a 45-minute interview to discuss their concerns. The examiner used the manualized control treatment protocol (see Appendix H) to describe how psychological testing would proceed and ask the participant to formulate questions they would like answered by the assessment. Following this session, the clients completed the MMPI-2, REI, SCL-90-R, and SLCS-R. The second meeting (Time 2; see figure 1) occurred approximately one week after the initial meeting. During this meeting, the advanced counseling psychology student with whom the client met at Time 1 implemented the manualized control treatment protocol and clarified or formulated additional questions to be answered by the assessment. Following this brief interview,
the participants completed the SCL-90-R, SLCS-R, SEQ, and CRF-S. The final meeting (Time 3; see figure 1) occurred approximately two weeks after the feedback session. During this follow-up session, the clients again completed several measures (i.e., SCL-90-R, SLCS-R) and then had the option to receive feedback from their MMPI-2 results. All sessions were audiotaped.

**Experimental Design**

This study used a randomized 3 (treatment) x 3 (time) x 2 attribute (rational and experiential information processing)-by-treatment between-subjects, repeated measures incomplete factorial design (Figure 1) to determine whether an individual’s information processing style moderates the benefits received from either delivered or interactive test feedback. The design was incomplete because the process variables were not measured at Time 3. The three treatments were delivered feedback, interactive feedback, and the control condition. The three times were the initial session (week 1), the second session (week 2), and the follow-up session (week 4). The primary interest of the study was the interaction between the specific information processing style (rational and experiential), treatment, and time. The main effect of treatment was a secondary focus of the study in the interest of replicating previous research findings about the benefits of test feedback. The study hypotheses were examined using two types of dependent variables, process-oriented (CRF-S and SEQ) and outcome-oriented (SLSC-R and SCL-90-R). Because these measures were collected at different times this necessitated two sets of analyses.
<table>
<thead>
<tr>
<th>Time 1—Initial session</th>
<th>Time 2—Feedback session</th>
<th>Time 3—Follow-up</th>
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<td><strong>(Week 1)</strong></td>
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<td>Feedback session</td>
<td>Dependent measures (outcome)</td>
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<td>Dependent measures</td>
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<td>outcome &amp; process)</td>
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**Figure 5.** Experimental design: 3 (group) x 3 (time) with two covariates (i.e., rational and experiential information processing styles). Outcome measures include the SCL-90-R and SLCS-R and the process measures include the SEQ and CRF-S.
Chapter 4

Results

This chapter reports the results of preliminary analyses and the results of the experimental analyses of the study. All statistical analyses with the exception of post hoc regression analyses were conducted using SAS 9.0 statistical software. In two preliminary analyses (one for outcome and one for process variables), MANCOVAs were used to rule out site differences on the dependent measures in the experimental design (SLSC-R, SCL-90-R, CRF-S, SEQ). These analyses are distinguished from the analyses reported in the methods section, which examined site differences with respect to participants’ MMPI-2 scores (see Participants). If site differences exist on the outcome or process variables, then the plan was to include site in the respective experimental MANCOVA(s). These preliminary analyses indicate a statistically significant effect for site on the outcome but not on the process variables. Thus, site was included in the full MANCOVA for outcome variables. An additional preliminary analysis examined scale intercorrelations between the independent (REI, experiential scale and REI, rational scale) and dependent measures (SLSC-R, SCL-90-R, CRF-S, SEQ). These scale intercorrelations are important to examine for the purpose of determining whether a multivariate approach was more appropriate than a univariate approach. If the dependent
variables are moderately correlated, then multivariate tests of significance are most appropriate for analyzing the data.

Two primary analyses were conducted, one for the process variables (CRF-S and SEQ) and one for the outcome variables (SLSC-R and SCL-90-R). The MANCOVA for the process variables consisted of a 2 (time) x 3 (treatment group) with two covariates (rational and experiential information processing) mixed repeated measures MANCOVA. The MANCOVA for the outcome variables consisted of a 3 (time) x 3 (treatment group) x 2 (site) with two covariates (rational and experiential information processing) mixed repeated measures MANCOVA. The reason for these two analyses is the process dependent variables were measured two times (initial session and feedback session) while the outcome dependent variables were measured three times (initial session, feedback session, and follow-up). The process variables focused on within-session clients’ impressions about the smoothness and depth of the sessions with the counselors (i.e., rating of counselor and session) while the outcome variables were conceptually related to symptom reduction over time (i.e., symptomatic distress and self-esteem). There was a particular interest in whether reduction of symptomatic distress occurred over time at the follow up session (Time 3). The follow-up session, however, did not include any delivery of services by the counselor to be evaluated or measured. Therefore, it was not possible to obtain a valid measure of the process variables at the follow-up session.

Based on these factors, two MANCOVAs allow for the examination of two sets of conceptually related dependent variables.

Wilks’ Lambda (Λ) was used to assess the statistical significance of the overall multivariate tests (Stevens, 1992). Unless otherwise specified the experiment-wise alpha
was set at .10 for the full MANCOVA models and at .05 for any follow-up post-hoc analyses. The family-wise alpha was .05 for each MANCOVA. A statistically significant multivariate test was further assessed post-hoc using descriptive discriminant analysis (DDA). DDA is a multivariate procedure and provides an advantage over simply assessing univariate $F$ tests by also accounting for the shared variance between dependent variables (Yu & Chick, 2009). In DDA the structure coefficients represent the correlation between the discriminant functions and the discriminant variables. These structure coefficients were used to interpret the meaning of the DDA as “they represent maximized group difference as a linear combination of the predictors” (Finch, 2010, p. 29) with larger values indicating greater importance of each predictor in overall group differences. Using a cutoff value of .30 as recommended by Tabachnick and Fidell (2007), structure coefficients greater than .30 were considered significant contributors to a given function and, therefore, worthy of interpretation. When a significant multivariate $F$ was identified for an interaction effect between a categorical variable and the continuous covariates (e.g., treatment group x information processing style), regression analyses of the DV(s) of importance (as identified by the DDA) with the covariate acting as an IV were conducted. The standardized regression slopes from the DV-covariate regressions were interpreted as descriptive data to compare the relationship between the variables for each treatment group (Tabachnick & Fidell, 2007).

One final note of interest is related to the descriptive statistics of the study variables. Least squares (LS) means (i.e., estimated marginal means) and their standard errors (SE) are used in the present study. LS means are within-group means appropriately adjusted for the other effects in the model. They are an unbiased estimate
of what the marginal means would be for a balanced population (as opposed to the unbalanced experimental sample; Littell, Stroup, & Freund, 2002). Standard error of the mean (SE) is a measure of the error in the sample mean as a model of the population (e.g., how accurately the sample statistic represents the population parameter). The SE provides an unbiased estimate of the standard deviation (Gravetter & Wallnau, 2011).

**Preliminary Analyses**

**MANCOVA results for the effects of site.** Preliminary analyses were conducted to assess whether the two sites (university outpatient clinic and community outpatient clinic) differed from one another prior to aggregating data in the experimental analyses. The main effect of site, as well as the interaction of site and time, was examined in the two MANCOVAs (one for the process variables and one for the outcome variables). The MANCOVA for the process variables resulted in statistically non-significant effects for site, \( F(2, 28) = 1.21, p > .05, \eta^2 = .08 \), and for interaction of site and time, \( F(2, 28) = 0.78, p > .05, \eta^2 = .05 \). Therefore, site was not included in the subsequent experimental MANCOVA assessing these process variables.

The MANCOVA for the outcomes variables (SLSC-R and SCL-90-R), however, demonstrated a statistically significant main effect for site, \( F(2, 28) = 9.50, p < .05, \eta^2 = .41 \), and a statistically non-significant interaction of site and time, \( F(4, 26) = 0.34, p > .05, \eta^2 = .05 \). A DDA was used to follow up this statistically significant main effect of site on the outcome variables to determine which variable(s) contributed to this difference. On the basis of the structure coefficients it was determined that one variable, SCL-90-R (symptomatic psychological distress), was salient in defining the main effect: structure coefficient was .68 for SCL-90-R whereas the structure coefficient for SLSC-R
(self-esteem) was .03. The least square means and standard errors of the outcome variables for each site across the three times as well as the aggregate least square means for each site are presented in Table 8. These results indicate that clients at the community outpatient clinic reported higher levels of psychological distress compared to clients at the university outpatient clinic. Based on this finding, site was included in the experimental MANCOVA for the outcome variables to control for the confounding effect of differences in symptom severity.

### Table 8

**Descriptive Statistics of Outcome Variables for Site across Time**

<table>
<thead>
<tr>
<th>Measure</th>
<th>Site 1</th>
<th>Site 2</th>
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<tr>
<td></td>
<td>Time 1</td>
<td>Time 2</td>
</tr>
<tr>
<td>SLSC-R</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>47.36</td>
<td>44.30</td>
</tr>
<tr>
<td>SE</td>
<td>2.19</td>
<td>2.77</td>
</tr>
<tr>
<td>SCL-90-R</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>0.87</td>
<td>0.74</td>
</tr>
<tr>
<td>SE</td>
<td>0.14</td>
<td>0.13</td>
</tr>
</tbody>
</table>

Note. Site 1 = University outpatient clinic; Site 2 = Community outpatient center. \(^a^n = 23, \(^b^n = 16.\)

**Intercorrelations among independent and dependent measures.** Scale intercorrelations between the independent and dependent measures are summarized in Table 9. A multivariate approach to investigating the data has greater power than a univariate approach in part because it takes account of the correlations between dependent variables (Huberty & Morris, 1989). Literature has suggested that MANOVA
<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. REI, rational</td>
<td>1</td>
<td>.17</td>
<td>.42**</td>
<td>.41*</td>
<td>.21</td>
<td>-.20</td>
<td>-.30</td>
<td>-.21</td>
<td>-.03</td>
<td>-.15</td>
<td>.46**</td>
<td>.31</td>
</tr>
<tr>
<td>2. REI, experiential</td>
<td>.17</td>
<td>1</td>
<td>.23</td>
<td>.23</td>
<td>.19</td>
<td>.11</td>
<td>.10</td>
<td>.13</td>
<td>-.01</td>
<td>.05</td>
<td>.10</td>
<td>.02</td>
</tr>
<tr>
<td>3. SLSC-R (T1)</td>
<td>.42**</td>
<td>.23</td>
<td>1</td>
<td>.66**</td>
<td>.69**</td>
<td>-.36*</td>
<td>-.41**</td>
<td>-.35*</td>
<td>.05</td>
<td>.14</td>
<td>.26</td>
<td>.34*</td>
</tr>
<tr>
<td>4. SLSC-R (T2)</td>
<td>.41*</td>
<td>.23</td>
<td>.66**</td>
<td>1</td>
<td>.81**</td>
<td>-.53**</td>
<td>-.57**</td>
<td>-.57**</td>
<td>.16</td>
<td>.01</td>
<td>.35*</td>
<td>.42**</td>
</tr>
<tr>
<td>5. SLSC-R (T3)</td>
<td>.21</td>
<td>.19</td>
<td>.69**</td>
<td>.81**</td>
<td>1</td>
<td>-.39*</td>
<td>-.37*</td>
<td>-.43**</td>
<td>.06</td>
<td>.04</td>
<td>.27</td>
<td>.33*</td>
</tr>
<tr>
<td>6. SCL-90-R (T1)</td>
<td>-.20</td>
<td>.11</td>
<td>-.36*</td>
<td>-.53**</td>
<td>-.39*</td>
<td>1</td>
<td>.90**</td>
<td>.88**</td>
<td>-.36*</td>
<td>-.33*</td>
<td>-.51**</td>
<td>-.61**</td>
</tr>
<tr>
<td>7. SCL-90-R (T2)</td>
<td>-.30</td>
<td>.10</td>
<td>-.41**</td>
<td>-.57**</td>
<td>-.37*</td>
<td>.90**</td>
<td>1</td>
<td>.92**</td>
<td>-.27</td>
<td>-.24</td>
<td>-.45**</td>
<td>-.59**</td>
</tr>
<tr>
<td>8. SCL-90-R (T3)</td>
<td>-.21</td>
<td>.13</td>
<td>-.35*</td>
<td>-.57**</td>
<td>-.43**</td>
<td>.88**</td>
<td>.92**</td>
<td>1</td>
<td>-.23</td>
<td>-.20</td>
<td>-.40*</td>
<td>-.55**</td>
</tr>
<tr>
<td>9. CRF-S (T1)</td>
<td>-.03</td>
<td>-.01</td>
<td>.05</td>
<td>.16</td>
<td>.06</td>
<td>-.36*</td>
<td>-.27</td>
<td>-.23</td>
<td>1</td>
<td>.70**</td>
<td>.33*</td>
<td>.56**</td>
</tr>
<tr>
<td>10. CRF-S (T2)</td>
<td>-.15</td>
<td>.05</td>
<td>.14</td>
<td>.01</td>
<td>.04</td>
<td>-.33*</td>
<td>-.24</td>
<td>-.20</td>
<td>.70**</td>
<td>1</td>
<td>.25</td>
<td>.47**</td>
</tr>
<tr>
<td>11. SEQ (T1)</td>
<td>.46**</td>
<td>.10</td>
<td>.26</td>
<td>.35*</td>
<td>.27</td>
<td>-.51**</td>
<td>-.45**</td>
<td>-.40*</td>
<td>.33*</td>
<td>.25</td>
<td>1</td>
<td>.78*</td>
</tr>
<tr>
<td>12. SEQ (T2)</td>
<td>.31</td>
<td>.02</td>
<td>.34*</td>
<td>.42**</td>
<td>.33*</td>
<td>-.61**</td>
<td>-.59**</td>
<td>-.55**</td>
<td>.56**</td>
<td>.47**</td>
<td>.78**</td>
<td>1</td>
</tr>
</tbody>
</table>

Note. ** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).
“works best with highly negatively correlated DVs, and acceptably well with moderately
correlated DVs in either direction” and that “MANOVA also is wasteful when DVs are
uncorrelated” (Tabachnick & Fidell, 2007, p. 268). The intercorrelations of the DVs
revealed that the outcome variables (SLSC-R and SCL-90-R) and the process variables
(CRF-S and SEQ) were moderately correlated with the exception the process variables
CRF-S at Time 2 with SEQ at Time 1. These correlations support the use of
MANCOVA for the experimental or primary analyses.

**Primary Analyses**

The primary focus of the study is the interaction of attribute (rational vs.
experiential information processing style) by treatment (delivered vs. interactive test
feedback) by time (initial session, feedback session, follow-up session). A 3 (interactive
group, delivered group, and control group) x 2 (initial session, second session) with two
covariates (rational and experiential information processing) MANCOVA with alpha
level of .05 was conducted to test for differences in the process variables (i.e., evaluation
of counselor and session). A 3 (interactive group, delivered group, and control group) x 3
(initial session, second session, and follow-up session) x 2 (university outpatient clinic
and community outpatient clinic) with two covariates (rational and experiential
information processing) MANCOVA with alpha level of .05 was conducted to test for
differences in the outcome variables (i.e., self-esteem and symptomatology) benefits
received by clients. It was expected that a main effect of treatment would be identified
with the treatment (i.e., feedback) groups receiving greater benefits than the control
group (hypothesis one). It was hypothesized that a significant interaction effect for
information processing style by test feedback style would be present. The expected
interaction effect would indicate a matching effect between rational information processing style and delivered test feedback style (hypothesis two) as well as between experiential informational processing style and interactive test feedback style (hypothesis three). It was also hypothesized that this matching effect would be augmented over time (hypothesis four).

**MANCOVA results for the process variables.** The results and a summary of the MANCOVA analyses for the process variables are presented in Table 10. Aggregate least square means and standard errors for the dependent process variables for each treatment group are presented in Table 11. Least square means and standard errors of the dependent variables for each treatment group across time are reported in Table 12.

**The effects of treatment.** Hypothesis one stated that clients in both test feedback (experimental) groups would receive greater benefits than clients in the examiner attention only (control) group. It is, therefore, important to examine the presence of a main effect for treatment group. The results of the MANCOVA indicated the main effect for treatment group was not statistically significant for the process variables (SEQ and CRF-S), $F(4, 58) = 2.33, p > .05, \eta^2 = .26$. Hypothesis four predicted that there would be an increase in benefit of treatment over time. The interaction of treatment group and time for process variables, however, was statistically non-significant, $F(4, 58) = .58, p > .05, \eta^2 = .07$. This indicates that there was a trend reflecting differences between the treatment and comparison group, but that it was not statistically significant, and there were no differences between these groups across time. Regardless of treatment condition clients perceived their counselors and their sessions favorably.
Table 10

**MANCOVA Source Table for Process Variables**

<table>
<thead>
<tr>
<th>Source</th>
<th>Λ value</th>
<th>F</th>
<th>df</th>
<th>p</th>
<th>η²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>.92</td>
<td>1.27</td>
<td>2, 29</td>
<td>.30</td>
<td>.08</td>
</tr>
<tr>
<td>Treatment</td>
<td>.74</td>
<td>2.33</td>
<td>4, 58</td>
<td>.07</td>
<td>.26</td>
</tr>
<tr>
<td>REIr</td>
<td>.58</td>
<td>10.50**</td>
<td>2, 29</td>
<td>.00</td>
<td>.42</td>
</tr>
<tr>
<td>REIe</td>
<td>.99</td>
<td>.09</td>
<td>2, 29</td>
<td>.91</td>
<td>.01</td>
</tr>
<tr>
<td>Treatment x Time</td>
<td>.92</td>
<td>.58</td>
<td>4, 58</td>
<td>.68</td>
<td>.08</td>
</tr>
<tr>
<td>Treatment x REIr</td>
<td>.67</td>
<td>3.26*</td>
<td>4, 58</td>
<td>.02</td>
<td>.33</td>
</tr>
<tr>
<td>Treatment x REIe</td>
<td>.81</td>
<td>1.61</td>
<td>4, 58</td>
<td>.18</td>
<td>.19</td>
</tr>
<tr>
<td>Treatment x REIr x Time</td>
<td>.83</td>
<td>1.37</td>
<td>4, 58</td>
<td>.26</td>
<td>.17</td>
</tr>
<tr>
<td>Treatment x REIe x Time</td>
<td>.99</td>
<td>.09</td>
<td>4, 58</td>
<td>.99</td>
<td>.01</td>
</tr>
</tbody>
</table>

*Note.* a = CRF-S and SEQ. Treatment = Test feedback style; REIr = Rational information processing; REIe = Experiential information processing. *p < .05; **p < .01.

Table 11

**Aggregate Means of the Study Variables by Treatment**

<table>
<thead>
<tr>
<th>Measure</th>
<th>Treatment 1a</th>
<th>Treatment 2b</th>
<th>Controlc</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLSC-R</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>43.28</td>
<td>46.67</td>
<td>49.92</td>
</tr>
<tr>
<td>SE</td>
<td>2.01</td>
<td>1.82</td>
<td>1.96</td>
</tr>
<tr>
<td>SCL-90-R</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>1.15</td>
<td>1.19</td>
<td>0.86</td>
</tr>
<tr>
<td>SE</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
</tr>
<tr>
<td>CRF-S</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>77.26</td>
<td>76.42</td>
<td>74.54</td>
</tr>
<tr>
<td>SE</td>
<td>1.69</td>
<td>1.50</td>
<td>1.64</td>
</tr>
<tr>
<td>SEQ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>54.57</td>
<td>51.73</td>
<td>49.72</td>
</tr>
<tr>
<td>SE</td>
<td>2.05</td>
<td>1.82</td>
<td>1.99</td>
</tr>
</tbody>
</table>

*Note.* Group 1 = interactive test feedback group; Group 2 = delivered test feedback group; Control = examiner-attention only. Higher scores equal higher levels of self-esteem, symptomatology, and better ratings of session and counselor. SLSC-R = Self-Liking/Self-Competence Scale-Revised; SCL-90-R = Symptom Checklist-90-Revised; CRF = Counselor Rating Form; SEQ = Session Evaluation Questionnaire. a n = 13, b n = 14, c n = 12.
Table 12

Descriptive Statistics of the Study Variables by Treatment at Initial Session, Second Session, and Follow-up

<table>
<thead>
<tr>
<th>Measure</th>
<th>Treatment 1&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Treatment 2&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Control&lt;sup&gt;c&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Time 1</td>
<td>Time 2</td>
<td>Time 3</td>
</tr>
<tr>
<td>SLSC-R</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>45.57</td>
<td>40.94</td>
<td>43.33</td>
</tr>
<tr>
<td>SE</td>
<td>2.93</td>
<td>3.70</td>
<td>3.77</td>
</tr>
<tr>
<td>SCL-90-R</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>1.21</td>
<td>1.18</td>
<td>1.07</td>
</tr>
<tr>
<td>SE</td>
<td>0.18</td>
<td>0.18</td>
<td>0.18</td>
</tr>
<tr>
<td>CRF-S</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>77.43</td>
<td>77.08</td>
<td>75.76</td>
</tr>
<tr>
<td>SE</td>
<td>2.30</td>
<td>2.48</td>
<td>2.04</td>
</tr>
<tr>
<td>SEQ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>53.94</td>
<td>55.20</td>
<td>52.03</td>
</tr>
<tr>
<td>SE</td>
<td>2.86</td>
<td>2.94</td>
<td>2.54</td>
</tr>
</tbody>
</table>

Note. Treatment 1 = interactive test feedback group; Treatment 2 = delivered test feedback group; Control = examiner-attention only. Higher scores equal higher levels of self-esteem, symptomatology, and better ratings of session and counselor. SLSC-R = Self-Liking/Self-Competence Scale-Revised; SCL-90-R = Symptom Checklist-90-Revised; CRF = Counselor Rating Form; SEQ = Session Evaluation Questionnaire. <sup>a</sup><sub>n = 13</sub>, <sup>b</sup><sub>n = 14</sub>, <sup>c</sup><sub>n = 12</sub>.

The effects of treatment x information processing style. Hypothesis two stated that clients with higher levels of rational information processing are more likely to benefit from delivered test feedback than interactive feedback or examiner attention only. Similarly, hypothesis three stated that clients with higher levels of experiential information processing are more likely to benefit from interactive test feedback than from delivered feedback or examiner attention only. Therefore, it is necessary to examine the presence of these interaction effects for information processing style and test feedback style on the process variables.
Hypothesis two was investigated by examining the interaction effect of rational information processing and treatment group on the process variables. This analysis indicated that the interaction of rational information processing and treatment group was statistically significant, $F(4, 58) = 3.26, p < .05, \eta^2 = .33$. A DDA was used to follow up the significant interaction of rational information processing and treatment group for the process variables to determine which variable(s) contributed to this interaction. Based on the structure coefficients, it was determined that one variable, CRF-S (evaluation of counselor), was salient: as reflected by a structure coefficient of .82 for CFR-S, whereas the structure coefficient for SEQ (evaluation of session) was -0.03. Regression analyses were conducted to determine how the treatment groups differed in terms of the relationship between rational information processing and clients’ evaluations of the counselor. Table 13 provides the results of these regression analyses. The standardized regression slopes for CRF-S and rational information processing for each treatment group are presented in Figure 6. The control group demonstrated the strongest relationship (negative) between rational information processing and CRF-S compared to the interactive and delivered test feedback groups. Clients with higher levels of rational information processing style in the control group had poorer evaluations of the counselors than clients in the feedback groups. Contrary to the matching hypothesis, clients with higher levels of rational information processing had more positive evaluations of the counselor in the interactive feedback group as opposed to the delivered feedback group.

Hypothesis three was investigated to determine whether there was an interaction effect of experiential information processing and treatment group on the process variables. The results indicated that the interaction of experiential information processing
Table 13
*Summary of Regression Analyses for the Relationship of Rational Information Processing and Evaluation of Counselor Within Treatment*

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Variable</th>
<th>B</th>
<th>SE B</th>
<th>B</th>
<th>t</th>
<th>p</th>
<th>R square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interactive</td>
<td>Constant</td>
<td>62.43</td>
<td>15.24</td>
<td>4.10</td>
<td>.002</td>
<td>.07</td>
<td></td>
</tr>
<tr>
<td></td>
<td>REIe</td>
<td>3.64</td>
<td>4.04</td>
<td>0.26</td>
<td>0.90</td>
<td>.387</td>
<td></td>
</tr>
<tr>
<td>Delivered</td>
<td>Constant</td>
<td>78.72</td>
<td>9.67</td>
<td>8.15</td>
<td>.000</td>
<td>.01</td>
<td></td>
</tr>
<tr>
<td></td>
<td>REIe</td>
<td>-0.71</td>
<td>2.67</td>
<td>-0.08</td>
<td>-0.26</td>
<td>.796</td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>Constant</td>
<td>122.78</td>
<td>9.97</td>
<td>12.32</td>
<td>.000</td>
<td>.71</td>
<td></td>
</tr>
<tr>
<td></td>
<td>REIe</td>
<td>-13.29</td>
<td>2.72</td>
<td>-0.84</td>
<td>-4.90</td>
<td>.001</td>
<td></td>
</tr>
</tbody>
</table>

*Figure 6.* The regression fit lines for rational information processing and evaluation of counselor within treatment.
and treatment group for the process variables was not statistically significant, $F (4, 58) = 1.61, p > .05, \eta^2 = .19$. These results do not support the proposed matching hypothesis that clients with higher levels of experiential information processing provided interactive test feedback would have greater process-oriented benefits. The MANCOVA results for the process variables are presented in Table 10.

**The effects of treatment x information processing style x time.** Hypothesis four stated that the benefits received by clients whose information processing styles are matched to congruent test feedback styles (see Hypotheses 2 and 3) will increase over time. The results of the MANCOVA indicated no statistically significant interaction effect for rational information processing, treatment group, and time for the process variables, $F (4, 58) = 1.37, p > .05, \eta^2 = .17$. Similarly, the interaction between experiential informational processing, treatment group, and time was not statistically significant for the process variables, $F (4, 58) = .09, p > .05, \eta^2 = .01$. These results do not support the hypothesis of a significant three-way interaction between information processing style, test feedback style, and time.

**MANCOVA results for the outcome variables.** The results and a summary of the MANCOVA analysis for the outcome variables are presented in Tables 14. Aggregate least square means and standard errors for the dependent outcome variables for each treatment group are presented in Table 11. Least square means and standard errors of the dependent outcome variables for each treatment group across time are reported in Table 12.

**The effects of treatment.** Hypothesis one stated that clients in both test feedback (experimental) groups would receive greater benefits than clients in the examiner
attention only (control) group. A MANCOVA was conducted to examine the presence of a main effect for treatment group and the interaction of treatment group and time on the outcome variables. The results indicated that the main effect for group was statistically significant for the outcome variables, $F(4, 56) = 3.10, p < .05, \eta^2 = .33$. The interaction of treatment group and time for the outcome variables, however, was statistically non-significant, $F(8, 52) = .99, p > .05, \eta^2 = .25$. This indicates that there were no differences between these groups across time on the outcome variables. A DDA was used to follow up the significant MANCOVA result for the main effect of group on the outcome variables to determine which variable(s) contributed to this difference. On the basis of the structure coefficients it was determined that one variable, SLSC-R (self-esteem), accounted for the significant main effect. The structure coefficient for SLSC-R was .54, whereas the structure coefficient for SCL-90-R (symptomatic psychological distress) was .20. The descriptive statistics of the outcome variables indicate that the aggregate least square means for the SLSC-R were highest for the control group, followed by the delivered feedback group, and the lowest scores were present in the interactive feedback group. This reflects that clients in the control group reported higher levels of self-esteem than client in the test feedback groups. This does not support the hypothesis that the test feedback groups would obtain greater benefits than the control group. The aggregate means for the SLSC-R across treatment groups are presented in Table 11.

**The effects of treatment x information processing style.** Hypothesis two stated that clients with higher levels of rational information processing are more likely to benefit from delivered test feedback than interactive feedback or examiner attention only.
Similarly, hypothesis three stated that clients with higher levels of experiential information processing are more likely to benefit from interactive test feedback than from delivered feedback or examiner attention only. Hypothesis two was investigated to determine whether there was an interaction effect of rational information processing and treatment group on outcome variables. This interaction was not statistically significant, $F(4, 56) = .86, p > .05, \eta^2 = .14$. Hypothesis three was investigated to determine whether there was an interaction effect of experiential information processing and treatment group on the outcome variables. The results indicated a statistically significant interaction between experiential information process and treatment group, $F(4, 56) = 4.40, p < .05$, $\eta^2 = .42$. A DDA was used to follow up the significant interaction of experiential information processing and treatment group on outcome variables to determine which
variable(s) contributed to this difference. The structure coefficients indicated that both outcome variables, SLSC-R (self-esteem) and SCL-90-R (symptomatic psychological distress), were salient in defining the interaction composite. The structure coefficient for SLSC-R was .40 and the structure coefficient for SCL-90-R was .36. Regression analyses were conducted to determine how the groups differed in terms of the relationship between experiential information processing and self-esteem and symptomatic distress. Table 15 and 16 provide the results of these regression analyses. The standardized regression slopes are presented in Figures 7 and 8.

The standardized regression slopes for SLSC-R and experiential information processing for each treatment group are presented in Figure 7. The interactive feedback group demonstrated the strongest relationship between experiential information processing and SLSC-R. The results suggest a matching effect between experiential information processing and interactive feedback, with participants who had higher levels of experiential information processing style reporting greater self-esteem when receiving interactive test feedback than those who received delivered test feedback or examiner attention only. The delivered feedback group also demonstrated a positive relationship between experiential information processing and SLSC-R, but not as strong as the interactive feedback group. The standardized slope for the control group on the other hand approached zero indicating no relationship between experiential information processing and SLSC-R. Therefore, while clients benefited most in the interactive feedback group, it appears that clients with higher levels of experiential information processing report greater self-esteem when provided with test feedback regardless of delivery style than those who do not receive test feedback.
Table 15

Summary of Regression Analyses for the Relationship of Experiential Information Processing and Self-Esteem Within Treatment

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Variable</th>
<th>B</th>
<th>SE B</th>
<th>B</th>
<th>t</th>
<th>p</th>
<th>R square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interactive</td>
<td>Constant</td>
<td>8.68</td>
<td>19.89</td>
<td>0.44</td>
<td>.67</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>REIe</td>
<td>10.73</td>
<td>5.58</td>
<td>0.50</td>
<td>1.92</td>
<td>.08</td>
<td>.25</td>
</tr>
<tr>
<td>Delivered</td>
<td>Constant</td>
<td>32.12</td>
<td>13.81</td>
<td>2.33</td>
<td>.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>REIe</td>
<td>4.23</td>
<td>4.16</td>
<td>0.28</td>
<td>1.02</td>
<td>.33</td>
<td>.08</td>
</tr>
<tr>
<td>Control</td>
<td>Constant</td>
<td>53.23</td>
<td>17.28</td>
<td>3.08</td>
<td>.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>REIe</td>
<td>-1.01</td>
<td>5.31</td>
<td>-0.06</td>
<td>-0.19</td>
<td>.85</td>
<td>.00</td>
</tr>
</tbody>
</table>

Table 16

Summary of Regression Analyses for the Relationship of Experiential Information Processing and Symptomatic Distress Within Treatment

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Variable</th>
<th>B</th>
<th>SE B</th>
<th>B</th>
<th>T</th>
<th>P</th>
<th>R square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interactive</td>
<td>Constant</td>
<td>-0.26</td>
<td>1.38</td>
<td>-0.19</td>
<td>.86</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>REIe</td>
<td>0.40</td>
<td>0.39</td>
<td>0.30</td>
<td>1.04</td>
<td>.32</td>
<td>.09</td>
</tr>
<tr>
<td>Delivered</td>
<td>Constant</td>
<td>0.71</td>
<td>0.77</td>
<td>0.93</td>
<td>.37</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>REIe</td>
<td>0.12</td>
<td>0.23</td>
<td>0.15</td>
<td>0.51</td>
<td>.62</td>
<td>.02</td>
</tr>
<tr>
<td>Control</td>
<td>Constant</td>
<td>1.83</td>
<td>0.94</td>
<td>1.94</td>
<td>.08</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>REIe</td>
<td>-3.02</td>
<td>0.29</td>
<td>-0.31</td>
<td>-1.04</td>
<td>.32</td>
<td>.01</td>
</tr>
</tbody>
</table>

The standardized regression slopes for SCL-90-R and experiential information processing for each treatment group are presented in Figure 8. It should be noted that lower scores on the SCL-90-R are associated with lower symptomatic distress. These regression slopes do not support the matching hypothesis between experiential information processing and test feedback style. The interactive test feedback group
Figure 7. The regression fit lines for experiential information processing and self-esteem within treatment demonstrated the strongest positive relationship between experiential information processing and SCL-90-R. The results suggest that clients who had higher levels of experiential information processing style reported higher levels of symptomatic distress when receiving interactive test feedback than those who received delivered test feedback or examiner attention only. Contrary to what was hypothesized, the control group had the strongest negative relationship between experiential information processing and symptomatic distress. In other words, clients in the control group who had higher levels of experiential information processing reported lower levels of symptomatic distress.
Figure 8. The regression fit lines for experiential information processing and symptomatic distress within treatment.

The effects of treatment x information processing style x time. Hypothesis four stated that the benefits received by clients whose information processing styles are matched to congruent test feedback styles (see Hypotheses 2 and 3) will increase over time. The results indicated no statistically significant interaction for rational information processing, treatment group, and time for outcome variables, $F(8, 52) = .60, p > .05, \eta^2 = .16$. Similarly, the interaction between experiential informational processing, treatment group, and time was not statistically significant for outcome variables, $F(8, 52) = .93, p$
>.05, $\eta^2 = .24$. These results suggest that there is not a three-way interaction between information processing style, test feedback style, and time.

**Post hoc analyses.** Due to the low statistical power of the study resulting from a small $n$ in each treatment group, additional post hoc analyses were conducted to examine what relationship existed between individual variables at each time point. To achieve this beta weights were calculated for the relationship between the information processing variables and the dependent measures within each of the treatment conditions across time. Beta weights are the regression coefficients of the standardized predictor and criterion variables. In this case the predictor variables were the information-processing scales and the criteria variables were each of the process and outcome measures. These beta weights represent a slope relating information processing style (rational and experiential) to the dependent variables (self-esteem, symptomatology, evaluation of counselor and session). These weights serve as descriptive analyses to understand the direction of the relationship between the variables for the three research groups (W. H. Finch, personal communication, April 5, 2007). These beta weights are provided for rational and experiential processing styles in Tables 17 and 18, respectively. Visual inspection of these beta weights does not support the matching hypotheses between rational information processing and delivered feedback or experiential information processing and interactive feedback over time. Despite the low statistical power in this study, further examination of the obtained data through these analyses suggests there is no clear relationship between information processing style, test feedback style, and time.
### Table 17

**Three-way Interaction Between Time, Treatment, and Rational Information Processing Style for Study Variables**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Interactive test feedback</th>
<th>Delivered test feedback</th>
<th>Control group</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SLSC-R</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 1</td>
<td>$\beta = .42$</td>
<td>$\beta = .68$</td>
<td>$\beta = -.26$</td>
</tr>
<tr>
<td>Time 2</td>
<td>$\beta = .42$</td>
<td>$\beta = .57$</td>
<td>$\beta = .15$</td>
</tr>
<tr>
<td>Time 3</td>
<td>$\beta = .24$</td>
<td>$\beta = .35$</td>
<td>$\beta = -.07$</td>
</tr>
<tr>
<td><strong>SCL-90-R</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 1</td>
<td>$\beta = -.41$</td>
<td>$\beta = -.08$</td>
<td>$\beta = -.09$</td>
</tr>
<tr>
<td>Time 2</td>
<td>$\beta = -.61$</td>
<td>$\beta = -.11$</td>
<td>$\beta = -.17$</td>
</tr>
<tr>
<td>Time 3</td>
<td>$\beta = -.54$</td>
<td>$\beta = .03$</td>
<td>$\beta = -.12$</td>
</tr>
<tr>
<td><strong>CRF-S</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 1</td>
<td>$\beta = .20$</td>
<td>$\beta = .05$</td>
<td>$\beta = -.67$</td>
</tr>
<tr>
<td>Time 2</td>
<td>$\beta = .31$</td>
<td>$\beta = -.19$</td>
<td>$\beta = -.84$</td>
</tr>
<tr>
<td><strong>SEQ</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 1</td>
<td>$\beta = .60$</td>
<td>$\beta = .32$</td>
<td>$\beta = .51$</td>
</tr>
<tr>
<td>Time 2</td>
<td>$\beta = .52$</td>
<td>$\beta = .12$</td>
<td>$\beta = .25$</td>
</tr>
</tbody>
</table>

### Table 18

**Three-way Interaction Between Time, Treatment, and Experiential Information Processing Style for Study Variables**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Interactive test feedback</th>
<th>Delivered test feedback</th>
<th>Control group</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SLSC-R</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 1</td>
<td>$\beta = .45$</td>
<td>$\beta = .39$</td>
<td>$\beta = -.39$</td>
</tr>
<tr>
<td>Time 2</td>
<td>$\beta = .39$</td>
<td>$\beta = .27$</td>
<td>$\beta = .13$</td>
</tr>
<tr>
<td>Time 3</td>
<td>$\beta = .58$</td>
<td>$\beta = .10$</td>
<td>$\beta = .02$</td>
</tr>
<tr>
<td><strong>SCL-90-R</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 1</td>
<td>$\beta = .24$</td>
<td>$\beta = .18$</td>
<td>$\beta = -.28$</td>
</tr>
<tr>
<td>Time 2</td>
<td>$\beta = .37$</td>
<td>$\beta = .06$</td>
<td>$\beta = -.35$</td>
</tr>
<tr>
<td>Time 3</td>
<td>$\beta = .24$</td>
<td>$\beta = .18$</td>
<td>$\beta = -.29$</td>
</tr>
<tr>
<td><strong>CRF-S</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 1</td>
<td>$\beta = -.52$</td>
<td>$\beta = .32$</td>
<td>$\beta = -.03$</td>
</tr>
<tr>
<td>Time 2</td>
<td>$\beta = -.37$</td>
<td>$\beta = .37$</td>
<td>$\beta = .06$</td>
</tr>
<tr>
<td><strong>SEQ</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 1</td>
<td>$\beta = -.41$</td>
<td>$\beta = .38$</td>
<td>$\beta = .10$</td>
</tr>
<tr>
<td>Time 2</td>
<td>$\beta = -.47$</td>
<td>$\beta = .22$</td>
<td>$\beta = .20$</td>
</tr>
</tbody>
</table>
In psychotherapy outcome research, it has been argued that there are limitations in examining statistical comparisons between groups of clients. These comparisons do not indicate the proportion of participants in each treatment condition who benefited from the treatment and they provide little information regarding the variability in treatment response of each individual. Statistical comparisons between groups rarely indicate whether the treatment effects are of practical importance (Jacobson, Roberts, Berns, & McGlinchey, 1999). A more recent focus has been on clinically significant changes made by clients as statistical significance is no longer accepted unquestionably as meaningful change (Lambert & Ogles, 2004). Clinically significant change was operationalized by Jacobson, Follette, and Revenstorf (1984) as: (a) patient movement from the ranks of the dysfunctional into the ranks of the functional (based on normative comparisons); and (b) movement so large that it was not likely to be the result of measurement error (reliable change).

Meaningful change and the reliability change index (RCI) were calculated to determine how many participants in each treatment group obtained clinically significant change. To demonstrate if a client moved from the dysfunctional to the functional range (i.e., meaningful change) after receiving treatment, a cutoff point was calculated for the SCL-90-R. The cutoff point of choice is 2 SDs above the mean of the normative group. Derogatis’ (1994) “non-patient normal” group was used to determine this range of functionality. This normative sample has a mean score of .31 with a standard deviation of .31. Hence, the cutoff point would equal 2 SDs above the nonpatient group, or (2 x .31) + .31 = .93. To obtain meaningful change a client’s score on the SCL-90-R had to be greater than .93 at the initial session and less than .93 at the follow-up session. The
second criterion for clinically significant change is that the meaningful change described above must be reliable (i.e., exceeds the margin of measurement error). To investigate this criterion, the RCI was calculated for each client by the Jacobson and Truax (1991) formula. Jacobson and Truax defined reliable change as an individual having an RCI greater than or equal to 1.96 at the 95% confidence level (Wise, 2004).

Meaningful change and the RCI were calculated for each client across all three groups. Using these criteria, a client was classified as Recovered (passed both CS normative and RCI criteria), Improved (passed RCI criteria alone), Unchanged/Indeterminate (passed neither), or Deteriorated (passed RCI in the negative direction). These analyses compared the initial session (Time 1) to the follow-up session (Time 3). The results of these analyses indicated that two clients in the delivered feedback group recovered (passed both CS normative and RCI criteria) and one client in the interactive group improved (passed RCI criterion alone). Therefore, 7.7 and 14.3 percent of clients improved or recovered in the interactive feedback and delivered feedback group, respectively. This is compared to 0 percent of clients that improved or recovered in the control group. None of the clients in the study deteriorated based on changes in their SCL-90-R scores. The majority of clients in each treatment group remained unchanged/indeterminate. Table 19 presents these results for each treatment group.

\[ RCI = \frac{(x_1 - x_2)}{\sqrt{2(SE)^2}}, \]  
\[ SE = s_1 \sqrt{1 - r_{xx}}, \]  
where \(x_1\) = pretest score; \(x_2\) = posttest score; \(s_1\) = the standard deviation of the pretreatment group (Time 1); and \(r_{xx}\) = the test-retest reliability.
Table 19
Clinically Significant Change by Treatment Group

<table>
<thead>
<tr>
<th>Classification</th>
<th>Interactive(^a)</th>
<th>Delivered(^b)</th>
<th>Control(^c)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recovered</td>
<td>0 (0.0)</td>
<td>2 (14.3)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Improved</td>
<td>1 (7.7)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Unchanged</td>
<td>12 (92.3)</td>
<td>12 (85.7)</td>
<td>12 (100.0)</td>
</tr>
<tr>
<td>Deteriorated</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
</tr>
</tbody>
</table>

*Note.* \(^a\) \(n = 13\), \(^b\) \(n = 14\), \(^c\) \(n = 12\).
Chapter 5

Discussion

The primary goal of this investigation was to determine if there was an attribute by treatment matching effect between information processing style and MMPI-2 test feedback style in a clinical setting. The study examined the interaction of two information processing styles (rational and experiential) based on CEST (Epstein, 1983, 1990) and two styles of test feedback (interactive and delivered) on process and outcome benefits gained by clients in clinical settings. It was predicted that clients in both of the feedback groups would obtain greater process and outcome benefits than those clients assigned to the examiner attention only group. Furthermore, it was predicted that there would be an attribute by treatment matching effect with clients with higher levels of rational information processing obtaining greater benefits when matched with delivered feedback and clients with higher levels of experiential information processing obtaining greater benefits when matched with interactive feedback. Finally, it was hypothesized that benefits would be augmented over time for clients whose information processing styles were matched to congruent test feedback styles. This chapter summarizes the results reflecting tests of these hypotheses and addresses the implications, limitations, and potential areas of future research related to this area of research.
There was partial support for the attribute by treatment matching hypotheses for information processing style and test feedback style. There were mixed results for the interaction of experiential information processing and interactive test feedback for the outcome variables. It was proposed that clients with higher levels of experiential information processing would be more likely to benefit from interactive test feedback than from delivered feedback or examiner attention only. The relationship between experiential information processing and self-esteem was strongest for the interactive feedback group, which supports the proposed matching effect. The interaction of experiential information processing and treatment group was also significant for symptomatic distress. This relationship, however, was not in the hypothesized direction; clients with higher levels of experiential processing in the interactive group reported higher levels of symptomatic distress. The interaction of experiential information processing and test feedback style was not significant for the process variables. The results did not confirm that the interaction of rational information processing and delivered test feedback provided clients with greater benefits. Contrary to the study’s hypothesis, clients with higher levels of rational information processing had more positive evaluations of the counselor in the interactive feedback group as opposed to the delivered feedback group. Additionally, there was no support for the three-way relationship between information processing, treatment, and time for the process or outcome variables. Finally, the results of the primary experimental analyses did not suggest that clients in test feedback groups received greater benefits than clients in the examiner attention only group. This lack of support also did not change over time. Post hoc analyses were conducted to examine theorized effects. The beta weights calculated
revealed that the trends among the variables were not consistent with the stated hypotheses. When the effect sizes of the main effects and interaction effects were examined, a number of the effects were opposite of their hypothesized direction. Finally, clinically significant change was investigated by calculating meaningful change and the reliable change index for each participant across the treatment groups. These results indicated that the two feedback groups had a higher proportion of clients who recovered or improved as compared to the control group. The majority of clients in all three groups, however, remained unchanged or indeterminate.

**Implications of Findings**

The current study is one of the first studies to investigate whether prior personality test feedback research would generalize to a community outpatient population. Unlike previous research with other populations, this study was unable to replicate benefits of personality test feedback. This inability to replicate previous findings was consistent even when the data were investigated beyond consideration of statistical significance limited by issues of low statistical power. Clinically significant changes were investigated for each client and the relationships among variables were examined using beta weights. Neither of these analyses provided clear support for this study’s hypotheses. While previous experimental research has consistently found benefits (e.g., decrease in symptomatology, increase in self-esteem, higher ratings of counselor and session) of providing personality test feedback to adult populations (e.g., Poston & Hanson, 2010), these studies have sampled from non-clinical undergraduate students (Allen et al., 2003; Allison, 2001; Guzzard, 2000; Rachal, 2000), clinical undergraduate students (Finn & Tonsager, 1992; Hanson et al., 1997; Newman &
Greenway, 1997) and clinical non-student adults seeking services exclusively from a university outpatient clinic (Ackerman et al., 2000; Hilsenroth et al., 2004). The current study diverges from these investigations in that its sample was drawn from two community mental health settings. A thorough review of the literature did not identify any experimental research that investigated the impact of providing personality feedback to an adult population in a community-based mental health setting. Two single case designs each examining an adult male from a community setting both reported positive outcomes for the men (Peters et al., 2008; Wygant & Fleming, 2008). The lack of quantitative measurement of outcome in both studies and limited generalizability makes it difficult to compare the results of these case studies to the current results. One of the implications of the present study is that previous results may not generalize to a community outpatient population. Further discussion of this issue is warranted.

In order to determine if the sample of this study was more severely impaired, it was necessary to compare the current sample with previous samples in the personality test feedback literature. Only two studies were identified in published personality feedback research that measured symptomatology in their samples with an objective measure (Finn & Tonsager, 1992; Newman & Greenway, 1997). Both of these studies had samples comprised of clients from a university counseling center. Of these studies, only Newman and Greenway provided mean scores on the measure of symptomatic distress (SCL-90-R) for their sample. A comparison of symptomatic distress based on the SCL-90-R between the current study and this study indicates similar levels of distress. The mean T scores for the GSI at Time 1 were 48.4 (SD = 9.3) and 50.1 (SD = 14.0) for the current study and Newman and Greenway’s study, respectively.
Both Finn and Tonsager (1992) and Newman and Greenway (1997) asserted that their samples consisted of participants with significant psychopathology based on elevated MMPI-2 scales and found that severity of psychopathology was unrelated to positive outcomes based on the College Maladjustment (Mt) scale on the MMPI-2. To further compare the severity of psychopathology in the current study with these studies, the percentage of clinically elevated scales on the MMPI-2 was examined. It should be noted that Finn and Tonsager only provided this information for their experimental feedback group and neither study provided mean scores for the MMPI-2 scales. The percentage of profiles with clinically elevated scales above 65 revealed that the current study was comprised of a more severely impaired population. To illustrate, 28 percent of profiles in the current study had 6 or more clinically elevated scales (>65) compared to 12 percent (Finn & Tonsager) and 13 percent (Newman & Greenway). The most notable difference is found is the percent of profiles with 7 or more clinically elevated scales (>65). Twenty-three percent of the current sample had profiles at this elevation compared to 6 percent (Finn & Tonsager) and 3 percent (Newman & Greenway). Additionally, the clients in the current study were primarily referred by the clients’ therapist or psychiatrist seeking additional assistance in their current treatment. The treating clinician often referred complex cases that were perplexing diagnostically or therapeutically.

These comparisons are limited to a small sample of studies and, therefore, conclusions regarding the severity of psychopathology in the current sample should be interpreted with caution. The clinically elevated MMPI-2 scales suggest a population with more severe psychopathology may not receive that same benefit as a less
psychologically impaired clinical population. The current study is one of the first experimental research studies to examine adults in community outpatient clinics, and the results suggest that further research is needed to better understand the impact of personality test feedback in this population. The APA 2005 Presidential Task Force on Evidence-Based Practices calls on psychologists to commit to integrating the best available research with clinical expertise in the context of patient characteristics in the effort to identify and utilize evidence-based practices (APA, 2006). In the context of psychological assessment, this suggests that “what works for whom” is unclear related to the benefit of personality test feedback with clients presenting with severe psychopathology. Therefore, caution regarding the use of personality test feedback should be exercised until additional research demonstrates its usefulness with a severely impaired population.

The results of the present investigation provided partial support for CEST. The interaction between experiential information processing and interactive feedback for self-esteem was consistent with the theory. This matching effect, however, was not supported for symptomatic distress or clients’ evaluations of their counselors or sessions. According to CEST (e.g., Epstein, 1990), the experiential system is associated with affect and in this system learning occurs primarily through experience rather than by logical inference, which characterizes interactive feedback. Matching personality test feedback style to an individual’s information processing style increases an individual’s ability to process information, which is consistent with ELM. This increased central route processing contributes to increased benefits of the test feedback and has been shown to result in more lasting client change (Petty & Cacioppo, 1986). According to CEST, when
information is presented in a manner that is congruent with an individual’s dominant information processing style, the information is more influential (Epstein, 1994). The matching effect identified between experiential information processing and interactive test feedback for self-esteem provides support to these theories.

It is less clear based on these theories why self-esteem was the only variable for which a matching effect was found between experiential information processing and interactive feedback, or why an effect opposite of the hypothesized direction was found for symptomatic distress. The matching effect for self-esteem may be explained by a theory addressed in previous test feedback literature. Finn and Tonsager (1992) proposed that positive benefits achieved by providing personality feedback might be explained by Swann’s self-verification theory (1983). This theory proposes that individuals seek feedback from others that confirms their self-perception even if the feedback from others is negative. Thus, the provision of accurate personality feedback, both positive and negative, in a supportive environment serves to “verify” individuals’ perceptions of themselves. Consistent with this theory, clients want self-verifying personality feedback, which results in improved feelings about themselves. This is supported by the current study, which found that clients with higher levels of experiential information processing who received both interactive and delivered feedback reported higher levels of self-esteem than clients who received no feedback. The failure to identify this benefit with clients with higher levels of rational information processing begs the question of whether experiential information processing is a specific mechanism in the test feedback process that has therapeutic value. As stated previously, the experience of receiving personality feedback is a highly personal and the information provided may automatically elicit past
experiences. This process would likely appeal more to the experiential system than the rational system; thus, individuals with higher levels of experiential process would obtain greater benefits.

Contrary to CEST, the results did not indicate a matching effect for rational information processing and delivered test feedback. Instead, a matching effect was identified between rational information processing and interactive test feedback for clients’ evaluations of the counselor. These results are opposite the theoretical expectation and are not accounted for by the presuppositions of CEST. The failure of the study to identify a significant interaction between rational information processing and delivered test feedback initially appears to contradict a study by Rosenthal and Epstein (2000) which identified a matching effect between message style and thinking style (i.e., information processing style). The authors found that messages that emphasized actuarial and other objective information resulted in greater outcomes for participants with higher levels of rational information processing while messages focused on personal appeals and vivid individual cases produced greater benefits for participants with higher levels of experiential information processing. It should be noted, however, all participants were women and the information being provided was not personal feedback on a test measure and the outcome being measured was participants’ intent to engage in a specific behavior. It may be that regardless of the style of personality feedback, the information presented appeals more to the experiential system due to the intrinsic personal and self-evaluative nature of personality feedback. Most research comparing individual differences related to rational and experiential processing has investigated participants’ reasoning, decision-making, or evaluations based on information presented (e.g., Denes-Raj et al., 1995;
Epstein et al., 1992; Kirkpatrick & Epstein, 1992; Pacini et al., 1998). Thus, the rational system may not have been sufficiently engaged in the test feedback process as the information presented was not primarily persuasive and clients were not asked to make any specific decisions or evaluations. It is important for future research to investigate whether personality feedback engages and is more congruent with the experiential system than the rational system.

The current study’s investigation of the interaction of test feedback style and information processing style is an important contribution to the personality feedback literature. It contributes to developing a better understanding of the role of specific client variables in the test feedback process and extends the research into a population that has largely been neglected in the literature. Currently, there are few studies in the feedback literature that have examined P-E fit or ATI. The research studies that have examined these interaction effects are primarily dissertations. The limited support for a significant attribute by treatment effect in the current study is similar to recent dissertations by Barrett (2003) and Allison (2001) in the personality feedback literature. Barrett found a nonsignificant interaction between test feedback style (interactive and delivered) and learning style (deep-elaborative and shallow-reiterative). This study used non-clinical undergraduates and consisted of a small sample \((N=49)\). Another study examining a theoretically derived client attribute in the personality test feedback literature investigated the impact of a client’s need for cognition (Allison, 2001). This study also used a non-clinical undergraduate population and found limited support for attribute by treatment effects. He found a significant interaction between low need for cognition and delivered
feedback for the ability to recall test scores. Additionally, participants with low need for cognition receiving interactive feedback demonstrated the worst recall of test scores.

The ability of the study to identify only partial support for the interaction effects may be accounted for by several explanations. It is possible that matching a client’s information processing style to a congruent test feedback style does not result in benefits to clients or that information processing does not contribute significantly to the change process in test feedback. Information processing style has not been previously investigated in the test feedback literature; therefore, it is difficult to draw definitive conclusions about its impact in the test feedback process based on the current study. An examination of aptitude by treatment interaction literature reveals inconsistent results. Only a few studies examining psychotherapy interventions have identified significant interactions of client attributes and treatment approaches (Maruish, 2004). Research has found that studies that identify an attribute by treatment interaction generally differ from studies that fail to find an interaction in a salient way. Those studies identifying significant interactions examine outcome variables that are derived from the theory being tested in the study. An additional issue related to aptitude by treatment research is related to statistical power. A well-documented problem for research investigating aptitude by treatment interactions is the lower power associated with test of interaction effects using traditional analysis of variance and regression techniques. The low power of detected interactions and moderated effects has been repeatedly demonstrated by researchers through the use of simulation studies (Maruish, 2004). This is because the effect size for most interaction effects is small (Chaplin, 1991; Frazier, Tix, & Barron, 2004). Research
has shown that the power to identify interaction effects in a typical study is .20 to .34, which is much lower than the recommended level of .80 (Aguinis, Boik, & Pierce, 2001).

Similarly, when comparative research using two viable treatments is conducted, the effect is generally not as large as when a treatment group is compared to a control group. Therefore, sufficient power is needed to identify statistically significant differences between treatment groups. Finally, the limited findings for the interaction of test feedback style and information processing style may suggest that the benefits of interactive and delivered test feedback are equivalent or were not sufficiently different from one another. Previous research examining treatment and a control group has consistently found support for the benefits of personality test feedback (Allen et al., 2003; Finn & Tonsager, 1992; Newman & Greenway, 1997). The results are less consistent when the benefits of interactive versus delivered feedback are investigated. A growing body of research in the personality feedback literature has explored the differential benefits of these different styles of feedback (Allison, 2001; Barrett, 2004; Corner, 2004; Guzzard, 2000; Hanson & Claiborn, 2006; Hanson et al., 1997). The majority of these studies are dissertations and in general the studies have produced mixed results. The most consistent finding has been that interactive feedback tends to result in greater process-oriented benefits (e.g., quality of session, counselor attractiveness, therapeutic alliance, adherence to treatment) to clients than delivered feedback (Ackerman et al., 2000; El-Shaieb, 2005; Guzzard, 2000; Hanson et al., 1997; Hilsenroth et al., 2004). Additionally, there is considerable evidence that the relative efficacy of treatments can be attributed more to common factors than to differential therapeutic benefits of one treatment over a competing one (Wampold, 2000). A study by Rachal (2000) found that differences
between the test feedback group and control group were primarily explained by common therapeutic factors. This may partially account for inconsistent results found in previous research comparing interactive and delivered styles of test feedback as well as the current study’s finding that clients with high levels of experiential processing obtained benefits in both feedback groups compared to the control group.

**Limitations of the Study**

The proposed study has several limitations including a high attrition rate, small sample size, ceiling effect on the CRF-S, mono-operation and mono-method bias, and limited external validity (Shadish, Cook, & Campbell, 2002). The most significant limitations to the study are the high attrition rate and small sample size. The attrition rate was 20.4 percent (10 out of 49 participants) due to a range of reasons, including invalid MMPI-2 profiles (three participants), failure of participants to attend all three sessions (two participants), incomplete research measures (two participants), and inadequate treatment adherence by researchers (three participants). The final sample and attrition group differed from each other on three of the four dependent measures. A review of the groups’ means revealed that the attrition group had higher levels of psychopathology, lower self-esteem, and lower ratings of the counselor. This may be in part due to approximately half of the attrition group producing invalid MMPI-2 profiles due to significantly elevated F scales, which indicates significant psychopathology or overreporting. Based on these findings, the attrition group and the final sample differed from one another and the results of this study may not generalize to clients with even more significant psychopathology, lower self-esteem, and poorer perceptions of the counselor.
Another limitation of the present study was the relatively small sample size. It is, therefore, unclear whether the proposed matching interactions were not significant because the theory was inaccurate or the statistical tests lacked sufficient power. It is possible that the sample used in this study was too small to detect the impact of test feedback as well as the attribute by treatment matching effect. The sample size obtained ($N = 39$) was smaller than the sample size estimated that was needed in the *a priori* power analysis ($N = 58$). The effect sizes obtained in the current study ranged from small (.01) to large (.41) based on conversions from Cohen’s measure of effect size which can be derived from $\eta^2$ (Clark-Carter, 2010). It should be noted also that a number of the obtained effects were in the direction opposite to their hypothesized direction. These contrary results included the effect of treatment group for symptomatic distress, the interaction of rational information processing and test feedback style for clients’ evaluation of their counselors, and the interaction of experiential processing and test feedback style for symptomatic distress for the outcome variables. Anywhere between 58 and 96,350 participants would have been needed to detect the size of the effects found in this study (see Appendix Q). Previous research has consistently identified positive benefits of providing personality test feedback to an undergraduate clinical population when compared to an examiner attention only control group (Finn & Tonsager, 1992; Newman & Greenway, 1997). Unlike these studies, the present study included clients from community outpatient clinics who were more severely impaired. It is possible that clients with more significant pathology may not gain the same level of benefits from receiving personality feedback as clients with less severe pathology.
The measure used to rate clients’ perception of the counselor (CRF-S) appears to have a ceiling effect, which may have limited the ability to measure actual change in clients’ ratings of the counselor. The range of the CRF-S is 0 to 84. In the current study, the mean scores for the CRF-S at the first session for the interactive feedback group, the delivered feedback group, and the control group were 78.24, 75.76, and 74.93, respectively. These initial scores on the CRF-S are higher than scores found in previous studies. Prior research has found that scores on the CRF-S following the initial session range from 71 to 73 and by the end of counseling the scores typically range from 74 to 76 (LaCrosse, 1980). This indicates that participants in the current study rated the counselor’s influence higher on average at the initial session than participants in previous research. The scores on the CRF-S at the first session fell within the range of scores reported at the end of counseling in previous research. These initial high ratings of the counselor may have limited the amount of change that could occur.

Each of the dependent variables (i.e., symptomology, self-esteem, session depth, perception of counselor) was measured with a corresponding self-report paper-and-pencil instrument. Since a single measure rarely is able to completely operationalize a construct, the result is a mono-operation and mono-method bias (Shadish, Cook, & Campbell, 2002). The decision to measure the dependent variables in this manner was intentional. Previous studies examining the impact of test feedback used similar measures allowing for comparison of results between studies. Additional measures using other formats of responding would have increased the time commitment of participants as well as the cost of the study without corresponding benefit.
The process and outcome variables were examined also by using self-report measures. This is a limitation as the constructs were measured only from the client’s perspective, which may or may not reflect the perspective of others (e.g., therapist, observer). Additionally, respondent bias can occur in self-report measures. Measures of dependent variables may reflect response bias rather than the construct being measured due to the participant’s unconscious or conscious manner of responding. Participants may consciously manipulate their responses to meet perceived experimenters’ expectations, present themselves as less or more pathological, or present themselves in a socially desirable manner (Heppner, Kivlighan, & Wampold, 1999). Most of the self-report measures used in the study are face valid and transparent, which increased the possibility of response bias.

The threats to external validity are another limitation of this study. The study used a clinical sample from a limited geographical area. Thus, the results are representative of individuals from a Midwest region of the country who sought low cost mental health services. The study obtained clients from a community outpatient clinic and university outpatient clinic. While generalizability is a limitation, the study expands on previous research on personality test feedback involving college students at university counseling centers.

There are distinct strengths in the study including reliability of treatment implementation, control of several threats to internal validity, reduction of rater expectancies, and control of researcher drift. The process of ensuring treatment adherence through independent raters is a significant strength of the study. This increased the internal validity of the study as researchers’ individual differences were
minimized and there was greater confidence that any difference between the groups is due to the treatment and not extraneous variables.

Several other threats to internal validity were controlled through use of a control group and random assignment of participants to treatment and control groups. The threats of history, maturation, testing, instrumentation, statistical regression, attrition, and selection were greatly reduced. The impact of using a control group and random assignment of participants to groups increases the internal validity, which again results in greater confidence that any difference between the groups was due to the treatment and not extraneous variables.

Researcher and rater expectancies were reduced as both groups of individuals were blind to the study’s hypotheses (with the exception of the author). This decreased the bias that occurs when the researcher or rater has an expectation for the outcome of the study. The hypotheses of the proposed study are not transparent and, therefore, likely were not guessed by the researchers or raters. Reducing the researchers’ and raters’ expectancies increased the study’s internal validity.

**Implications for Further Research**

The present study attempted to determine the impact of matching a congruent test feedback style to a client’s information processing style. While this study has advanced the personality test feedback literature through examination of a theoretically derived client attribute in the test feedback process and sampling from a community-based mental health setting, several steps can be taken to expand on the present research. Future research should focus on conducting additional experimental research with more distressed populations, replicating the current study, investigating the impact of
personality feedback with more diverse populations, examining other theoretically derived client attributes and their impact on the test feedback process, and investigating other processes by which personality test feedback contributes to client change.

The present study failed to identify positive benefits of personality test feedback to a population with severe psychopathology. These results were consistent even when the data was investigated beyond statistical power and the relationships were examined using beta weights. The effect size for the treatment effect for process and outcome variables was .26 and .33, respectively. Based on these effect sizes, 107 and 53 more participants would have been needed to identify statistical significance for the treatment effect for process and outcome variables, respectively. Future research using an experimental design should investigate further the impact of personality test feedback on adult clients with more significant psychopathology. This may include a comparative study examining two groups that differ on level of psychopathology based on the MMPI or another highly valid and reliable measure of psychopathology.

A significant limitation of the present study was the small sample size and the subsequent low statistical power that reduced the likelihood of yielding a statistically significant effect. Future research replicating this study should include a greater number of participants in each group (see Appendix Q). Additionally, some of the effects were in the direction opposite to their theoretical expectation. It would be beneficial for future research to determine if these effects are an artifact of a small sample or if they represent a true effect in the population. In addition, there is a clear need for personality test feedback research with more diverse populations, including severely impaired populations in community-based settings and more ethically-diverse populations. While
the current study included clients from a community outpatient clinic, the sample was also comprised of clients from a university outpatient clinic making it difficult to determine if adult clients seeking services from community outpatient clinics respond differently to personality test feedback. Additionally, most studies (including the present study) have used primarily White samples. It would be beneficial to investigate the impact of personality test feedback with other racial and ethnic populations to determine if personality feedback has the same benefits as identified with primarily White samples.

The need to investigate the interaction of client variables and different methods of feedback has been acknowledged by researchers and scholars for several decades (e.g., Rubinstein, 1978; Sharf, 1974). A limited number of studies, however, have responded to this charge and examined the impact of client attributes on the test feedback process. Even fewer studies have investigated the role of client attributes derived from theory. In addition to replicating research investigating the role of information processing style, other theoretically derived client characteristics should be investigated in order to have a greater understanding of how test feedback contributes to client change. For example, dimensions of personality based on the Five Factor Theory of Personality (i.e., “Big Five” factors) or RIASEC (i.e., Holland Codes) may influence the impact of test feedback. Clients who score higher on the trait of Openness on the Five Factor Theory of Personality or Investigative on Holland’s Codes may benefit more from personality feedback than clients who score lower on these personality dimensions. Motivation level may be another client attribute which influences the test feedback process. According to the ELM, a client must have both the motivation and the ability to process the information in order to achieve central route processing and more enduring change (Petty
& Cacioppo, 1986). While the current study focused more intentionally on clients’ ability to process the information, it would be valuable to investigate how a client’s motivation level impacts the test feedback process. Finally, due to inconsistent findings across test feedback outcome studies and the variability in the methods of conducting test feedback, it is still unclear which processes are primarily contributing to client change. Qualitative research may be valuable in clarifying what the active ingredients are in the process of test feedback. The research on the benefits of different styles of delivery has been inconsistent and provision of test results to a client is only one component of the test feedback process. The process also involves the psychologist’s synthesis and interpretation of test data and the client’s interpretation and process of making meaning of the test results provided (Goodyear & Lichtenberg, 1999). It is still unclear, therefore, which variables (e.g., counselor, test feedback style, common factors, client attributes) are most salient in the process and outcome benefits obtained by the client.

**Summary**

The use of personality test feedback has recently been supported by empirical research as a means to facilitate therapeutic change. Subsequent research has investigated the impact of different delivery styles of feedback as well as examined the impact of specific client variables on the test feedback process. The present study examined the impact of matching clients’ information processing style with interactive or delivered feedback on process-oriented and outcome-oriented benefits to clients at two clinical settings. The current study is one of the first experimental studies to examine personality feedback with a more severely impaired community outpatient population.
The results of this study provided partial support for the presence of a matching effect between information process style and test feedback style. The results indicated a significant attribute by treatment interaction effect for experiential information processing and interactive feedback. Specifically, clients with higher levels of experiential information processing provided with interactive test feedback reported higher levels of self-esteem as compared to clients receiving delivered test feedback or examiner attention only. The interaction of experiential information processing and treatment group was also statistically significant for symptomatic distress, but the effect was opposite of the hypothesized direction. The interaction of rational information processing and treatment group was significant for clients’ evaluations of their counselors. This effect, however, was also opposite of the hypothesized direction as clients in the control group reported better evaluations of their counselors than clients in the feedback groups. In contrast to previous research, there was no support for the benefits of providing personality test feedback (regardless of delivery style) compared to examiner attention only group. Further examination of beta weights and directions of effects suggest that even with a larger sample support for the benefits of personality feedback may not be found. These findings suggest caution should be exercised in generalizing previous results to a more severely impaired community.

The partial support for the interaction of experiential information processing and interactive feedback is a significant contribution to the personality test feedback literature. Given that the current sample may have had more psychopathology than previous personality feedback research, it is important to replicate this research with a larger sample of participants from a more psychologically distressed population to
determine if personality feedback provides the benefits identified by previous research to this unique population.
References


Appendix A

Self-Liking/Self-Competence Scale—Revised

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.  I tend to devalue myself…</td>
<td>2</td>
<td>3 4 5</td>
</tr>
<tr>
<td>2.  I am highly effectively at the ……things I do</td>
<td>2</td>
<td>3 4 5</td>
</tr>
<tr>
<td>3.  I am very comfortable with myself…</td>
<td>2</td>
<td>3 4 5</td>
</tr>
<tr>
<td>4.  I am almost always able to accomplish what I try for…</td>
<td>2</td>
<td>3 4 5</td>
</tr>
<tr>
<td>5.  I am secure in my sense of self-worth ……</td>
<td>2</td>
<td>3 4 5</td>
</tr>
<tr>
<td>6.  It is sometimes unpleasant for me to think about myself…</td>
<td>2</td>
<td>3 4 5</td>
</tr>
<tr>
<td>7.  I have a negative attitude toward myself…</td>
<td>2</td>
<td>3 4 5</td>
</tr>
<tr>
<td>8.  At times, I find it difficult to achieve the things that are important to ……</td>
<td>2</td>
<td>3 4 5</td>
</tr>
<tr>
<td>9.  I feel great about who I am…</td>
<td>2</td>
<td>3 4 5</td>
</tr>
<tr>
<td>10. I sometimes deal poorly with challenges…</td>
<td>2</td>
<td>3 4 5</td>
</tr>
<tr>
<td>11. I never doubt my personal worth…</td>
<td>2</td>
<td>3 4 5</td>
</tr>
<tr>
<td>12. I perform very well at many things…</td>
<td>2</td>
<td>3 4 5</td>
</tr>
<tr>
<td>13. I sometimes fail to fulfill my goals…</td>
<td>2</td>
<td>3 4 5</td>
</tr>
<tr>
<td>14. I am very talented…</td>
<td>2</td>
<td>3 4 5</td>
</tr>
<tr>
<td>15. I do not have enough respect for myself…</td>
<td>2</td>
<td>3 4 5</td>
</tr>
<tr>
<td>16. I wish I were more skillful in my activities…</td>
<td>2</td>
<td>3 4 5</td>
</tr>
</tbody>
</table>
Appendix B

Session Evaluation Questionnaire—Form 4

Please circle the appropriate number to show how you feel about this session.

**This session was:**

- difficult 1 2 3 4 5 6 7 easy
- valuable 1 2 3 4 5 6 7 worthless
- shallow 1 2 3 4 5 6 7 deep
- relaxed 1 2 3 4 5 6 7 tense
- unpleasant 1 2 3 4 5 6 7 pleasant
- full 1 2 3 4 5 6 7 empty
- weak 1 2 3 4 5 6 7 powerful
- special 1 2 3 4 5 6 7 ordinary
- rough 1 2 3 4 5 6 7 smooth
- comfortable 1 2 3 4 5 6 7 uncomfortable
Appendix C

Counselor Rating Form – Short Form

On the following pages, each characteristic is followed by a seven-point scale that ranges from “not very” to “very.” Please mark an “X” at the point on the scale that best represents how you viewed the therapist. For example:

FUNNY

X

not very _____:_____:_____:_____:_____:_____:_____ very

WELL- DRESSED

X

not very _____:_____:_____:_____:_____:_____:_____ very

These ratings might show that the therapist did not joke around much, but was dressed well.

Though all of the following characteristics we ask you to rate are desirable, therapists may differ in their strengths. We are interested in knowing how you view these differences.
Counselor Rating Form – Short Form

FRIENDLY
not very _____:_____:_____:_____:_____:_____:_____ very

EXPERIENCED
not very _____:_____:_____:_____:_____:_____:_____ very

HONEST
not very _____:_____:_____:_____:_____:_____:_____ very

LIKABLE
not very _____:_____:_____:_____:_____:_____:_____ very

EXPERT
not very _____:_____:_____:_____:_____:_____:_____ very

RELIABLE
not very _____:_____:_____:_____:_____:_____:_____ very

SOCIABLE
not very _____:_____:_____:_____:_____:_____:_____ very

PREPARED
not very _____:_____:_____:_____:_____:_____:_____ very

SINCERE
not very _____:_____:_____:_____:_____:_____:_____ very

WARM
not very _____:_____:_____:_____:_____:_____:_____ very

SKILLFUL
not very _____:_____:_____:_____:_____:_____:_____ very

TRUSTWORTHY
not very _____:_____:_____:_____:_____:_____:_____ very
Appendix D

Rational-Experiential Inventory (REI)

Instructions: Please rate the following statements about your feelings, beliefs, and behaviors using the scale below. Work rapidly; first impressions are as good as any (please circle your response).

<table>
<thead>
<tr>
<th></th>
<th>Definitely False</th>
<th>Mostly False</th>
<th>Undecided or Equally True and False</th>
<th>Mostly True</th>
<th>Definitely True</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>I’m not that good at figuring out complicated problems</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2.</td>
<td>If I were to rely on my gut feelings, I would often make mistakes</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3.</td>
<td>I prefer complex to simple problems</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4.</td>
<td>I generally don’t depend on my feelings to help me make decisions</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5.</td>
<td>I have no problem in thinking things through clearly</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6.</td>
<td>When it comes to trusting people, I can usually rely on my gut feelings</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7.</td>
<td>Thinking is not my idea of an enjoyable activity</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8.</td>
<td>I like to rely on my intuitive impressions</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9.</td>
<td>I am not a very analytical thinker</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10.</td>
<td>I believe in trusting my hunches</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>11.</td>
<td>I enjoy solving problems that require hard thinking</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>12.</td>
<td>I think it is foolish to make important decisions based on feelings</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>13.</td>
<td>I suspect my hunches are inaccurate as often as they are accurate</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>14.</td>
<td>I usually have clear, explainable reasons for my decisions</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>15.</td>
<td>Knowing the answer without having to understand the reasoning behind it is good enough for me</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>16.</td>
<td>I would not want to depend on anyone who described himself or herself as intuitive</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>17.</td>
<td>Using logic usually works well for me in figuring out problems in my life</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>18.</td>
<td>I enjoy intellectual challenges</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>19.</td>
<td>I can usually feel when a person is right or wrong, even if I can’t explain how I know</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>20.</td>
<td>I often go by my instincts when deciding on a course of action</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>21.</td>
<td>My snap judgments are probably not as good as most people’s</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
22. Reasoning things out carefully is not one of my strong points...............1 2 3 4 5
23. I don’t like situations in which I have to rely on intuition......................1 2 3 4 5
24. I try to avoid situations that require thinking in depth about something......1 2 3 4 5
25. I trust my initial feelings about people..............................................1 2 3 4 5
26. I have a logical mind..............................................................................1 2 3 4 5
27. I don’t think it is a good idea to rely on one’s intuition for important decisions..........................................................1 2 3 4 5
28. I don’t like to have to do a lot of thinking...........................................1 2 3 4 5
29. I don’t have a very good sense of intuition........................................1 2 3 4 5
30. I am not very good in solving problems that require careful logical analysis........................................................................1 2 3 4 5
31. I think there are times when one should rely on one’s intuition.............1 2 3 4 5
32. I enjoy thinking in abstract terms...........................................................1 2 3 4 5
33. Using my “gut feelings” usually works well for me in figuring out problems in my life........................................................1 2 3 4 5
34. I don’t reason well under pressure..........................................................1 2 3 4 5
35. I tend to use my heart as a guide for my actions...................................1 2 3 4 5
36. Thinking hard and for a long time about something gives me little satisfaction.............................................................1 2 3 4 5
37. I hardly ever go wrong when I listen to my deepest “gut feelings” to find an answer.................................................................1 2 3 4 5
38. I am much better at figuring things out logically than most people........1 2 3 4 5
39. Intuition can be a very useful way to solve problems..............................1 2 3 4 5
40. Learning new ways to think would be very appealing to me.................1 2 3 4 5
Appendix E
Demographic Form

1. Name (please print): _____________________________________________

2. Birthdate (please enter): / / Age: ________

3. Sex (circle one):  M  F

4. Indicate your race/ethnicity: African American _____
   (Check all that apply) Asian American or Pacific Islander _____
   Caucasian (European American heritage) _____
   Latino/a _____
   Native American _____
   Other (Please specify) _____

5. Indicate your marital status:
   Never married___ Living with partner___ Married___ Separated___ Divorced___

6. What is your highest level of education?
   Some HS___ HS grad.____ Some college___ College grad.____ Some grad. School____

7. Prior to seeing your current counselor, have you ever seen a counselor before?
   Yes ________ No ________

8. Have you ever taken a psychological measure/test before?
   Yes ________ No ________

9. If yes, did you sit down with the counselor to have the results explained to you?
   Yes ________ No ________

For researcher's use only:
Type of test(s) administered:

Feedback received?

Type of feedback:
Appendix F

Interactive Test Feedback Protocol

Session 1
1. Build rapport with participant
   - Greet clients with a smile; introduce yourself; then direct them to the designated room, inviting them to sit where they please
   - Make relevant, task-oriented small talk (e.g., any trouble finding the office?, comments about the weather)
   - Listen attentively, with genuine concern throughout the session

2. Informed consent & confidentiality
   - Acknowledge the participant’s awareness of being in the study, and set the stage for the three sessions. (For example, “Thank you for agreeing to participate in this research study. Today’s meeting will last about 45 minutes, and you and I will work together in coming up with three to five questions that you would like to have answered from the assessment. I’ll explain this more later. After we meet today, you will take a personality measure and a few other questionnaires. Then, in the second meeting, we’ll go over the results from the personality measure you take today and you will take a few more questionnaires. Finally, in the third meeting, we will meet briefly to discuss any questions or concerns you have. Then, you will fill out some questionnaires. How does that sound?”)
   - Discuss confidentiality and the limits of confidentiality; check in with the participant to make sure they understand the term confidentiality
   - Inform the participant that all sessions will be audiotaped in order to facilitate the counselor’s training.
   - Explain that if the participant wants to share information from his or her personality measure with his or her therapist, place a report of the results in his or her file at Meridian Services, or allow the researcher to obtain his or her clinical diagnosis they will need to sign a release of information form. Explain to the participant that he or she has the right to clarify what information they are consenting to have shared between the researcher and Meridian Services (e.g., they can give permission for us to obtain their diagnoses and/or they can consent for their personality results to be released to their therapist/Meridian Services). Inform the participant that he or she can rescind his or her permission at any time. Explain what occurs if the participants rescind their permission (i.e., no further information will be shared between you and the therapist; however, if a report has already been placed in his or her file, it cannot be removed). Inform the participant that he or she may still participate in the study if he or she chooses not to release his or her personality results to his or her therapists/Meridian Services or his or her diagnoses to the researcher.
   - Explain monetary incentive
• Ask the participant if they have any questions and/or concerns regarding their participation in the study
• Obtain written and verbal informed consent from the participant; give the participant a copy of the informed consent form

3. Introduce the initial interview:
• Introduce the initial interview from a collaborative perspective (“I see myself as a consultant to you and your therapist at ___________. I hope to help you better understand what your situation is now. I will be asking you about yourself so I can understand your three to five assessment questions, and I’ll answer any questions you have about me, the testing, or the feedback session that you will have. Okay?”)

4. Help the participant frame questions to be addressed by the assessment:
• “The MMPI-2 is a test that assesses personality characteristics and emotional functioning. With this in mind, what would you like to learn about yourself form this assessment?”
• Try to come up with three to five questions/goal areas with the client
• Record the three to five questions verbatim.
• Try to reframe questions about specific causes of things (e.g., “How do I relate to others?” rather than “Why am I bad at relationships?”)
• If the participant is having trouble coming up with questions, ask what they are seeing their therapist for, in order to spark some ideas
• This part of the interview is an especially good opportunity to empathize and reflect feeling

5. Gather background and current information from client
• Explore only background information relevant to the participant’s questions/goal areas, not general background
• For example, when did a problem begin? Are there situations in which it is more frequent or intense, less so, or totally absent? How has the participant tried to address the problem? Did the client’s solution work, and if so, why did the participant stop using the solution? What are the client’s hypotheses about the source and continuance of the problem? Do the participant know anyone else who has had similar problems?
• Assess for risk factors
  i. Current or past suicidal or homicidal ideation, plan, or intent
  ii. Current or past drug and/or alcohol abuse
  iii. Current or past abuse (physical, verbal, emotional, and sexual)

6. If the participant is not participating fully, inquire about the participant’s reservations about the assessment.

7. Inquire about past assessment experiences and listen for past hurts:
• Show genuine interest in hearing about participant’s past experience with assessment
• Demonstrate empathy for the participant’s vulnerability and hurt.
• Clearly state the shortcomings of the past assessment procedures.
• Offer an assessment contract, which addresses the past hurtful experiences.
• Ask to be alerted if the participant feels mistreated.

8. Restate the assessment questions:
   • Invite the participant to modify the questions
   • Invite the participant to pose further questions as they arise

9. Encourage the participant to ask questions of the researcher.

10. Review the “contract” for assessment (summarize the procedures to be followed and responsibilities of participant and assessor):
    • “It is my understanding that you will be taking the MMPI-2 immediately after our meeting today. After that, you will meet with me on __________ (one week later) for the feedback session, and then again on __________ (two weeks later) when you will fill out some questionnaires.”

11. Give the participant their monetary compensation.

**Session 2**
1. Greet the client/make relevant, task-oriented small talk

2. Provide overview of the session:
   • Indicate that today you will be sharing the results of the MMPI-2 (“We have about 45 minutes to go over the results of your MMPI-2”) and then say: “I will begin the interpretation by giving you some information about the test and the scales, but I want to involve you as much as possible in relating these results to your own life. I look forward to our working together on what the findings of the test might mean to you.”
   • Emphasize the collaborative nature of the relationship, and encourage participation throughout the session.
   • Review the three to five assessment questions with the participant. Ask “Do you remember those three (or the specific number) questions we came up with last week? What are they?” Ask the participant if he or she has anything further to add.
   • Frame the MMPI-2 as communication from the client (“I look at the test as a source of information from you. It’s another way of letting me know what is going on with you.”)
   • Explain that the participant will be asked to verify the findings.
3. Set the participant at ease by discussing any feeling about the testing and/or feedback session:
   - Ask about the participant’s reactions to taking the MMPI-2
   - Show genuine concern about participant’s experience
   - Ask about the participant’s feelings in anticipation of the interpretation
   - Accept his or her reactions with interest, but explore only markedly negative reactions

4. Introduction to the MMPI-2
   - Explain the rationale for administering the MMPI-2
   - Describe what the MMPI-2 is and how widely it is used
   - Describe how the MMPI-2 works—psychometrics in lay terms
   - Describe how the validity scales work

5. Interpretation of the MMPI-2 results
   - Provide an accurate interpretation of the test taker’s validity scales
   - Begin with something positive
   - Begin with findings the participant will accept, and gradually move to findings that challenge the participant’s current self-concept
   - Accurately interpret the most significant elevations on the clinical scales
   - Appropriately utilize available supplementary scales.
   - When providing feedback, avoid language such as “The test shows…” or “The test says….” Instead, use language such as “The test results are not necessarily right or wrong. Rather, they provide hypotheses for us to consider. A hypothesis to consider about yourself is…”

6. After each finding, enlist the participant in verifying or modifying test findings:
   - After every fourth or fifth feedback item, ask the client about the accuracy of the interpretation using open-ended questions (e.g., “How does that fit with the way you see yourself?”)
   - Encourage the participant to offer any modifications to make the interpretation more accurate
   - Ask the client to give at least one, preferably two, examples for each major finding in the interpretation (i.e., after every fourth or fifth feedback item)
   - Discuss each example and: 1) its implications (if it seems to reflect an accurate understanding); or 2) a gentle correction plus its implications (if it seem off the mark in some way)
   - Nonverbally honor the participant’s examples as the very essence of the interpretation

7. Do not omit a test finding simply because it seems embarrassing to discuss.

8. Pause and support the participant’s affective reactions as they occur

9. Close the feedback session:
• Ask if the participant has any questions
• Ask the participant to summarize the session: “We’ve talked about quite a bit today. Can you summarize for me what specifically you learned?
• Check for distortions in what the participant heard/understood
• Ask if there are any other questions.

10. Wrap-up
• Give the clients the questionnaire packet, provide instructions regarding where to put the completed questionnaires; let them know that they can leave after they are finished with the questionnaires
• Give the participant their monetary compensation.

Session 3
1. Greeting/brief conversation

2. Overview of final session
• “This is the last time that we will be meeting. You may have had the chance to think about your test feedback over the past two weeks. I want to give you the opportunity to process some of what you have been thinking about.”

3. Probe any further reactions of the client to the interpretation.

4. Answer any direct questions.

5. Correct any misunderstandings

6. Deal with any lingering resistance/reservations about assessment (especially that regarding the use of testing, who has access to the results, etc.).

7. Respond to any reactions appropriately, but minimally.

8. Explore with the client any implications of the interpretation on his or her self understanding.

9. Remind the participant that a brief written report of the results will be place in his or her file at ____________________.

10. Give the clients the questionnaire packet, provide instructions regarding where to put the completed questionnaires; let them know that they are finished with the study and can leave after they are finished with the questionnaires

11. Thank them for their participation in the study.
a. Inform them that in appreciation for their participation in the study, they will be entered into a drawing to win one of three $50 gift certificates.

b. Have them fill out an entry form for the gift certificates.

12. Terminate
Appendix G

Delivered Test Feedback Protocol

Session 1
1. Build rapport with client
   - Greet clients with a smile; introduce yourself; then direct them to the designated room, inviting them to sit where they please
   - Make relevant, task-oriented small talk (e.g., any trouble finding the office?, comments about the weather)
   - Listen attentively, with genuine concern throughout the session

2. Informed consent & confidentiality
   - Acknowledge the client’s awareness of being in the study, and set the stage for the three sessions. (For example, “Thank you for agreeing to participate in this research study. Today’s meeting will last about 45 minutes, and I will gather some background and current information from you and get to know you a little better. After we meet today, you will take a personality measure and a few other questionnaires. Then, in the second meeting, we’ll go over the results from the personality measure you take today. Finally, in the third meeting, we will meet briefly to discuss any questions you may have. Then, you will fill out some questionnaires. How does that sound?”)
   - Discuss confidentiality and the limits of confidentiality; check in with the client to make sure they understand the term confidentiality
   - Inform the participant that all sessions will be audiotaped in order to facilitate the counselor’s training.
   - Explain that if the participant wants to share information from his or her personality measure with his or her therapist, place a report of the results in his or her file at Meridian Services, or allow the researcher to obtain his or her clinical diagnosis they will need to sign a release of information form. Explain to the participant that he or she has the right to clarify what information they are consenting to have shared between the researcher and Meridian Services (e.g., they can give permission for us to obtain their diagnoses and/or they can consent for their personality results to be released to their therapist/Meridian Services). Inform the participant that he or she can rescind his or her permission at any time. Explain what occurs if the participants rescind their permission (i.e., no further information will be shared between you and the therapist; however, if a report has already been placed in his or her file, it cannot be removed). Inform the participant that he or she may still participate in the study if he or she chooses not to release his or her personality results to his or her therapists/Meridian Services or his or her diagnoses to the researcher.
   - Explain monetary incentive
   - Ask the participant if they have any questions and/or concerns regarding their participation in the study
• Obtain written and verbal informed consent from the participant; give the participant a copy of the informed consent form

3. Introduce the initial interview:
   a. Introduce the initial interview as a time when the counselor will gather information in order to better understand the client and their current situation; explain that the information will help the counselor better interpret and understand the results from the test the client will take

4. Gather background and current information from client
   a. Ask client to tell you about his or her history of psychological treatment; ask where, when, and length of treatment
   b. Ask client whether they have taken any psychological tests before; ask what test, when, and purpose of testing
   c. Ask client to briefly discuss their presenting problem(s) in counseling and any progress achieved
   d. Ask client to describe their current family and present level of family functioning
   e. Assess for risk factors
      i. Current or past suicidal or homicidal ideation, plan, or intent
      ii. Current or past drug and/or alcohol abuse
      iii. Current or past abuse (physical, verbal, emotional, and sexual)

5. If the client is not participating fully, inquire about the client’s reservations about the assessment.

6. Review the “contract” for assessment (summarize the procedures to be followed and responsibilities of client and assessor):
   • “It is my understanding that you will be taking the MMPI-2 immediately after our meeting today. After that, you will meet with me on ________ (one week later) for the feedback session, and then again on ________ (two weeks later) when you will fill out some questionnaires.”

Session 2
1. Greeting/Brief Conversation/Process Reactions to MMPI-2
   • Begin the interview by referring to the MMPI-2. Ask about the client’s reaction to taking the test. Accept his or her reactions with interest, but only explore markedly negative reactions.

2. Provide overview of the session:
   a. Indicate that today you will be sharing the results of the MMPI-2 (“We have about 45 minutes to go over the results of your MMPI-2”) and then say: “I will begin the interpretation by giving you some information about the test and the scales. Then, I will interpret the results for you and I will stop at the end to see if you have any questions. But if you have any
questions along the way, feel free to ask them. Hopefully you will find this test feedback to be informative and helpful to you, especially as you work on your concerns in counseling.”

3. Introduction to the MMPI-2
   a. Explain the rationale for administering the MMPI-2
   b. Describe what the MMPI-2 is and how widely it is used
   c. Describe how the MMPI-2 works—psychometrics in lay terms
   d. Describe how the validity scales work

4. Interpretation of the MMPI-2 results
   a. Provide an accurate interpretation of the test taker’s validity scales
   b. Accurately interpret the most significant elevations on the clinical scales
   c. Appropriately utilize available supplementary scales.
   d. Do not omit a test finding simply because it seems embarrassing to discuss.

5. Respond positively and promptly if the client has a question about the interpretation, but do not elicit questions from the client until after you have interpreted the MMPI-2 result.

6. Summary of MMPI-2 results
   a. Briefly summarize the main themes of the interpretation
   b. Ask if the client has any questions—respond to them briefly, but restate or clarify only information already given
   c. Provide recommendations for client

7. Wrap-up
   a. Give the clients the questionnaire packet, provide instructions regarding where to put the completed questionnaires; let them know that they can leave after they are finished with the questionnaires

**Session 3**

1. Greeting/brief conversation

2. Overview of final session
   - “This is the last time that we will be meeting. You may have had the chance to think about your test feedback over the past two weeks. Do you need any more information from me or have any questions regarding the results of your test?
   - Provide requested information and answer any questions the client may have, but clarify only information already given; refrain from processing how the client feels about the information; accept his or her reactions with interest, but only explore markedly negative reactions.

3. Correct any misunderstandings
4. Remind the participant that a brief written report of the results will be placed in his or her file at ________________.

5. Give the clients the questionnaire packet, provide instructions regarding where to put the completed questionnaires; let them know that they are finished with the study and can leave after they are finished with the questionnaires.

6. Thank them for their participation in the study.
   a. Inform them that in appreciation for their participation in the study, they will be entered into a drawing to win one of three $50 gift certificates.
   b. Have them fill out an entry form for the gift certificates.

7. Terminate
Appendix H

Control Attention-Only Protocol

Session 1

1. Build rapport with participant
   - Greet participants with a smile; introduce yourself; then direct them to the designated room, inviting them to sit where they please
   - Make relevant, task-oriented small talk (e.g., any trouble finding the office?, comments about the weather)
   - Listen attentively, with genuine concern throughout the session

2. Informed consent & confidentiality
   - Acknowledge the participant’s awareness of being in the study, and set the stage for the three sessions. (For example, “Thank you for agreeing to participate in this research study. Today’s meeting will last about 45 minutes, and you and I will work together in coming up with three to five questions that you would like to have answered from the assessment. I’ll explain this more later. After we meet today, you will take a personality test and a few other questionnaires. Then, in the second meeting, we will meet and you can add or clarify any questions you want to have answered about yourself. Finally, in the third meeting, you will fill out some questionnaires. After completing the questionnaires, you will be provided with feedback about your personality results, if you want. How does that sound?”)
   - Discuss confidentiality and the limits of confidentiality; check in with the participant to make sure they understand the term confidentiality
   - Inform the participant that all sessions will be audiotaped in order to facilitate the counselor’s training.
   - Explain that if the participant wants to share information from his or her personality measure with his or her therapist, place a report of the results in his or her file at Meridian Services, or allow the researcher to obtain his or her clinical diagnosis they will need to sign a release of information form. Explain to the participant that he or she has the right to clarify what information they are consenting to have shared between the researcher and Meridian Services (e.g., they can give permission for us to obtain their diagnoses and/or they can consent for their personality results to be released to their therapist/Meridian Services). Inform the participant that he or she can rescind his or her permission at any time. Explain what occurs if the participants rescind their permission (i.e., no further information will be shared between you and the therapist; however, if a report has already been place in his or her file, it cannot be removed). Inform the participant that he or she may still participate in the study if he or she chooses not to release his or her personality results to his or her therapists/Meridian Services or his or her diagnoses to the researcher.
• Ask the participant if they have any questions and/or concerns regarding their participation in the study
• Obtain written and verbal informed consent from the participant

3. Introduce the initial interview:
   a. Introduce the initial interview as a time when the counselor will gather information in order to better understand the participant and their current situation; explain that the information will help the counselor better interpret and understand the results from the personality measure the participant will take

4. Help the participant frame questions to be addressed by the assessment:
   a. “The MMPI-2 is a test that assesses personality characteristics and emotional functioning. With this in mind, what would you like to learn about yourself form this assessment?”
   b. Try to come up with three to five questions/goal areas with the client
   c. Record the three to five questions verbatim.
   d. Try to reframe questions about specific causes of things (e.g., “How do I relate to others?” rather than “Why am I bad at relationships?”)
   e. If the participant is having trouble coming up with questions, ask what they are seeing their therapist for, in order to spark some ideas

5. Gather background and current information from participant
   a. Explore only background information relevant to the participant’s questions/goal areas, not general background
   b. For example, when did a problem begin? Are there situations in which it is more frequent or intense, less so, or totally absent? How has the participant tried to address the problem? Did the client’s solution work, and if so, why did the participant stop using the solution? What are the client’s hypotheses about the source and continuance of the problem? Does the participant know anyone else who has had similar problems?
   c. Assess for risk factors
      i. Current or past suicidal or homicidal ideation, plan, or intent
      ii. Current or past drug and/or alcohol abuse
      iii. Current or past abuse (physical, verbal, emotional, and sexual)

6. If the participant is not participating fully, inquire about the client’s reservations about the assessment.

7. Restate the assessment questions:
   • Invite the participant to modify the questions
   • Invite the participant to pose further questions as they arise

8. Review the “contract” for assessment (summarize the procedures to be followed and responsibilities of participant and assessor):
• “It is my understanding that you will be taking the MMPI-2 immediately after our meeting today. After that, you will meet with me on __________ (one week later) to clarify or add questions that you would like to be answered by the personality measures. Finally, we will meet on __________ (two weeks later) when you will fill out some questionnaires.”

Session 2

1. Greeting/Brief Conversation/Process Reactions to MMPI-2
   • Begin the interview by referring to the MMPI-2. Ask about the client’s reaction to taking the test. Accept his or her reactions with interest, but only explore markedly negative reactions.

2. Provide overview of the session:
   a. Indicate that today you will asking if the client would like to clarify or add questions to be considered in the assessment and then you will have them complete some forms (“We will spend our time together clarifying and adding to the questions that you came up with last week. After we meet, you will fill out a few forms) and then say: “During our last meeting, you came up with ___ questions. Let’s review those questions and then we’ll see if you would like to clarify any of those questions or add other questions that you would like answered by the personality measure you took last week.”

3. Review the questions that you and the participant developed during the last meeting.
   a. Ask if the participant is still interested in having those questions answered.
   b. Ask if the participant would like to clarify or make changes to any of those questions. Assist participant in clarifying questions.
   c. Write down any changes made to the previously developed questions verbatim.

4. Ask if the participant has any additional questions that he or she would like answered.
   a. Record the questions verbatim.
   b. Try to reframe questions about specific causes of things (e.g., “How do I relate to others?” rather than “Why am I bad at relationships?”)

5. Wrap-up
   a. Give the clients the questionnaire packet, provide instructions regarding where to put the completed questionnaires; let them know that they can leave after they are finished with the questionnaires
Session 3

1. Greeting/brief conversation

2. Overview of final session
   - “This is the last time that we will be meeting. During this meeting, you will begin by filling out some brief forms. After you finish filling out the forms, I will be available to provide you with feedback about the results of the personality measure you took during our first meeting. If you do not want the results, you are finished with this study and you may leave. However, if you want answers to the questions you came up with in our first two meetings, I will meet with you after you finish filling out the forms.”

3. Ask the participant if he or she would like to have you give them the results of the personality measure.

4. Remind the participants that a brief written report of the results will be placed in their file at ____________________.

5. Give the clients the questionnaire packet, provide instructions regarding where to put the completed questionnaires.

6. If they do not want their results, let them know that they are finished with the study and can leave after they are finished with the questionnaires.
   a. Thank them for their participation in the study.
   b. Inform them that in appreciation for their participation in the study, they will be entered to win three $50 gift certificates. Have them fill out an entry form for the gift certificates.

7. If they want their results, inform them where you will meet after they are finished with the questionnaires.

8. Introduction to the MMPI-2
   a. Explain the rationale for administering the MMPI-2
   b. Describe what the MMPI-2 is and how widely it is used
   c. Describe how the MMPI-2 works—psychometrics in lay terms
   d. Describe how the validity scales work

9. Interpretation of the MMPI-2 results
   a. Provide an accurate interpretation of the test taker’s validity scales
   b. Accurately interpret the most significant elevations on the clinical scales
   c. Appropriately utilize available supplementary scales.
   d. Do not omit a test finding simply because it seems embarrassing to discuss.
10. Respond positively and promptly if the client has a question about the interpretation, but do not elicit questions from the client until after you have interpreted the MMPI-2 result.

11. Summary of MMPI-2 results
   a. Briefly summarize the main themes of the interpretation
   b. Ask if the client has any questions—respond to them briefly, but restate or clarify only information already given
   c. Provide recommendations for client

12. Correct any misunderstandings

13. Terminate
   a. Thank the participant for his or her participation in the study
   b. Inform them that in appreciation for their participation in the study, they will be entered into a drawing to win one of three $50 gift certificates. Have them fill out an entry form for the gift certificates.
### Appendix I

Interactive Feedback Condition Checklist

**Session 1—Initial meeting**

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1. Acknowledge the participant’s awareness of being in the study, and give a brief overview of the participant’s involvement in all three sessions of the study.

***Numbers 2 through 5 can occur in any order***

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2. Explain monetary incentive ($1.00—1st session; $2.00—2nd session; $5.00—3rd session)

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3. Discuss confidentiality and the limits of confidentiality

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4. Discuss audiotaping sessions

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5. Discuss release of information

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   - Ask for consent to share results/consult with participant’s therapist

   - Ask for consent to place a written copy of the participant’s personality results in his or her file at ____________.

   - Ask for consent to obtain the participant’s diagnosis.

   - Explain that participant may rescind his or her permission to release information at any time, but that any actions taken cannot be reversed (e.g., once written report is placed in the participant’s file, it cannot be removed).

   - Explain risks and benefits of releasing the above information.

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6. Ask the participant if he or she has any questions about the study or his/her participation in the study.

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7. Obtain informed consent (written and verbal)

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8. Complete demographic form (**stop at question 7**)
9. Introduce the initial interview from a collaborative perspective. For example: “I see myself as a consultant to you and your therapist at ____________. I hope to help you better understand what your situation is now. I will be asking you about yourself so I can understand your three to five assessment questions, and I’ll answer any questions you have about me, the testing, or the feedback session that you will have. Okay?

10. Assist the participant in developing three to five questions they would like answered by the assessment.

11. Gather background and current information from client. Explore only information relevant to the participant’s questions/goal areas, not general information.

12. Assess for risk factors

   Yes   No
   Current or past suicidal or homicidal ideation, plan, or intent

   Yes   No
   Current or past drug and/or alcohol abuse

   Yes   No
   Current or past abuse (physical, verbal, emotional, and sexual)

   Yes   No
   Current or past psychotic symptoms

13. Ask about participant’s past assessment experiences. Finish completing the demographic form (questions 8, 9, and 10).

14. Restate the assessment questions.

15. Invite the participant to modify the questions.

16. Review the “contract” for assessment (summarize the procedures to be followed and responsibilities of participant and assessor): “It is my understanding that you will be taking the MMPI-2 immediately after our meeting today. After that, you will meet with me on __________ (one week later) for the feedback session, and then again on __________ (two weeks later) when you will fill out some questionnaires.”
### Interactive Feedback Condition Checklist

**Session 2—Feedback session**

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<td><strong>1.</strong> Provide overview of the session: Indicate that today you will be sharing the results of the MMPI-2 (“We have about 45 minutes to go over the results of”) and then say: “I will begin the interpretation by giving you some information about the test and the scales, but I want to involve you as much as possible in relating these results to your own life. I look forward to our working together on what the findings of the test might mean to you.”</td>
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<td><strong>2.</strong> Emphasize the collaborative nature of the relationship, and encourage participation throughout the session.</td>
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<td><strong>3.</strong> Ask the participant if he or she can recall the three to five assessment questions developed in the first meeting. Ask “Do you remember those three (or the specific number) questions we came up with last week? What are they?” <strong>Have the participant try to recall the questions first before reading the questions to him or her.</strong></td>
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<td><strong>4.</strong> Ask the participant if he or she has want to modify the questions or add any questions.</td>
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<td><strong>5.</strong> Frame the MMPI-2 as communication from the client (“I look at the test as a source of information from you. It’s another way of letting me know what is going on with you.”)</td>
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<td><strong>6.</strong> Explain that the participant will be asked to verify the findings.</td>
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<td><strong>7.</strong> Ask about the participant’s reactions to taking the MMPI-2.</td>
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<td><strong>8.</strong> Ask about the participant’s feelings in anticipation of the interpretation.</td>
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<td><strong>9.</strong> <strong>Introduction to the MMPI-2</strong></td>
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<td><strong>Yes</strong></td>
<td><strong>No</strong></td>
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<tr>
<td><strong>Explain the rationale for administering the MMPI-2 (e.g., why we gave them the MMPI-2)</strong></td>
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<tr>
<td><strong>Yes</strong></td>
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<tr>
<td><strong>Describe what the MMPI-2 is and how widely it is used (e.g., it is the most widely used psychological measure; published in over 115 languages; been around since the</strong></td>
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</table>
Describe how the MMPI-2 works—psychometrics in lay terms. Explain that most people will score around this line (50) typically; when people score above this line (65) it usually indicates areas of concern.

Describe how the validity scales work (e.g., “These scales show us how you approached the test,” “...how you interacted with the measure.”)

10. Interpretation of the MMPI-2 results

Provide an accurate interpretation of the test taker’s validity scales. Discuss the following scales: VRIN (e.g., if they answer the items consistently), F (e.g., level of distress), L (e.g., if they were defensive or guarded or answered openly), and K (e.g., personal resources to cope with their problems).

Give a brief summary of the validity scales—together how did you respond to the test (e.g., openly and honestly; overreporting; guarded)

Begin with a positive finding

11. After each MAJOR finding (i.e., after every fourth or fifth feedback item on a related area), ask the participant to verify or modify the findings

12. Ask the client to give at least one, preferably two, examples for each major finding in the interpretation (i.e., after every fourth or fifth feedback item)

13. Discuss each example and: 1) its implications (if it seems to reflect an accurate understanding); or 2) a gentle correction plus its implications (if it seems off the mark in some way)

14. Relate the findings back to the participant’s three to five questions.

15. After interpretation of the results, ask if the participant has any questions.
16. Ask the **participant to summarize the session**: “We’ve talked about quite a bit today. Can you summarize for me what specifically you learned?

17. Ask if there are any other questions.

18. Review the “contract” for assessment (summarize the procedures to be followed and responsibilities of participant and assessor): “It is my understanding that you and I will meet again on __________ (two weeks later) and you will fill out some questionnaires.”
### Appendix J

#### Delivered Feedback Condition Checklist

**Session 1—Initial meeting**

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
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<tr>
<td>1. Acknowledge the participant’s awareness of being in the study, and give a brief overview of the participant’s involvement in all three sessions of the study.</td>
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***Numbers 2 through 5 can occur in any order***

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
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<tbody>
<tr>
<td>2. Explain monetary incentive ($1.00—1&lt;sup&gt;st&lt;/sup&gt; session; $2.00—2&lt;sup&gt;nd&lt;/sup&gt; session; $5.00—3&lt;sup&gt;rd&lt;/sup&gt; session)</td>
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<tr>
<td>3. Discuss confidentiality and the limits of confidentiality</td>
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<td>4. Discuss audiotaping sessions</td>
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<td>5. Discuss release of information</td>
<td>Ask for consent to share results/consult with participant’s therapist</td>
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<tr>
<td>Ask for consent to place a written copy of the participant’s personality results in his or her file at ____________</td>
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<td>Ask for consent to obtain the participant’s diagnosis.</td>
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<tr>
<td>Explain that participant may rescind his or her permission to release information at any time, but that any actions taken cannot be reversed (e.g., once written report is placed in the participant’s file, it cannot be removed).</td>
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<tr>
<td>Explain risks and benefits of releasing the above information.</td>
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<tr>
<td>6. Ask the participant if he or she has any questions about the study or his/her participation in the study.</td>
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<td>7. Obtain informed consent (written and verbal)</td>
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<td>8. Complete demographic form (entire form)</td>
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</table>
9. Introduce the initial interview: Introduce the initial interview as a time when the counselor will gather information in order to better understand the participant and their current situation; explain that the information will help the counselor better interpret and understand the results from the personality measure.

10. Complete the standardized questionnaire with the participant (see standardized questionnaire attached)

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<tr>
<th>Yes</th>
<th>No</th>
<th>Relationship status/children</th>
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<td>History of psychological treatment; current treatment</td>
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<td>Psychotropic medication (current and past)</td>
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<td>Family psychiatric history</td>
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<td>Medical history (e.g., last physical; blood work)</td>
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<td>Social support</td>
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<td>Employment status</td>
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<td>Financial status</td>
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<td>Legal history</td>
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<td></td>
<td>Alcohol and drug use</td>
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</table>

11. Assess for risk factors

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<tr>
<th>Yes</th>
<th>No</th>
<th>Current or past suicidal or homicidal ideation, plan, or intent</th>
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<td></td>
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<td>Current or past abuse (physical, verbal, emotional, and sexual)</td>
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<td>Current or past psychotic symptoms</td>
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</table>

12. Review the “contract” for assessment (summarize the procedures to be followed and responsibilities of participant and assessor): “It is my understanding that you will be taking the MMPI-2 immediately after our meeting today. After that, you will meet with me on __________ (one week later) for the feedback session, and then again on __________ (two weeks later) when you will fill out some questionnaires.”
Delivered Feedback Condition Checklist

Session 2—Feedback session

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<tr>
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<th>Yes</th>
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<tr>
<td>1.</td>
<td>Provide overview of the session: Indicate that today you will be sharing the results of the MMPI-2 (“We have about 45 minutes to go over the results of your MMPI-2”) and then say: “I will begin the interpretation by giving you some information about the test and the scales. Then, I will interpret the results for you and I will stop periodically to see if you have any questions. But if you have any questions along the way, feel free to ask them. Hopefully you will find this test feedback to be informative and helpful to you, especially as you work on your concerns in counseling.”</td>
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<td>2.</td>
<td>Ask about the participant’s reactions to taking the MMPI-2.</td>
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<tr>
<td>3.</td>
<td>Introduction to the MMPI-2</td>
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<td></td>
<td>Explain the rationale for administering the MMPI-2 (e.g., why we gave them the MMPI-2)</td>
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<td></td>
<td>Describe what the MMPI-2 is and how widely it is used (e.g., it is the most widely used psychological measure; published in over 115 languages; been around since the 1940s, revised in 1989; over 10,000 research studies—draw upon these studies to help interpret your results)</td>
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<td></td>
<td>Describe how the MMPI-2 works—psychometrics in lay terms. Explain that most people will score around this line (50) typically; when people score above this line (65) it usually indicate areas of concerns</td>
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<td></td>
<td>Describe how the validity scales work (e.g., “These scales show us how you approach the test,” “...how you interacted with the measure.”)</td>
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<tr>
<td>4.</td>
<td>Interpretation of the MMPI-2 results</td>
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<td></td>
<td>Provide an accurate interpretation of the test taker’s validity scales. Discuss the following scales: VRIN (e.g., if they answer the items consistently), F (e.g., level of distress), L (e.g., if they were defensive or guarded or answered openly), and K (e.g., personal resources to cope with their problems).</td>
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<tr>
<td>Yes</td>
<td>No</td>
<td>Give a brief summary of the validity scales—taken all together how did the participant respond to the test (e.g., openly and honestly; overreporting; guarded)</td>
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<tr>
<td>Yes</td>
<td>No</td>
<td>5. After each MAJOR finding (i.e., after every fourth or fifth feedback item on a related area), ask the participant if he or she understands the findings.</td>
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<tr>
<td>Yes</td>
<td>No</td>
<td>6. <strong>Researcher briefly summarizes the main themes of the interpretation.</strong></td>
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<td>Yes</td>
<td>No</td>
<td>7. Ask if the participant has any questions.</td>
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<tr>
<td>Yes</td>
<td>No</td>
<td>8. Provide recommendations for the participant.</td>
</tr>
<tr>
<td>Yes</td>
<td>No</td>
<td>9. Review the “contract” for assessment (summarize the procedures to be followed and responsibilities of participant and assessor): “It is my understanding that you and I will meet again on __________ (two weeks later) and you will fill out some questionnaires.”</td>
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Appendix K

Control Condition Checklist

Session 1—Initial meeting

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<tr>
<td><strong>Yes</strong></td>
<td><strong>No</strong></td>
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<tr>
<td>1.</td>
<td>Acknowledge the participant’s awareness of being in the study, and give a brief overview of the participant’s involvement in all three sessions of the study.</td>
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</tbody>
</table>

***Numbers 2 through 5 can occur in any order***

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<tr>
<td><strong>Yes</strong></td>
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<tr>
<td>2.</td>
<td>Explain monetary incentive ($1.00—1st session; $2.00—2nd session; $5.00—3rd session)</td>
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<tr>
<td>3.</td>
<td>Discuss confidentiality and the limits of confidentiality</td>
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<td>4.</td>
<td>Discuss audiotaping sessions</td>
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<tr>
<td>5.</td>
<td>Discuss release of information</td>
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<tr>
<td>6.</td>
<td>Ask for consent to share results/consult with participant’s therapist</td>
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</table>
| 7. | Ask for consent to place a written copy of the participant’s personality results in his or her file at ____________.
| 8. | Ask for consent to obtain the participant’s diagnosis. |
|   | Explain that participant may rescind his or her permission to release information at any time, but that any actions taken cannot be reversed (e.g., once written report is place in the participant’s file, it cannot be removed). |
|   | Explain risks and benefits of releasing the above information. |
|   | 6. Ask the participant if he or she has any questions about the study or his/her participation in the study. |
|   | 7. Obtain informed consent (written and verbal) |
|   | 8. Complete demographic form (stop at question 7) |
9. Introduce the initial interview from a **collaborative** perspective. For example: “I see myself as a consultant to you and your therapist at _____________. I hope to help you better understand what your situation is now. I will be asking you about yourself so I can understand your three to five assessment questions, and I’ll answer any questions you have about me, the testing, or the feedback session that you will have. Okay?

10. Assist the participant in developing three to five questions they would like answered by the assessment.

11. Gather background and current information from client. Explore only information relevant to the participant’s questions/goal areas, not general information.

12. Assess for risk factors

- Current or past suicidal or homicidal ideation, plan, or intent
- Current or past drug and/or alcohol abuse
- Current or past abuse (physical, verbal, emotional, and sexual)
- Current or past psychotic symptoms

13. Ask about participant’s past assessment experiences. Finish completing the demographic form (questions 8, 9, and 10).

14. Restate the assessment questions.

15. Invite the participant to modify the questions.

16. Review the “contract” for assessment (summarize the procedures to be followed and responsibilities of participant and assessor): “It is my understanding that you will be taking the MMPI-2 immediately after our meeting today. After that, you will meet with me on __________ (one week later) to clarify or add questions that you would like to be answered by the personality measures. Finally, we will meet on __________ (two weeks later) when you will fill out some questionnaires. After filling out those questionnaires, you will be given the opportunity to receive feedback on the personality test you took.”
Control Condition Checklist

Session 2—Researcher Attention

Yes No 1. Provide overview of the session: Indicate that today you will asking if the participant would like to clarify or add questions to be considered in the assessment and then you will have them complete some forms ("We will spend our time together clarifying and adding to the questions that you came up with last week. After we meet, you will fill out a few forms) and then say: “During our last meeting, you came up with ___ questions. Let’s review those questions and then we’ll see if you would like to clarify any of those questions or add other questions that you would like answered by the personality measure you took last week.”

Yes No 2. Ask about the participant’s reactions to taking the MMPI-2.

Yes No 3. Review the questions that you and the participant developed during the last meeting.

Yes No 4. Ask the participant if he or she has want to modify the questions or add any questions.

Yes No 5. Review the “contract” for assessment (summarize the procedures to be followed and responsibilities of participant and assessor): “It is my understanding that you and I will meet again on __________ (two weeks later) and you will fill out some questionnaires. After filling out those questionnaires, you will be given the opportunity to receive feedback on the personality test you took.”
Appendix L

Informational Letter to Therapists at Data Collection Sites

To: Meridian Services’ therapists
From: Sera Gruszka, M. A.
Subject: Free MMPI-2 testing for clients

I would like to inform you of an exciting opportunity for you and your clients. Over the next few months, your clients will be able to take the MMPI-2, and receive a test feedback session and a written report free of charge. The MMPI-2 is the most frequently used and researched personality measure in the world. Results can provide valuable information to assist you with diagnostic questions, treatment planning, and therapeutic progress.

This opportunity is part of a Ball State doctoral research study examining the moderating effects of information processing style on test feedback in which I am the lead researcher. Your clients will be given the MMP-2 and asked to fill out other surveys throughout their involvement with this study.

Accumulated research on MMPI-2 test feedback shows that clients experience several benefits. They experience decreased symptoms, and increases in hope and self-esteem. Short-term benefits found for the counseling process include improved therapeutic alliance between the client and counselor.

The results of the MMPI-2 will be provided to you through the written report, which will be kept in the client’s file. The researcher who provides test feedback to your client will also be available to consult with you and answer any questions you may have after your client completes the study.

Your client will receive one dollar after completion of the initial meeting, two dollars after completion of the second meeting, and be entered into a drawing for $50 gift certificate to Walmart after completion of the third meeting. Your client will have a 1 in 40 chance of winning the gift certificate.

If you have any clients you would like to refer, please provide them with an informational sheet located at the front office. If a client expresses interest in receiving the MMPI-2, please use the scheduling form located in the front office to assist him or her in scheduling an initial appointment. I will contact the client 24-hours prior to the appointment to remind him or her of the meeting. Aside from discussing this opportunity with your clients and signing them up for an initial appointment, no additional time or work is required of you.

I sincerely hope you and your clients are able to benefit from this opportunity. Please contact me or Dr. Spengler if you have any additional questions.

Sera Gruszka, M.A., Doctoral Student
Department of Counseling Psychology
Ball State University, TC 622
Muncie, Indiana 47306
(260) 348-1590

Paul M. Spengler, Ph.D. HSPP
Department of Counseling Psychology
Teachers College 622
Muncie, Indiana 47306
(765) 285-8040
Appendix M

Informational Letter to Potential Participants

Dear client,
Hello, my name is Sera Gruszka and I am a doctoral student in the Counseling Psychology program at Ball State University. I am conducting a research study on test feedback and am seeking volunteers for my study. Your time in this study will give you valuable information about yourself. You will also help counselors learn about how to better help other people.

You have the opportunity to participate in a study in which you will take a well-known personality measure, called the Minnesota Multiphasic Personality Inventory – II (MMPI-2). Your MMPI-2 results can help you and your therapist in your treatment at Meridian Services. You will be given the personality measure and receive feedback regarding the results by a researcher free of charge. These services are free, but would normally cost approximately $300.

By participating in this research study, you will be able to learn more about yourself and use this information with your therapist to work on your goals in counseling. If you choose to participate, you can expect to spend about 5-6 hours on the study, spread out over three separate meetings. Your therapist will be given the results of the MMPI-2 to help you in your counseling.

You will receive one dollar after completion of the initial meeting, two dollars after completion of the second meeting, and be entered into a drawing for $50 gift certificate to Walmart after completion of the third meeting. You will have a 1 in 40 chance of winning the gift certificate.

Your participation is the study is completely voluntary, and you may choose to withdraw from the study at any time. If you choose not to participate, or if you choose to withdraw from the study, it will not affect your treatment at Meridian Services. Data collected from you will be confidential. This means the results of this study may be published, but your name and any other identifying information will not be used in the reported findings.

If you would like to participate, please tell your therapist and they will schedule an initial appointment with a researcher for you. I will then call you 24 hours before your initial appointment to remind you of the meeting. If you have any questions, please e-mail me at sagruszka@bsu.edu or call me at 765-285-8040. You also can call Dr. Spengler, my research supervisor, at the phone number below.

Sera Gruszka, M.A., Doctoral Student
Department of Counseling Psychology
Ball State University, TC 622
Muncie, Indiana 47306
(765) 285-8040

Paul M. Spengler, Ph.D. HSPP
Department of Counseling Psychology
Teachers College 622
Muncie, Indiana 47306
(765) 285-8040
Appendix N

Participant Contact Form

Date of initial contact: ______/_____/_____

Client Contact Information:
Client’s name: __________________________________________
Phone number(s):________________________________________
  Ok to leave a message? Yes  No
E-mail address: __________________________________________

Test Administration/Initial Session:
MMPI-2 administration is scheduled for:
________________________ at _________ a.m./p.m.
(day of the week)  (date)  (time)

Length of initial session:
From: __________ a.m./p.m. to __________ a.m./p.m.

Feedback Session:
Feedback session is scheduled for:
________________________ at _________ a.m./p.m.
(day of the week)  (date)  (time)

Length of feedback session:
From: __________ a.m./p.m. to __________ a.m./p.m.

Follow-up Session:
Follow-up session is scheduled for:
________________________ at _________ a.m./p.m.
(day of the week)  (date)  (time)

Length of follow-up session:
From: __________ a.m./p.m. to __________ a.m./p.m.

Additional client contact:

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<th>Date</th>
<th>Reason for contact</th>
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Appendix O

Informed Consent---Experimental Group

Study Participant Informed Consent Form

Personality Test Feedback Study

Introduction: You are invited to be a part of a research study looking at personality test feedback. This is a chance for you to learn more information about yourself. This new information may help you and your therapist work on the issues that brought you to counseling. It will also help many other therapists understand how best to help their clients in counseling. You will receive one dollar after completion of the initial meeting, two dollars after completion of the second meeting, and be entered into a drawing for $50 gift certificate to a local store after completion of the third meeting. You will have a 1 in 40 chance of winning the gift certificate.

Your Involvement: The only requirements for you to be in this study are you must be receiving services from Meridian Services, be 19 years of age or older, and read at an eighth-grade level. Additionally, you must be willing to meet with the researcher three times over four weeks. Your involvement in this research project would include seeing the researcher for two individual interviews and a third follow-up session. You will also fill out several surveys and forms. You will not be allowed to participate if you are impaired (e.g., drunk, actively psychotic) at any of the meetings with the researcher or if you have been referred for psychological testing by Child Protective Services or any third party independent of Meridian Services.

You will be scheduled to meet with one of seven doctoral psychology trainees who are serving as researchers for this study. You will meet with the same researcher throughout your participation in this study. All the researchers in this study will receive weekly supervision from the lead researcher (Sera Gruszka) and her faculty supervisor (Dr. Paul Spengler), who is a licensed psychologist.

During the first interview the researcher will ask some questions to get to know you better. The researcher will explain the study in more detail and answer any questions you may have. Following the first interview, you will be asked to complete a personality measure. You also will fill out some other forms. One week from the first interview, you will attend a second interview where you will be given the results of the personality measure you took. Following the second interview, you will be asked to complete other forms. They will ask you about the interviews, how you view yourself, and your current level of stress. Two weeks later, after the second interview, you will meet briefly with the researcher and then complete some more forms. These will ask about how at that later time you see yourself and your current level of stress.

Confidentiality, Risks, & Benefits: All of the information collected from you will be kept confidential. This means the information will be stored in a locked cabinet at the place where you meet with the researcher. Any information that could identify who you are will be removed from all permanently stored forms. The results of the study may be published in a scientific journal. It may also be presented at scientific conferences. Your name will never appear in any of these publications. Only group data will be used.

All meetings with the researcher will be audiotaped. These recordings will be used to provide supervision by the supervising researchers. All audiotapes will be kept in a locked cabinet and will only be viewed by the researchers. All audiotapes will be destroyed once the study ends.
You will sign a Meridian Services release of information form if you want us to share the information from the personality measure with your therapist. This will allow the researcher to provide a brief (two-page) written report of your personality results to your therapist as well as place a copy of this psychological report in your client file at Meridian Services. Also, the researcher will be available to talk with your therapist in to explain your personality results. No other information about you or from the other surveys will be shared with your therapist. On the release of information form, you may also indicate whether you give the researcher permission to obtain your clinical diagnosis from your therapist. You may decide to withdraw your permission to release information to your therapist/Meridian Services at any time. If you withdraw your permission, no further information will be shared with or obtained from your therapist, but it will not have any effect on actions already taken by the researcher. Therefore, if the report of your personality results has been placed in your file, the report will not be removed. Once the report is released clinically is becomes part of your file owned by Meridian Services and it cannot be removed from your file. You may still participate in the study if you choose not to release your personality results to your therapist/Meridian Services or your diagnosis to the researcher.

If you express intent to harm yourself or another person, the researcher is required to ensure you or the other person is safe and will contact the appropriate authorities to protect you or other individuals. If you report abuse of a minor or elderly person, the researcher will be required to report minor or elderly abuse to the local Child or Adult Protection Services.

There are possible risks if you participate in this study. There is a small risk that your therapist may have a more unfavorable view of you based on your personality results, which could impact your therapeutic relationship. This is unlikely, however, as therapists are trained mental health professionals. You may feel vulnerable if your personality test results are shared with your therapist. However, this is not likely either as research shows time and time again that sharing personality test results in a therapeutic environment is experienced as positive by both clients and therapists. This study requires participants to explore thoughts and emotions about their personal problems. There is a possibility that a few people who participate in the study will react with some emotion. The researcher who conducts the interviews will be supervised by a licensed psychologist. The researcher will help you and answer any questions you have at any time.

Counseling services can be obtained from Meridian Services (765-288-1928) if you develop uncomfortable feelings during your participation in this research project. You will be responsible for the costs of any care that is provided. It is understood that in the unlikely event that treatment is necessary as a result of your participation in this research project that Ball State University, its agents and employees will assume whatever responsibility is required by law.

There are several potential benefits that can be gained through participation in this study. First, by sharing your personality results with your therapist, it could provide your therapist with information that could assist with the progress of your treatment, assist your therapist in planning your treatment, and deepen your therapeutic relationship as you and your therapist are able to process the information together. Second, you may gain information about your own emotions, thoughts, and behaviors as they relate to your concerns. Third, you are likely to experience less stress. Finally, you will help other therapists better understand the personality test feedback process.

Participation in this study is voluntary. You may stop at any time without it negatively affecting your treatment at Meridian Services. This study asks you to explore sensitive topics (e.g., personal problems). You are free to only participate at a level with which you are comfortable. Please feel free to ask any questions before signing this consent form and beginning the study. You can also ask questions of the researcher during the study. You may also contact either of the supervising researchers at the addresses or phone numbers below.
You can also get information about your rights as a research participant or your rights in research related injuries by contacting the following:

Institutional Review Board
Ball State University
Muncie, IN 47306
(765) 285-5070
irb@bsu.edu

I, (print your name) _____________________________, agree to participate in this study entitled, “Personality Test Feedback.” I have had the study clearly explained to me and any questions I have were answered to my satisfaction. I have read this description of the study and give my consent to participate. I understand that I will receive a copy of this consent form to keep for future reference.

_________________________________________  ______________________
Participant’s signature  Date

Principal Researcher:  Faculty Supervisor:
Sera Gruszka, M.A., Doctoral Student  Paul M. Spengler, Ph.D. HSPP
Department of Counseling Psychology  Department of Counseling Psychology
Ball State University, TC 622  Teachers College 622
Muncie, Indiana 47306  Muncie, Indiana 47306
(260) 285-8047  (765) 285-8040
Appendix P

Informed Consent—Control Group

Study Participant Informed Consent Form

Personality Test Feedback Study

Introduction: You are invited to be a part of a research study looking at personality test feedback. This is a chance for you to learn more information about yourself. This new information may help you and your therapist work on the issues that brought you to counseling. It will also help many other therapists understand how best to help their clients in counseling. You will receive one dollar after completion of the initial meeting, two dollars after completion of the second meeting, and be entered into a drawing for $50 gift certificate to a local store after completion of the third meeting. You will have a 1 in 40 chance of winning the gift certificate.

Your Involvement: The only requirements for you to be in this study are you must be receiving services from Meridian Services, be 19 years of age or older, and read at an eighth-grade level. Additionally, you must be willing to meet with the researcher three times over four weeks. Your involvement in this research project would include seeing the researcher for two individual interviews and a third follow-up session. You will also fill out several surveys and forms. You will not be allowed to participate if you are impaired (e.g., drunk, actively psychotic) at any of the meetings with the researcher or if you have been referred for psychological testing by Child Protective Services or any third party independent of Meridian Services. You will be scheduled to meet with one of seven doctoral psychology trainees who are serving as researchers for this study. You will meet with the same researcher throughout your participation in this study. All the researchers in this study will receive weekly supervision from the lead researcher (Sera Gruszka) and her faculty supervisor (Dr. Paul Spengler), who is a licensed psychologist.

During the first interview the researcher will ask some questions to get to know you better. The researcher will explain the study in more detail and answer any questions you may have. Following the first interview, you will be asked to complete a personality measure. You also will fill out some other forms. One week from the first interview, you will attend a second interview where you will review questions that you formed in the first session and clarify or add any other questions you would like answered by the personality measure you took. Following the second interview, you will be asked to complete other forms. They will ask you about the interviews, how you view yourself, and your current level of stress. Two weeks later, after the second interview, you will meet briefly with the researcher and then complete some more forms. These will ask about how at that later time you see yourself and your current level of stress. After completing these forms, you will have the option to receive the results of the personality measure you took.

Confidentiality, Risks, & Benefits: All of the information collected from you will be kept confidential. This means it will be stored in a locked cabinet at the place where you meet with the researcher. Any information that could identify who you are will be removed from all permanently stored forms. The results of the study may be published in a scientific journal. It may also be presented at scientific conferences. Your name will never appear in any of these publications. Only group data will be used.
All meetings with the researcher will be audiotaped. These recordings will be used to provide supervision by the supervising researchers. All audiotapes will be kept in a locked cabinet and will only be viewed by the researchers. All audiotapes will be destroyed once the study ends. You will sign a Meridian Services release of information form if you want us to share the information from the personality measure with your therapist. This will allow the researcher to provide a brief (two-page) written report of your personality results to your therapist as well as place a copy of this psychological report in your client file at Meridian Services. Also, the researcher will be available to talk with your therapist to explain your personality results. No other information about you or from the other surveys will be shared with your therapist. On the release of information form, you may also indicate whether you give the researcher permission to obtain your clinical diagnosis from your therapist. You may decide to withdraw your permission to release information to your therapist/Meridian Services at any time. If you withdraw your permission, no further information will be shared with or obtained from your therapist, but it will not have any effect on actions already taken by the researcher. If you withdraw your permission, no further information will be shared with or obtained from your therapist, but it will not have any effect on actions already taken by the researcher. Therefore, if the report of your personality results has been placed in your file, the report will not be removed. Once the report is released clinically becomes part of your file owned by Meridian Services and it cannot be removed from your file. You may still participate in the study if you choose not to release your personality results to your therapist/Meridian Services or your diagnosis to the researcher.

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Participant’s signature __________________________________________ Date ______________________

Principal Researcher:                                             Faculty Supervisor:
Sera Gruszka, M.A., Doctoral Student                             Paul M. Spengler, Ph.D. HSPP
Department of Counseling Psychology                              Department of Counseling Psychology
Ball State University, TC 622                                    Teachers College 622
Muncie, Indiana 47306                                            Muncie, Indiana 47306
(260) 285-8047                                                  (765) 285-8040
Appendix Q

Effect Sizes for the Main Effects and Interaction Effects of the Present Study

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<th>Effect Sizes for the Main Effects and Interaction Effects</th>
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