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Social Presence and Therapeutic Demands: The Role of Technology in the Therapeutic Alliance

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SOCIAL PRESENCE & THERAPEUTIC DEMANDS:
THE ROLE OF TECHNOLOGY IN THE THERAPEUTIC ALLIANCE

A Dissertation

Presented to

The Faculty of the Graduate School of Social Work

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by

Amy Lopez

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Advisor: Walter LaMendola
Abstract

This research explores whether access to technology mediated resources that expand social presence opportunities during mental health treatment play a role in what therapists report as difficult therapeutic alliance demands. Borderline Personality Disorder (BPD) is a serious mental health problem, characterized by unstable relationships, anger outbursts and impulsive behaviors. People with BPD tend to be high service users and have difficulty remaining in the treatment setting long enough to benefit from treatment services. Treatment studies have found that the therapeutic alliance is a significant contributing factor to successful outcomes; however, the relational and behavioral difficulties inherent among those diagnosed with BPD can make the development and maintenance of a strong therapeutic relationship difficult. As a result, those with BPD are often stigmatized and denied care. To help ensure appropriate access to care and treatment success for this population, those providing treatment for people with BPD need specific tools and techniques for building and managing the therapeutic relationship. One possibility that is gaining popularity in mental health treatments is the use of information and communication technologies as a part of treatment services. However, little is currently known about how the therapeutic alliance is built and maintained through technology mediated communications. To understand the role technology plays in the therapeutic alliance, specifically when there are high demands on the relationship, this research explored how therapists treating persons diagnosed with a
borderline personality disorder might use web-based Internet resources specifically targeted for adjunctive use in therapy. In this study, supportive, Internet based treatment resources for a specific form of evidence based BPD treatment, Dialectic Behavioral Therapy (DBT), were incorporated into a DBT Website and presented in various technology based formats, e.g. video, text, or animations, to intentionally vary and expand the opportunities for social presence between the client and therapist.

A concurrent, mixed methods design was used to deepen understanding of what role social presence and web-based resources play in the therapeutic relationship. The study used a parallel process in which therapeutic alliance, therapist burnout and client outcomes were measured before and after the implementation of the DBT website, using validated measurement tools. At the same time, therapist and client reports were gathered through qualitative techniques during and after the experimental period.

Results indicate that when different opportunities for social presence were available, therapists increased their communication with clients and did not rely solely on face to face encounters as the basis for maintaining the therapeutic alliance. Opportunities for social presence were reported as positive influences on the therapeutic alliance in the areas of client learning and provision of therapeutic support. In addition, therapists reported a reduction in burnout by having additional therapeutic support options available. The study also found that variations in social presence had a positive impact on client outcomes, as indicated by decrease in symptoms. In addition, there was also a statistically significant difference in the impulse control scale during the intervention period that was not present in the non-intervention group.
Implications from this study indicate that variations in social presence and the range of therapeutic tools available for managing therapeutic relationships may result in an improved therapeutic alliance, improved client outcomes and reduced therapist burnout. The exploratory design of this study had several limitations, primarily related to limited ability to link website use directly to client and therapist outcomes. Despite these limitations, this study begins to create a foundation for use of increased opportunities for social presence as a potential support for the treatment alliance.
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Chapter One: Statement of the Research Problem

One of the growing areas of interest in the field of clinical social work is the provision of therapy through technology based treatments (Barak, Hen, Boniel-Nissim, & Shapira, 2008). Practitioners have begun using various forms of technology to provide therapeutic services via the Internet, instant messaging, e-mail, video teleconferencing and cellular phone applications (Robb, 2004). The Internet and related technologies have opened up the possibilities relating to the provision of therapeutic services and has reduced barriers to treatment for many different clients, particularly those in underserved and vulnerable populations (Breen, & Matusitz, 2010; Murphy, Parnass, Mitchell, Hallett, Cayley, & Seagram, 2009; Ross, 2011). While recognizing the potential value of emerging technologies, many social work practitioners and organizations have had hesitations. Some clinicians have been reluctant to adopt the use of technology mediated therapies, in part because there has been a belief that therapeutic alliance cannot be developed or supported without face-to-face contact (Fenichel, et al., 2002). Because there are not the same sensory cues available in mediated environments as there are in face-to-face environments, there is some question as to how key components of the therapeutic alliance, such as warmth, empathy and understanding can be conveyed without access to the same non verbal cues (Germain, Marchland, Bouchard, Guay & Drouin, 2010). This is a valid concern in that therapeutic alliance is an important
component in positive therapy outcomes and has implications to any therapeutic
treatment relationship, regardless of setting (Wampold, 2011).

While the research exploring the impact of use of technology directly on the
therapeutic alliance is only emerging, (Marks et. al, 2009), there is literature about how
relationships in general are impacted by technology mediated communications. *Social
presence* is the theory that explains how relationships are developed and maintained
through a variety of communication methods (Christie, Williams & Short, 1976). Social
presence includes a range of interaction experiences and states that relationships can be
built and maintained regardless of the location of the individuals or the type of
communication method being used (Nowak & Biocca, 2003). Theories of social presence
also support the idea that a variation in communication methods can be used to modify
the kind of connection, increasing the level of interaction and available cues when more
intimacy is desired or decreasing the level of social presence when there is a desire to
interact without direct intrusiveness into the relationship (Rettie, 2009). The research
conducted in this project suggests that because the work between therapist and client is a
*relationship*, theories of social presence would apply. However, little is known as to
whether variations in levels of social presence are applicable to the therapeutic
relationship between mental health therapist and client.

This research explores a specific example of the use of technology as part of the
mental health treatment, focusing on situations when the treatment demands of the
relationship impact the therapeutic alliance. One such situation is when social work
therapists must treat those persons suffering from borderline personality disorder (BPD).
Borderline personality disorder is a condition characterized by patterns of unstable
relationships, anger outbursts, mood labiality, and impulsive behavior, including self-harming acts and repeated suicide attempts (American Psychiatric Association, 2013). Advancements in evidence based mental health treatments (Freeman, Stone & Martin, 2005; Linehan, 2006) and reviews from recent longitudinal studies (Gunderson, et al., 2010) have indicated that Borderline Personality Disorder is treatable and symptoms do decrease over time. However, relationship difficulties are inherent to the disorder and often present a challenge for therapists trying to build a therapeutic alliance to be able to provide treatment (Kernberg, Selzer, Koenigsberg, Carr, & Applebaum, 1989). In fact, these relationship difficulties can be so problematic, that many therapists simply refuse to treat them (Lamph, 2011). In the current study, therapists treating persons diagnosed with a borderline personality disorder engaged in the development and use of a website to determine how the use of a variety of communication methods would impact the therapeutic alliance. Because many therapists struggle to work with those with BPD due to the intensity of the relationship needs, this population was specifically chosen to serve as the proof of concept for this project. This study not only explores the role of technology on the client/therapist relationship, it sets a foundation for understanding whether increased methods of communication make working with these types of clients easier by providing additional tools to therapists and indirect support to clients. If more therapists have the necessary tools to treat people with BPD, there may be an increased willingness to work with this difficult population and improved outcomes for those struggling with this mental health condition. This project not only explores the question of therapeutic alliance and technology, it serves a more significant purpose in potentially providing social justice to a group that is routinely stigmatized and denied care.
Social Presence and Therapeutic Demands: The Problem of Borderline Personality Disorder

The American Psychiatric Association estimates that Borderline Personality Disorder affects approximately 2%-5% of general population, but accounts for up to 10% of those receiving mental health treatment and up to 20% of people in inpatient mental health settings (American Psychiatric Association, 2013). However, recent epidemiological studies place these rates higher, estimating that 5-6% of the general population has Borderline Personality Disorder and people with BPD account for nearly 50% of all psychiatric inpatient admissions (Grant, 2008). While approximately 75% of those diagnosed with BPD are female, men are also affected by this illness, although men are less likely to carry the formal diagnosis (Zlotnick, Rothschild & Zimmerman, 2002). This may be related gender bias in terms of expression of emotion (Linehan, 1993a) or could also be explained by gender differences in help seeking behaviors (Grant, 2008).

The average age of this population ranges from 18-45, though symptoms can be displayed across the lifespan (Gunderson, et al., 2011). Studies indicate that symptoms of BPD are present in all races and ethnicities similarly; however, as some ethnicities are more likely to seek formal mental health treatment than others, minorities diagnosed with BPD are often underrepresented in prevalence studies (Grant, 2008).

BPD is correlated with other mental health illnesses including Major Depression, anxiety, bipolar disorders, eating disorders and substance use disorders (American Psychiatric Association, 2000). Although BPD is typically seen as a mental health issue, those presenting with symptoms of BPD are seen across the spectrum of social work
practice including medical and primary care settings (Aragones, 2012; Sansone & Sansone, 2012;), child welfare (Macfie, 2012) and corrections (Conn, et. al 2010).

**Causes of Borderline Personality Disorder**

Although the exact causes of BPD are not known, genetic factors, biologic factors, environmental factors and psychosocial factors have been associated with risks of development of this disorder (Freeman, Stone & Martin, 2005). There is some disagreement as to how each of these factors may impact the etiology of the illness; most studies indicate that BPD results from a combination of both genetics and environment (Kendler, Myers, & Reichborn-Kjennerud, 2011; Linehan 1993a). In addition, there are also arguments that Borderline Personality Disorder is not a unique disorder, but the symptoms are better explained by other mental health conditions with overlapping symptoms (Lewis & Graner, 2009; Marissen, Arnold, & Franken, 2012; Tyrer, 2009; van Dijke, Ford, Hart, Son, Heijden, & Bühring, 2011).

Twin studies have indicated that there is a strong genetic component for Borderline Personality Disorder, placing heritability rates at 60% to 70% (Kendler, Myers, & Reichborn-Kjennerud, 2011; Torgeson, et. al, 2000). Those with a first-degree relative are five times more likely to develop the disorder (American Psychiatric Association, 2013.) While many of the symptoms of BPD could also be explained by learned behaviors from watching family members interact, twin studies have demonstrated that environment alone does not explain all the BPD symptoms. In one large scale twin study, cognitive distortions, insecure attachments and affect expression were more highly correlated for identical twins than for fraternal twins (Kendler, Myers, & Reichborn-Kjennerud, 2011).
However, in many of the twin studies, the twins were raised in the same environment, confounding environmental and genetic factors, making it difficult to determine an exact reason for symptomology (Torgeson, et. al 2000). Those diagnosed with BPD have an increased likelihood of having a first degree relative with BPD, but the methods of how these traits are passed from a family member to the child are difficulty to delineate (Torgeson). This creates questions about whether the high levels of heritability are actually genetic or are better explained by specific parenting practices, such caregivers who are unable to respond to a child’s needs, or by environmental factors, such as being raised in a violent or abusive home with parents who demonstrate poor affect regulation and lack of impulse control (Stepp, Whalen, Pilkonis, Hipwell, & Levine, 2012).

From a psychoanalytic perspective, the causes of BPD are related to an inability to adequately integrate self and others through the object-relations process (Kernberg, Selzer, Koenigsberg, Carr, & Applebaum, 1989). This inability to individuate to a true self is explained by unresponsive parenting practices (Mahler, 1968). Because the child felt as though needs were unmet, internal and external experiences were never integrated and the person must then rely upon “primitive defense mechanisms.” These may include: splitting – seeing the world as all good or all bad; projective identification – blaming others for characteristics within themselves; and identity diffusion – feelings of chronic emptiness and contradictory or rapidly shifting perceptions of self (Kernberg, et. al, 1989). Because people with BPD were unable to develop these basic attachment skills that are normally developed in infancy and childhood, they are then unable to complete further developmental milestones, including separation/individuation, or the ability to
build core self beliefs about who they are and what they can expect of themselves (Meares, Gerull, Stevenson, & Korner, 2011). These skills deficits continue to play out through the rest of the person’s life, later impacting the ability to function in healthy adult relationships (Fairbain, 1941).

Rather than trying to distinguish the genetic, biologic, intrapsychic and environmental factors, a leading researcher in the area of Borderline Personality Disorder, Marsha Linehan (1993a) combined these factors to develop the biopsychosocial model of explaining borderline personality disorder. She states that people with BPD are born with certain genetic sensitivities, specifically related to how they experience emotions. When these emotions are expressed in an environment that does not validate the emotion, often because the parent themselves do not know how to understand and integrate emotion, the child does not develop the necessary skills for appropriate expression of emotion. When the child does not know how to express emotion in a way that helps get needs met, the child becomes confused and begins to display aggressive, angry or self-injurious behaviors to try and gain attention. When needs are not met, or needs are met only when the child uses inappropriate attention seeking behaviors, the person develops a pattern of dysfunctional behaviors to attempt to receive attention and affection (Linehan, 1993a).

While each of these theories offers some explanation of Borderline Personality Disorder, there has been some question as to whether BPD is actually a disorder. There continues to be ongoing debate about whether BPD is a standalone diagnosis or if the presenting symptoms are better explained by other mental health conditions or environmental situations. Almost all people diagnosed with BPD have at least one co-
morbid Axis I diagnosis (Gunderson, et. al 2011; Zanarini, Jacoby, Frankenburg, Reich, & Fitzmaurice, 2009), but these Axis I symptoms do not necessarily provide a complete explanation of symptoms. However, there are some conditions that present with similar symptoms that have garnered some attention in relation to questions of accurate diagnoses. The first of these is complex trauma, beyond what would be typically known as Post Traumatic Stress Disorder. Eighty-five to ninety percent of people diagnosed with BPD report some type of trauma history (Grant, 2008). As a result of early trauma, some children may develop strategies to help them survive a violent childhood. While initially serving as protective factors, these same behaviors can become dysfunctional patterns of unhealthy coping strategies as the child moves into adulthood (Herman, 1992). Victims of trauma are often invalidated by the abuse, receiving mixed messages of love and violence. Attachments are confusing, as the child may hate the abuser and want to retreat, but is still reliant upon that adult for care of basic needs. Children from abusive homes are also unable to learn appropriate expression of emotion, as valid feelings are often invalidated, such as when a child is chastised for being frightened of the abuser. When all of these factors are considered in combination with the physiological impacts trauma has on brain development, it is hypothesized that those diagnosed with BPD are actually suffering with a complex and compounded form of post traumatic stress disorder, not a distinct problem with the development of personality (van Dijke, Ford, van der Hart, van Son, van der Heijden, & Buhring, 2012).

A second confounding diagnosis is that of mood disorder. The frequently changing moods, changes in perceptions of self and lack of impulse control seen in those with Borderline Personality Disorder can also be explained by manic or depressive
symptoms (Tyrer, 2008). Because these symptoms are similar in both conditions, it can be very difficult to differentiate what may be the cause of certain behaviors. In one study of people diagnosed with Borderline Personality Disorder, all participants received Dialectical Behavior Therapy and were then randomly assigned to receive either Divalproex, a medication that is commonly used in the treatment of bipolar illnesses, or a placebo medication. All of the participants in this study had symptom improvement after receiving Dialectical Behavior Therapy, but there were no differences in symptoms between the medication and placebo groups. The authors concluded that this indicates that many of the symptoms presented were not due to bipolar illness, but better explained by Borderline Personality Disorder (Moen, et. al, 2012). While the relationship between bipolar and BPD is not clear because many of the symptoms are similar, it can be difficult to even differentiate whether the symptoms do indeed exist separately or if they are part of the same disorder (Tyrer). However, there are some distinct differences. For those with bipolar disorder, emotional regulation and impulsive behaviors change based upon mood cycles while symptoms of BPD are relatively stable over the course of several years (Bassett, 2012). In addition, bipolar illnesses tend to respond to medications, while the symptoms of Borderline Personality Disorder are less responsive to psychopharmalogical interventions (Moen, et. al; Silk, 2011). While bipolar disorders may exist comorbidly and present with similar challenges in treatment, questions remain as to whether mood disorders and BPD are unique diagnoses and should be treated as such (Bassett, 2012).

Beyond bipolar symptoms, there have been other explorations of mood related to BPD, specifically around the role of anhedonia and dysthymia. Brain imaging and
biofeedback studies have demonstrated that previous theories that state people with BPD are more emotionally sensitive and overreact to emotional experiences may be incorrect. Rather, those with BPD may in fact struggle with under arousal of emotions, specifically as it relates to the ability to feel pleasure or joy (Herpertz, Kunert, Schwenger, Eng, & Sass, 1999; Marissen, Arnold, & Franken, 2012; Salsmen & Linehan, 2012; Vitale & Newman, 2012). In one study, people with BPD were shown a variety of photos intended to evoke an emotional response. The BPD group had physiological responses to negative pictures similar to the responses of those in the control group. However, when shown pictures that related to happy or joyous occasions, the BPD group frequently had no emotional response at all, much like the response from the control group when shown neutral objects or photos (Herpertz, Kunert, Schwenger, Eng, & Sass, 1999). A similar study was conducted related to startle response and negative affect expression. Again, negative photos elicited no different responses than those of the control group, but positive images were different from the control group, with many of the participants actually reacting to positive images with startle responses and negative emotions (Vitale & Newman, 2012). This inability to correctly ascribe meaning to what others would describe as positive experiences or express joy at positive life events significantly impacts the ability of those with BPD to interact with others or find hope for the future (Marissen, Arnold, & Franken, 2012). Because people with BPD cannot express the full range of emotions including positive ones, they tend to focus only on the negative emotions, which then impact all other areas of their functioning (Salsman & Linehan, 2012).

**Consequences of Borderline Personality Disorder**
Suicide and Self-Injury

One of the most serious consequences of Borderline Personality Disorder is suicide, suicide attempts and chronic suicidal ideation. Suicidal ideation is common with this illness, and prevalence studies indicate that about 10% of people with BPD will die by suicide (Maddock, Carter, Murrell, Lewin, & Conrad, 2010). Suicidal ideation and suicide attempts within this population are typically a method of communicating distress, with one study revealing 60% of people with BPD hospitalized after a suicide attempt had no wish or intent to die, but rather knew of no other method to receive help or to escape from overwhelming emotions (Maddock, Carter, Murrell, Lewin, & Conrad, 2010). Those with BPD are likely to be hospitalized multiple times because of suicide attempts, making this population high users of inpatient services (Judd & McGlashan, 2003). Even after hospitalization and treatment, it is not uncommon for people with BPD to have ongoing chronic suicide ideation and continuing attempts. When suicide does occur, there have typically been several previous attempts (Paris, 2002).

In addition to suicide attempts, self injury can be another method of communicating emotional distress. Approximately 75% of people diagnosed with BPD have self injurious behaviors (Maddock, Carter, Murrell, Lewin, & Conrad). These parasuicidal acts are a non-lethal forms of self-injury, which may include cutting on oneself, burning oneself or causing other forms of injury without any intent to die (Linehan, 1993a). While there may be several reasons for engaging in self harm, including an expression of emotional distress, incidents of self-harm, and the underlying motivators can often be overlooked by providers unless there is a serious medical complication (Lamph, 2011). If the self-injury serves to as a way to ask for help, but the
provider response is punitive, the self-injury incident can exacerbate symptoms of loneliness and guilt, which may lead to ongoing patterns of self-harm and self-injury (Maddock, Carter, Murrell, Lewin, & Conrad, 2010).

Violence and Impulsivity

Because anger, impulsivity and inability to effectively modulate expressions of emotion are core components of the BPD diagnosis, those with BPD are prone to anger outbursts and acts of violence. In a multi-site study of people who had received inpatient psychiatric care and had been diagnosed with BPD, 73% of the sample had engaged in some type of violent act within the one-year study time frame (Newhill, Eack, & Mulvey, 2009). While anger and destruction are often directed inward through acts of self harm, there are times when people with BPD act out with verbal aggression, physical aggression or acts of vandalism (Freeman, Stone & Martin, 2005). The jail system has seen an increase in people with BPD, with between 15-30% of the prison population carrying a BPD diagnosis (Conn, et. al, 2010).

Loss of relationships

The symptoms of BPD not only affect the client, but can also impact the family as well (Hersh, 2008). The constant vacillation between aggressive outbursts and intense dependency needs, coupled with chronic threats of suicide and self-harm can impact the relationships of those with BPD (Gunderson, et. al, 2011). Frequently, friends and family members cannot tolerate the strong emotions or wild behaviors and distance themselves. Or, fearing a potential abandonment, the client will leave or disrupt the relationship before abandonment can occur (Kernberg, et. al, 1989). Demographics of this population indicate that of people diagnosed with BPD, of those who had been in a relationship, 65-
70% are either divorced or separated from their partners (Grant, 2008). These relationship difficulties may also be carried out in the workplace, often resulting in struggles to maintain employment (Zanarini, Jacoby, Frankenburg, Reich, & Fitzmaurice, 2009).

_Economic Factors and Service Use_

While suicide and self-injury may have significant emotional costs to the patients and their families, there are also economic costs associated with treatment of this population. A study of costs related to service use demonstrated that for those with BPD, direct costs for treatment and hospitalization were nearly $14,000 per client for a one year period (Soeteman, Hakkaart-van Roijen, Verheul, & Busschbach, 2009). Other studies have put direct costs for treatment at between $8000 and $17,000 yearly per client (Linehan, 2000).

Other than direct service costs, there are also other associated costs, such as loss of productivity and use of government assistance. Although studies have indicated that Borderline Personality Disorder is treatable and symptoms do decrease over time, while feeling better, many clients with BPD are unable to regain functional abilities, such as returning to work (Gunderson, et. al, 2011). In fact, those clients with BPD are three times more likely than people with other Axis II diagnoses to receive and remain on disability benefits over time. When compared to people with only Axis I diagnoses including depression, bipolar and anxiety disorders, those with BPD were twice as likely to consider themselves permanently disabled and in need of remaining on government assistance (Zanarini, Jacoby, Frankenburg, Reich, & Fitzmaurice, 2009).
Beyond mental health care, those with BPD are also more likely to use medical services than those not diagnosed with BPD. People diagnosed with BPD were more likely to have chronic pain and be less responsive to traditional pain management techniques, requiring more appointments and further testing than the general population (Sansone & Sansone, 2012). Even in primary care settings, patients with BPD had twice as many appointments with their primary care doctor than the general population (Aragones, et. al, 2012).

**Therapist Burnout**

While these consequences pose serious threats to the clients and the community as a whole, there are also consequences to the mental health workforce. The constant burden of attempting to engage uncooperative and resistant clients or clients who are frequently suicidal or angry, can lead to therapist burnout (Linehan, Cochran, Mar, Levensky, & Comtois, 2000). Because BPD is a relationship based disorder, the client frequently uses the therapist as his or her primary relationship to express and integrate emotions. During the course of therapy, the client may idealize the therapist and believe the therapist is kind, loving and only wants to help. However, this viewpoint may rapidly shift and the therapist may also be viewed as uncaring, unskilled and cannot adequately respond to the client’s most basic needs (Kernberg, et. al, 1998). If the therapist is not adequately meeting the client’s needs, the clients may increase their distress signals to the therapist, by increasing threats of self-harm or anger outbursts (Linehan, 1993a). This often forces the therapist to react to the situation, which then negatively reinforces anger, suicide and self-harm as appropriate attention seeking behaviors (Paris, 2002). This ongoing process of idealization and devaluation of the therapist, in combination with the
constant stress of worrying about the client’s safety creates a “no-win” situation and a constant feeling of inadequacy and failure in helping these clients (Rizq, 2012).

As a result of these difficult behaviors, lack of understanding surrounding self-injurious acts and misconceptions about prognosis for treatment, many practitioners do not want to deal with people diagnosed with borderline personality disorder (Hersh, 2008). Many therapists will openly acknowledge actively avoiding or disliking BPD clients (Gunderson, et. al, 2011) and if forced to work with someone who is angry or self-injures, the provider may treat the client with anger or punitive responses (Lamph, 2011). Even if therapists willingly take on a borderline patient and have a strong desire to help, many therapists report feeling unsatisfied in their therapeutic role and ability to make changes, often feeling more negative toward clients with BPD than their other clients and (Bourke, & Grenyer, 2010).

Much of this burnout relates to feelings of helplessness and lack of understanding about suicide and self-harm (Lamph, 2011). In a qualitative study by Maddock, Carter, Murrell, Lewin, & Conrad, (2010), medical and mental health professionals working in emergency rooms and inpatient hospitals treating people with suicide and self-injury, many of the providers stated they believed suicidal threats and self-injurious acts were not an expression of despair, but rather a manipulative method to gain control, influence others, force hospitalization, or communicate hostility. These providers expressed anger at treating self-inflicted injuries. These providers also stated their concerns that, upon release, the client may do the same thing again. However, when the patients in the same study were questioned about their motives for self-harm, the patients reported their motivation was to communicate distress or relieve overwhelming emotional pain.
Although some clients acknowledged using the acts to gain attention from significant others or the mental health system, all were also able to relate the incident to some type of strong and intolerable negative emotion. Findings from this study indicate that the motives and intentions behind self-harm vary greatly depending on who is asked (Maddock, Carter, Murrell, Lewin, & Conrad, 2010). Regardless of how the act is viewed by either party, the ongoing struggles of managing suicidal behaviors require patience, compassion, confrontation and the ability to tolerate the client’s distress, all of which can take a toll on the therapist (Linehan, 1993a).

*Premature termination from treatment*

When therapists become overwhelmed and frustrated, they may discharge a patient from treatment. Alternatively, the client may also sense the anger, frustration and feeling as though the therapist cannot help them, and will terminate treatment. The rate for discontinuation of treatment is higher among BPD than other mental health populations, with dropout rates ranging from 30% to 65%, depending upon a number of client and therapist factors. Each treatment termination resulted in further service use as a client had to “start over” with a new provider (Barnicot, Katsakou, Marougka, & Priebe, 2011). Use of evidence based treatments and therapist supervision around management of these clients has been shown to improve a therapist’s ability to work with difficult patients (Bedics, Atkins, Comtois, & Linehan, 2012). Those therapists who were able to engage involuntary clients while simultaneously protecting themselves from burnout, were able to work with difficult clients over a longer period of time, reducing therapy drop-out on the part of both the client and the clinician (Linehan, et.al, 2000). Research has also indicated that those clients who had a positive therapeutic relationship and
viewed their therapist as affirming and empathetic not only had lower rates of self-harm, but also remained in treatment longer (Bedics, Atkins, Comtois, & Linehan).

Stigma and denial of care

People with BPD are one of the most stigmatized groups of patients in both the medical and mental health fields (Lamph, 2011). Having been dubbed as “the disorder that doctors fear most,” (Aldhouse, 2011, p. 47), the term “borderline” is often synonymously used for any patient with whom it may be difficult to work (Kernberg, et.al, 1989). The relationship difficulties and emotional dysfunction BPD clients experience in their day-to-day lives is also often present in the relationships with their therapists. Aside from chronic threats of suicide and self-harm, clients diagnosed with BPD frequently drop out of treatment, do not fully participate, create conflict with their therapists and make emotional demands on their helping professionals (Perseius, Kaver, Ekdahl, Asberg, & Samuelsson, 2007). The constant burden of attempting to engage clients who can be both uncooperative and resistant, while simultaneously also trying to manage their safety and encourage recovery, often leads to therapist exhaustion and a desire to distance themselves from these patients (Linehan, Cochran, Mar, Levensky, & Comtois, 2000). As a result, those who are diagnosed with BPD are often terminated from care or turned away from treatment (Forsyth, 2007). This systematic discrimination against those who carry the BPD diagnosis leads to a lack of appropriate ongoing care, and often an exacerbation of symptoms of this serious and persistent condition (Judd & McGlashan, 2003).

Treatment for Borderline Personality Disorder
The consequences of BPD impact clients, clinicians, family members and service organizations, creating significant emotional and economic costs (Gunderson, et. al 2011). Experts in the field of Borderline Personality Disorder have attempted to address the problem from both a client and therapist perspective. For the clients, there have been several skills based programs and therapies created specifically for teaching clients the skills deficits that can lead to better ability in managing emotions and better controlling destructive behaviors (Freeman, Stone, & Martin (2005). For the therapists, the focus has been on reducing stigma and hesitation related to treating this population by first demonstrating that BPD is actually treatable and secondly by providing the necessary skills, resources and support so that therapists have a road map as to how to proceed in effectively treating this population (Hersh, 2008).

Two multi-site, longitudinal studies have begun to challenge the myth that BPD is an intractable and untreatable illness. In a study looking at factors associated with BPD, 290 patients who had been hospitalized were followed for a 10 year course after their discharge. Participants were assessed for symptoms every two years over the 10 year period. During that time, one finding indicated 86% of the clients had improved to the point they no longer met diagnostic criteria, regardless of what kind of treatment they had received (Zanarini, Jacoby, Frankenburg, Reich, & Fitzmaurice, 2009). In a second study, 85% of the patients had improvements in diagnostic symptoms, but also had periods of significant remission over the course of the 10 years. However, these remissions were still at lower rates than those with other chronic psychiatric conditions, such as Major Depression (Gunderson, et. al, 2011). Both studies found that while symptoms improve over time, functional abilities, such as working, attending school or
improvement in relationships often did not improve over time, indicating the need for additional treatment or education in rehabilitation beyond symptom management (Gunderson, et. al, 2011; Zanarini, et. al, 2009).

Over the past 20 years, there have been several evidence based practices developed that demonstrate effectiveness in reducing suicide and self-harming behaviors. The Substance Abuse and Mental Health Services Administration National Registry of Effective Programs and Practices has recognized some specific evidence based programs demonstrated effectiveness at treating the symptoms of BPD (SAMHSA, 2013).

One such program is known as Dynamic Deconstructive Psychotherapy (DDP) which is a manual based treatment aimed at those with BPD, but also present with some other type of complex behavior, such as substance use. The treatment focuses on understanding negative self-images throughout the life cycle and how these impact maladaptive behaviors. In a randomized control trial of this program, 30 patients were assigned either to DDP or treatment as usual. While both groups had a reduction in treatment over time, the DDP group demonstrated statistically significant differences from the TAU group in the areas of self-injury, with the DDP group decreasing symptoms by 40% while the TAU group decreased symptoms by 21%. DDP also had statistically significant improvements in borderline symptom severity, with a statistically significant difference between pre and post, and related 1.43 effect size. This program has been shown to be effective in reducing the symptoms of BPD, improving depression, decreasing self-harming behaviors and reducing drinking (Gregory, et. al 2008).

Another evidence based treatment under review by the Cochrane Collaboration as a promising practice is that of Mentalization Based Therapy (MBT). In this treatment,
the clients are taught to better understand their own mental states and then apply that to relationships, attempting to understand the mental states of others as well. In a randomized control trial, 134 clients were referred either to MBT or structured clinical care. Although both groups demonstrated improvements, the MBT group showed a decrease in hospital use by 73% as compared to 43% for the comparison group. Decreases in self-injury behaviors were also better among the MBT group, with the MBT group decreasing self-injury by 43% as compared to 24% in the comparison group (Bateman, & Fonagy, 2009).

One of the most popular evidence based treatments for BPD is Dialectical Behavioral Therapy (DBT). Dialectical Behavioral Therapy (DBT) is a manual based treatment designed to reduce impulsive behaviors resulting from an overwhelming experience of emotions (Linehan, 1993a). The DBT model of treatment consists of specific techniques to help a person deal with strong emotions that tend to lead to impulsive, and often life threatening, behaviors. Participation in the program requires attendance at weekly skills group training, where clients can learn new skills, such as mindfulness, distress tolerance, emotion regulation and interpersonal effectiveness (Linehan, 1993b). In addition, clients must also participate in weekly individual therapy, which helps clients understand the motives and reinforcements for their behaviors and gives them a chance to talk individually about implementing the skills into day to day living. The program also requires the client to continue to do work outside the therapy setting, requiring weekly homework assignments and daily monitoring of emotions and behaviors (Linehan, 1993a).
The DBT treatment model also includes after-hours crisis skills coaching, which allows clients an opportunity to talk with a therapist during crisis situations, with the hope that with this support, clients will use their skills rather than engage in suicidal or self-injurious behaviors. With skills coaching, the therapist can work with a client via telephone for assistance in figuring out which skill to use or to walk through the steps of a specific DBT skill (Linehan, 1993a).

While the components of the treatment are designed to help client work through difficulties related to their symptoms, there are also components of DBT specifically for the therapists as well, so they are better prepared to work with this particular population (Linehan, 1993a). The teamwork and supervision provided by DBT in a process known as consultation team, is one method to offer support the therapists who are dealing with this sometimes challenging population (Perseius, et. al, 2007).

Across multiple research studies, DBT has been shown to decrease suicidal behaviors and self-injurious behaviors, reduce hospital inpatient days, and reduce anxiety and depression (van den Bosch, et. al, 2005). In a randomized control trial of 100 women, DBT was better than treatment with community experts in decreasing suicide attempts, with those in DBT half as likely as the other group to attempt suicide. DBT was also statistically significantly better at decreasing hospitalization, emergency room use, self-injury and treatment drop-put (Linehan, et. al, 2006). A 2010 meta-analysis reviewing 16 separate studies found moderate effect sizes, ranging from .4 to .6 in the areas of improvements to suicidal and self-injurious behaviors (Kleim, Kroger & Kosfelder, 2010). DBT has been listed on SAMHSA’s registry of evidence based practices, with research demonstrating effectiveness in treating symptoms of suicide attempts, self-
injury, quality of life issues, treatment dropout and substance use (SAMHSA, 2013). In addition, studies have shown that using DBT and participating in a consultation team improves a therapist’s ability to work with difficult patients, by providing a model for how to engage involuntary or ambivalent clients without becoming overwhelmed or burned out. These studies have demonstrated that when using the DBT model in comparison to treatment as usual, therapists were able to work with clients diagnosed with borderline personality disorder over a longer period of time and reduce therapy drop-out on the part of both the client and the clinician (Linehan, et.al, 2000).

While evidence based programs such as DBT have significantly improved the treatment options for people diagnosed with borderline personality disorder, there is still more that could be done. The skills based programs are critical in helping the client achieve symptom relief, but there is still little available for helping the therapist to manage the relationship aspects of the illness. While the client must learn new skills, the therapist must also have the tools to address the intense attachment and dependency needs (Kernberg, et. al, 1989). DBT is an intensive program and it is this level of support that leads to successful treatment outcomes (Levy, 2008). However, this level of intensity can also add additional strain on the providers. For example, skills coaching is available to clients 24 hours a day, seven days a week. Although skills coaching can be done over the telephone rather than requiring a face to face meeting, it still requires time and immediate response from the therapist. Overwhelming emotions and feelings of emptiness are both symptoms of BPD and often, when these skills coaching calls are made; the client does not necessarily need help with the skills, but may instead just be looking for some type of connection to others (Linehan, 1993a). When there is a
constant need for the therapist to fill the loneliness, especially if the therapist is unable to do so adequately, there can be strain to the therapeutic relationship (Perseius, 2007).

Proposed solutions

This research suggests that social work therapists can use technology to control the intensity of the relationship and manage the therapeutic alliance through a variance of social presence. Social presence denotes the experience of being with another person and includes a range of experiences regardless of the location of those involved (Nowak & Biocca, 2003) and is the primary psychological factor in the experience of ‘being there together’ in technology mediated communications (Biocca, Harms, & Burgoon, 2003). Social presence theorists support that social presence exists on a continuum and includes the level of connection one feels to the other during a mediated interaction (Biocca, et al., 2003; Rettie, 2008). It is the activity of communicating in any form that creates a sense of connection and access to others; the introduction of technology mediated communication serves as the catalyst for a joint activity. It is this joint activity which creates feelings of connectedness between those communicating (Rettie, 2009). These theories would support the notion that if various forms of communication are used, clients can receive support and feel connected to their therapists regardless of time or place and without the strains of a traditional face to face meeting (Rettie, 2008).

The method by which the communication takes place can be used to control the intensity of the relationship to artificially create distance or intimacy (Short, Williams & Christie, 1976). J.J. Gibson (1977), a psychologist, was the first to define the method of controlling communication intensity by defining possibilities of action as an affordance. As a term, affordance is used in a variety of fields today, including Human Computer
Interaction (HCI). In HCI, the term is used to refer to the degree to which a software feature invites use or action (Costall, 1995). Different types of affordances within the technology allow for a variation in relational interactions (Rettie, 2008). For example, meeting face to face is the highest level of social presence because of the immediacy of the interaction and availability of social cues (Short, Williams & Christie). Conversely, written text sent via regular mail is the lowest level of social presence in that there is less immediate response and there are fewer cues available to understand the intentions of the other (Feinchnel, et. al 2002). Because this continuum exists, technology mediated interactions can be used in an intentional manner to change the dynamics of a relationship. The technology itself allows for more options for potential connection and communication (Rettie, 2008). There may be times in which a therapist feels the “ruthless dependence” of the client (Winnicott, 1947) and would like to decrease the intensity of the relationship. Moving the activity of communicating to a lower level of social presence through the use of e-mails, text messages, or Internet based resources can serve to decrease the intensity and immediacy of the interaction.

These same tools may also strengthen the connection by serving as a representation or a proxy for the relationship. Because technology communications are often used in “down time” when clients may be alone, technology could be used as a transitional object, or a reminder of treatment goals and the caring of the therapist (Yager, 2001). Access to a shared communication method, such as an e-mail or blog, can allow clients a time and space for retrospection on the session, provide feedback for the therapist or share additional information with the therapist without meeting in person (Ross, 2011). A website, a voice mail or an occasional text message from the therapist to
the client could also be used to ease the anxiety of aloneness, provide a secure base while encouraging client independence (Bowlby, 1988). Each of these provides increased opportunities for connection without having to increase face to face time (Rettie, 2008). This variation in communication methods may provide the client with an outlet for their dependency needs while also providing the therapist more control over the level of interaction.

When therapists have the ability to control the relationship through access to a range of technology based tools to vary the manner in which they interact, how might the therapists use these differing communication methods to handle client demands for interaction? If therapists have access to these additional tools, and more options in responding to the dependency needs of this population, will they feel less frustration with working with this population? If there is less frustration and more options for working with this population, would they be more willing to provide care, thus decreasing stigma and problems accessing care?

While many of the questions related to stigma and access to care are larger issues beyond the scope of this study, the first step in attempting to improve care for those diagnosed with BPD is to begin to explore what happens with these dependency needs and the therapeutic relationship if therapists implement technology into the therapeutic relationship. To explore how therapists may vary the method of communication and increase the scope of their social presence when treating BPD clients, therapists in a community mental health center Dialectical Behavior Therapy program were provided with a variety of technology based tools. Through use of a website, video/audio recordings, interactive online assessments, and text based training tools, therapists were
provided with a number of options to vary the manner in which they respond to client relationship requests.

The study attempts to evaluate and understand the clinical decision making process behind the use of technology mediated tools to manage the therapeutic relationship with the clients suffering from borderline personality disorder. Specifically, this study attempts to answer these questions:

- If therapists vary their social presence and use a range of tools to communicate with clients, what will happen to the therapeutic alliance?
- With a wider range of tools available, including technology based and technology mediated tools for both therapist and client, what will happen to psychiatric outcomes and symptoms?
- When therapists have a variety of technology based tools available to mediate communications and manage the intensity of the therapeutic relationship, will the therapists be able to better tolerate difficult clients and report less burnout resulting from working with this population?
Chapter Two: Review of the Literature

As outlined in the previous chapter, Borderline Personality Disorder is a serious problem that requires social work intervention. Not only do those diagnosed with BPD need adequate treatment to improve their symptoms, therapists need support to be able to provide this treatment. For therapists, one of the most challenging aspects of working with BPD is maintaining the therapeutic alliance. This research hypothesizes that one of the ways in which social work therapists can manage and improve the therapeutic relationship by variance of *social presence*. Social presence is the theory that explains how people develop and maintain relationships through a variety of communication methods, including technology mediated communications (Christie, Williams & Short, 1976). Social presence includes a range of experiences where meaningful interaction and related social processes can take place, regardless of the location of the individuals or the type of communication method being used (Nowak & Biocca 2001). Social presence has been found to act as a primary psychological factor in the experience of ‘being’ in technology mediated environments and is used by participants to project a personal presence, to detect the presence of others in these environments, and to promote a sense of ‘being there together’ (Biocca, Harms & Burgoon, 2003). Theories of social presence indicate that various methods of technology mediated communication, including telephone, text messaging, websites and e-mail are more than just methods of communication, but that these technologies are the catalyst for communication and
consequently improve *connection* between individuals (Rettie, 2008). By varying the type of communication, the level of social presence is changed, which then also modifies the intensity of the interaction and the relationship (Christie, Williams & short, 1976). It is hypothesized that these same theories can apply to any relationship, including the treatment relationship between therapist and client, also known as the therapeutic alliance.

The role of therapeutic alliance in therapy relationships has been well studied and is routinely determined to be one of the most important factors in successful client outcomes (Wampold, 2010). Although computer mediated therapies have demonstrated improvements in client outcomes (Barak, Hen, Boniel-Nissim & Shipira, 2008), there is still some concern among many social work practitioners and organizations about the routine use of technology in social work practice (NASW, 2005). While recognizing the potential value these technologies can provide, especially to those in underserved populations, social workers have expressed some reluctance related to the belief that the therapeutic relationship between social worker and client cannot be developed or supported without face-to-face contact (Fenichel, et al., 2002). This question remains unanswered as the literature is only beginning to emerge around the role of therapeutic alliance when mediated communications are used in place of, or as an adjunct, to face to face sessions (Murphy, Parnass, Mitchell, Hallett, Cayley & Seagram, 2009). Because the research about the therapeutic alliance indicates that a strong alliance is critical to positive client outcomes, the role of this relationship when there are technology mediated communications must also be understood and addressed.
This chapter explores theories of social presence and theories of computer design, as these theories provide the foundation and rationale for development of the intervention. The literature surrounding the therapeutic alliance is also reviewed, to demonstrate that this is of great importance and must not be overlooked when new methods of therapy are implemented. Finally, these two bodies of work are then brought together to begin to explore the use of computer mediated communications as a part of therapy practices and the resulting impact to the therapeutic alliance.

**Social Presence Theory**

Although the research is in beginning stages, there is strong theoretical backing as to how people maintain relationships through various forms of communication, specifically when these communications are mediated by technology. Technology mediated communications can be used for a variety of reasons, including sharing information (Aragon, 2003), to be part of a community (Biocca, Harms & Burgoon, 2003) to present themselves to others in a virtual setting (Lee, 2004) or to create a connection, even if no information exchange are taking place (Rettie, 2009). One social presence theorist, Ruth Rettie, defines social presence as: the emotional experience that arises from the communication process, including a feeling of closeness or a sense of belonging to a relationship, a community or group (Rettie). Key components of social presence include: a communication process, a mutual activity that serves as the basis for the interaction, some type of emotional or psychological involvement related to the activity and a feeling of closeness or sense of belonging triggered by the communication.
process (Biocca, Harms & Burgoon, 2003; Rettie, 2008; Short, Williams & Christie, 1976).

While theories of social presence have been around since the 1970’s, there has been a growing interest in the psychological processes of computer mediated interactions as the opportunities for technology based interactions have increased. With the introduction of social media, video conferencing and saturated cell phone use, scholars and theorist have begun to take more of an interest in how the use of these emerging communication methods impact human relationships (Moreno et. al, 2011).

**History of Social Presence**

Since early times, people have attempted to find a way to represent reality and communicate thoughts and feelings to others through multiple mediums. Visual arts such as painting, drawing or sculpting were the first attempts at creating a sense of being there when others could not necessarily be present (Lee, 2004). These mediums have been able to provide emotional experiences, with most people able to share examples of times they were moved to tears by a book, movie or while viewing a piece of artwork (Feinchel, 2002). The inventions of new technologies such as television, cinema and audio recordings increased the availability of sensory cues, with the belief this would enhance a person’s ability to experience another place, time or situation without actually being physically present in that place. These experiences were intended to be more than just representations, but were designed to create an emotional reaction that actually afforded the feeling of being present (Ijsseltein, 2003).
However, these communications were one sided, with no chance for response or feedback. The first opportunity for remote, two sided conversation with immediate feedback was with the invention of the telephone in 1876. Telecommunication was enhanced with visual cues in 1927 with the addition of closed circuit television (Short, Williams & Christie, 1976). As technologies improved over the years, communication theorists began to question whether remote communications afforded the same quality of relationship, despite non-verbal cues. As such, these questions began to be answered as formal theories about social presence began to emerge in communication and social science research in the 1970’s.

The original social presence theorists, John Short, Ederyn Williams and Bruce Christie believed that an awareness of others could be conveyed through telecommunications (LaMendola, 2010). They named this awareness “social presence” and defined it as “the degree to which a person is aware of the other person through multiple methods of communication” (Short, Williams, & Christie, 1976, p. 76). To develop this theory, Short, Williams and Christie first identified several non-verbal cues in face-to-face communications including mutual attention; “channel control” meaning whose turn it is to speak; feedback; illustrations, such as pointing to objects; emblems such as shaking head yes or no; proximity and orientation; physical appearance; facial signals and eye contact/eye gaze. They believed that interpersonal interactions relied on content as well as a “combination of cues to transmit non-verbal messages” (Short, Williams & Christie, p. 63). They combined the content message and non verbal
messages together and operationalized them into a single dimension called social presence.

Using this construct, Short, Williams and Christie conducted a series of studies on mediated communications by comparing face-to-face communications with video communications and audio communications. They found that users of various telecommunication methods rated interactions on a continuum of impersonal to personal based on the availability of cues to understand the intellect, the characteristics, qualities, intelligence, intentions and inner process of the other (Helton, 2003).

**Current Definitions of Social Presence**

At the time of the studies by Short, Williams and Christie, options for telecommunications were somewhat limited. However, since that time, technology has improved significantly and advancements such as web cameras, instant messaging and e-mail not only made accessing and interacting with others in remote places easier, but also afforded an improvement in the quality of sensory cues available. With the rise of the Internet and improved Broadband speeds for transmitting data, in the 1990’s and 2000’s, there has also been an increase remote communication including, collaborative work projects, e-commerce, online education, online dating, remote health care and social networking communities (Tapascott & Williams, 2010). With these advancements in technology, theorists have continued to study and redefine social presence to account for the changes in availability of sensory cues new technology provides. Their main focus has been on developing an understanding of how people maintain relationships through these new technologies (LaMendola, 2011).
One of the current leading theorists in Social Presence Theories, Frank Biocca of the Media Interface and Network Design lab, defines social presence as the “sense of being with another during a mediated interaction” (Biocca, et al, 2003 p. 456).

According to Biocca and his colleagues, social presence is a theory that can provide insight into how people respond to social cues and what essential attributes are needed to establish connections with others. His main question is: how do people use media to feel connected to others? (Biocca & Harms, 2002) Like Short, Williams and Christie, Biocca theorizes that social presence exists on a continuum and concepts such as the mutual awareness, the experience of psychological involvement, the level of behavioral engagement and the quality of the interaction all define the degree to which another is not just aware of the other in a communication, but the level of connection one feels to the other during a mediated communication (Biocca, et al., 2003). Communication in any form creates a sense of awareness and connection to others and it is the interaction itself generates that emotional experiences and automatic social responses, even with minimal non-verbal cues (Biocca & Harms, 2002).

One of the areas of study within social presence is how people communicate in virtual environments and online gaming. By exploring the psychological aspects of these online communications, Kwan Min Lee has defined social presence as “the extent to which other beings coexist and react to you in a mediated environment” (2004, p.27). Like the other theorists, she agrees that social presence exists on a continuum, but places more emphasis on the medium itself. When the design of the program allows for increased sensory cues, the social presence is increased (Lee & Jung, 2005). Through
improvements in software and program design, there is greater access to cues which then elevate the level of social presence to create “a psychological state in which the virtuality of the experience is unnoticed” (Lee, 2004, p. 33). As such, her work focuses on design issues that allow the users high levels of control over the interaction to develop an understanding of the inner processes and intentions of the other.

While each of these definitions focuses primarily on communication, Ruth Rettie suggests that social presence is not just communication with another, but in fact social presence is dependent upon feeling connected to the other (2009). She postulates that social presence is an emotional experience that promotes social relationships and fills the fundamental need to belong. This feeling of “togetherness” arises directly from the communication process (Rettie, 2003). She believes that even if others are not physically present or interacting with the other at the same time, technology based activities can serve as a reminder of the connection. For example, reading a saved text message from a friend, viewing photos on another person’s social networking page or seeing that the other person is available to chat through Instant Messaging programs, lets the person know the other is available for an interaction. These experiences alone are enough to promote feelings of connection, even if there is not an interaction or immediate response from the other person (Rettie, 2009). In this way, seeing that someone may be available to interact stimulates a similar emotional response as an actual interaction, in part because it offers a potential for interaction. These variations in interactions represent the relationship, and all of the good feelings associated with that particular person or relationship. She refers to mobile phones as a “pacifier for adults” because they
represent the potential for connection. The lists of contacts serve as a reminder that the person is not alone and could contact others who are remotely located (Rettie, 2009).

This concept of potential contact and connectedness was recently supported by researchers looking at interactions on Facebook. They found that the more individuals used the status updates and responded to others’ messages, the more connected they felt, regardless of whether the activity was reciprocated. The activity being part of an online community was enough to stimulate a feeling of connection to others (Koebler, et. al, 2010).

It is this desire for connection that prompts others to communicate, reach out and form relationships, using various forms of technology to overcome barriers of time and distance (Helton, 2003). Social psychologists have long recognized the importance of relationships for the reasons of safety, shared responsibilities and procreation. However, beyond this, the feelings of connection and belonging have been viewed as a fundamental basic human need (Maslow, 1962). Early object relation theorists suggested that relationships, rather than instinctual drives, were the motivators for all human behavior (Celani, 2010) and that the need for relationships plays an important role psychologically as people seek secure relationships to feel loved and connected (Goldstein, 2001).

Rettie, (2003) has built upon these beliefs surrounding humans’ fundamental need to belong by exploring how relationships are strengthened through the use of technology mediated communications. Her work focuses on how technology can facilitate the connection between those who are not physically present with the other. She asserts that technology can provide “low-key” or less invasive methods of communicating that serve
the purpose of connecting to the other without the burden or intrusiveness of a face-to-face interaction. She asserts that through a variety of technology options, there is the potential for “perpetual communication and contact” without the constraints of time, space or other boundaries (Rettie, 2008). In her theories, the content of the message is less important than the act of communication itself. In a process known as “phatic communication” people communicate with each other for the sole purpose of staying connected, rather than relaying information. For example, she refers to what is called a “thinking of you text,” which is a short message to a friend saying “hello” or “goodnight.” This message serves the primary purpose of indicating to the other that a connection exists (Rettie, 2009). She views connection and social presence as complementary, with the technology providing varying affordances so that the activity of connectedness can exist (Rettie, 2003). It is hypothesized that because the feelings of connection are present in mediated communications, therapists and clients can also feel connected, regardless of the method of interaction (Marks, Cuijpers, Cavanagh, van Straten, Gega & Andersson, 2009; Murdoch, & Connor-Greene, 2009).

**Social Presence and Affordances**

To be able to vary the type of communication activity, social presence theorists also place some emphasis on the medium itself and the communication affordances of the technology. The concept of affordances relates back to psychological theories about how people use artificial images to represent reality (Costall, 1995). Theorist JJ Gibson postulated that humans perceive and ascribe meaning to reality through many different visual cues, including pictures and images. His theories explain how social relationships
can be represented through the use of these pictures and images and do not require face to face interaction (Gibson, 1979). When these theories are applied to advancements in technology, the definition of affordances now can also include a variety of features beyond images, including audio, video, photographs, interactive text or other features within the technology that allow for a variation in sensory cues (Biocca & Harms, 2003).

Because social presence exists on a continuum, when the design of the program allows for increased sensory cues, the social presence is increased, creating options for high, medium and low levels of social presence (Lee & Jung, 2005). Through improvements in software and program design, there is greater access to cues which then elevate the level of social presence to create “a psychological state in which the virtuality of the experience is unnoticed” (Lee, 2004, p. 33). Thus, the design of various methods of communication should allow for high levels of control over the interaction and access to cues in order to provide varying levels of communication and connection (Lee, 2004).

When affordances of the technology can be controlled, the ways in which the communication takes place can also be controlled. The user can control the intensity of the relationship to artificially create distance or intimacy by increasing or decreasing the available sensory cues and/or response time (Short, Williams & Christie, 1976). This theory is supported by most present day theorists, who believe that the awareness and involvement of the participants can be modified based on the type of technology mediated communication method being used (Biocca, et al., 2003).

Different affordances within the technology allow for different types of relationships and interactions (Rettie, 2008). For example, face to face is the highest
level of social presence because of the immediacy of the interaction and availability of social cues (Short, Williams & Christie) while written text sent via regular mail is the lowest level in that there is less immediate response and there are fewer cues available to understand the intentions of the other (Feinchnel, et. al 2002). Because this continuum exists, technology mediated interactions can be used in an intentional manner as a way to change the dynamics of a relationship. Those affordances that have lower levels of social presence, such as written text or asynchronous messages, may help to retain weaker relationships, but on a less intense basis than face to face interactions. These lower level affordances may actually increase communication when there is a sensitive topic, in part because it reduces social cues, which may alleviate embarrassment (Rettie, 2008). An example of this is a concept known as the disinhibition effect, in which the anonymity and distance of the Internet or other non-face to face interactions may allow those who struggle with social anxiety to express thoughts and emotions and develop intimacy in a manner that is more comfortable (Ross, 2011). In this way, technology mediated interactions can be used to create distance when the relationship becomes too intense, by allowing for slower response time, ability to think through and rewrite messages and allow for control about how and when to respond (Yager, 2001). The intensity of the relationship can also be increased. In studies of cell phone users, it was discovered that people often used technology as a precursor to face to face interactions, even if it is just to arrange a time and place for a higher level interaction (Rettie, 2009).

The advancements in technology, including increased broadband speed, enhanced graphics and cascading/flowing web pages, embedded links and immediate play audio
and video files have allowed for web designers to use a variety of cues to act as triggers for emotional connections (Kennedy, 2012). For example, web pages may offer multiple methods for sharing information including text based or written words, videos that demonstrate specific skills, audio descriptions or even interactive quizzes to enhance learning or understanding (General Services Office, 2006). The more cues that are available, the stronger the emotional connection will be (Ijelstein, 2003). Programs such as Skype or other video conferencing technologies have had an increase in popularity, in part because they allow for remote, face to face connection, in which participants have multiple cues, including being able to hear vocal intonations, witnessing facial expressions and other observational cues that were previously only available in face to face encounters (Simpson, Bell, Knox, & Mitchell, 2005).

Biologically, studies have indicated that on a neurological level, people do not separate media and virtual environments from actual reality. In fact, there is a neurological “non-cognitive” acceptance of reality and people have unconsciously learned to compensate for lack of sensory cues (Ijesseltien, 2003). On a conscious level, when people are aware of the remote nature of the conversation and the mediated environment, they have found ways around the problem. A study related to online gaming found that players in online multi-player video games were able to overcome the lack of visual, auditory, tactile and olfactory cues by developing other methods of communicating and cooperating. Using available technologies within the gaming system, players were able to develop a common language to replace and represent traditional sensory cues, which were then used to effectively solve problems and meet goals (Insko,
People have developed and use online language including the use of emoticons, (😊) symbols that represent emotions, or abbreviations such as “LOL” (laugh out loud) as a way for people to transmit non-language cues about feelings, thoughts and behaviors (Murdoch & Connor-Greene, 2009; Recuerpo & Rainey, 2005; Rettie, 2009). Software developers have begun to address the desire for more sensory interaction and have started to implement certain affordances into their programming by allowing users to mimic non-verbal cues, such as allowing users to control appearance and clothing, eye gaze and facial expressions or animations or avatars within the programs (Fogg, 2003).

Technology advancements like High Definition visuals, surround sound, and interactive kinesthetic experiences (Wii), all provide enhanced sensory cues to improve the perception and emotional experience related to being present with another. All of these changes continue to blur the lines between physical presence and mediated environments (Ijsselstei, 2003).

While much of the social presence theory is based on computer mediated interactions, in which people are directly communicating via technology, there are other ways in which these affordances can be implemented to act as representations of the relationship, even if there is no direct communication taking place (Oinas-Kukkonen & Harjumaa 2008). When there is no direct communication with another person, the software or computer program itself serves as the social actor, designed to provide support or encourage change in behaviors (LaMendola & Krysik, 2009). As computers do not have intentions of their own, those who create, the software are the ones who have the ability to affect others’ behaviors through the use of the technology (Oinas-Kukkonen
& Harjumaa). As such, web designers can use the same variety of affordances in program design to evoke emotional responses and create a sense of belonging and support, regardless of whether there is another person interacting at the same time (Kennedy, 2012). The process of specifically designing computer programs, web pages or software to act as the medium between designer and user to change behaviors, is known as persuasive systems design.

**Persuasive Systems Design**

When social cues are varied as part of a technology based interaction, this is in part due to a choice by the user, but this is also in part due to the type of affordances a software program allows. In some cases, the computer program itself can be designed in a way to interact directly with a user and provide a feeling of connection and belonging, even if there is not an actual person facilitating the communication at that moment. In this way, the computer program becomes the social actor, providing support and helping to facilitate change (Fogg, 2003). While it is understandable that people can maintain connections through technology, there have also been several studies that support that humans can also feel a connection to computer programs that represent human interactions (Ijsselsteijn, 2003). Humans are hardwired to respond with emotions and feelings of connection when things “appear” to be alive (Reeves & Nass, 1996). In what is known as the principle of similarity, when objects or concepts share characteristics or values, and are presented through the computer design as such, they will be seen as belonging together (Mullet & Sano, 1995). In this manner, people can feel connected to a
community, a group or an individual, even with no direct contact from a person, but rather with a web page that represents the relationship.

Because people can and do interact with computer programs as though they are alive, even without a direct human contact, this allows for software to be designed in a way that encourages users to change or modify behaviors. Using specific design techniques to encourage users to change or modify behaviors is based on a theory known as Persuasive Systems Design (Fogg, 2003). Persuasive technologies can be defined as interactive computer applications specifically created to change behaviors and attitudes (Fogg, 2003). Computer programs that use PSD can be used to teach or demonstrate a new behavior, provide a medium for the user to rehearse and practice the new behavior, and as a social actor to provide support and encouragement throughout the change process (Fogg, 2003). When the program itself becomes a social actor, persuasive computing programs can be developed to provide guidance and support, and promote a feeling of connection and belonging (LaMendola & Krysik, 2009). The program acts as a method for learning and social facilitation, creating a commitment to the program simply by being involved with it (Oinas-Kukkonen & Harjuma, 2008). The process of interacting with this type of program can serves as a reminder of the human connections and can increase psychological involvement when the design of the program itself portrays some type of human element, such as reinforcing behaviors with statements like “good job,” (Fogg, 2003).

There are some advantages to using a computer program to change behaviors, rather than interacting with a person directly. One of the primary reasons is that computer
programs can be accessed when help, support or guidance is most needed, regardless of
time or space (Fogg, 2003) and with little intrusion into the actual relationship (Rettie,
2003). Often, mental health crises occur in the times when the therapist may not be
available. Having access to a reminder of the skills learned in treatment or the caring of
the therapist, regardless of time or location of the client or therapist, can provide an
immediacy that a therapist cannot (Rivzi, et. al, 2012; Yager, 2001).

There are other advantages related directly to design of the program. For example,
computer programs can allow for multiple affordances, such as video, audio, interactive
experiences and simulated scenarios, links to outside resources and tracking tools so the
client can monitor personal change (Feinchem, 2002; Ross, 2011). As people have
different learning styles, presenting the information in different methods may help
support learning in a variety of different formats (Aragon, 2003; Oinas-Kukkonen &
Harjumaa, 2008). A client can access these tools repeatedly, viewing the same lesson
multiple times or reviewing the information when it is most needed (Murdoch & Greene,
2009). A computer program can be persistent and does not become frustrated when
change is not occurring (Fogg, 2003).

To create a program that can both facilitate learning and support change, software
designers can implement a variety of tools and techniques that can stimulate a
psychological response (Kennedy, 2012). Each of these tools can encourage the user to
act in a certain way or to invoke a specific emotional experience (Fogg 2003). For
example, pictures or videos of other people may promote a feeling of connection,
empathic or congratulatory responses from the computer program may allow the user to
feel supported and text or interactive quizzes may support learning (LaMendola & Krysik, 2009).

**Persuasive System Design Tools**

Based on the work of B.J. Fogg, there are several specific tools and techniques that can be used to encourage behavioral change (2003). Website developers may use one or all of these in developing programs that promote change. One of these techniques is known as reduction. This is the process of reducing complex behaviors into simple tasks. By making a behavior easier to perform, it increases the likelihood that the behavior will happen and increases motivation. By having everything that is needed located in one place, doing the behavior appears to be easier, and people may be more willing to try the behavior or do the behavior more frequently (Fogg, 2003). One example of this in mental health treatment is an online Cognitive Behavior Therapy program that offers everything a client would need on the site itself. There are depression and anxiety assessment tools, an interactive workbook and relaxation audio files for download (Christensen, Griffiths, & Korten, 2002).

Two tools that have demonstrated some effectiveness in modifying behaviors are tunneling and tailoring (Torning & Oinas-Kukkonen, 2009). Tunneling technologies are used when the program controls the actions and navigation of the user to complete a predetermined course of action (Fogg, 2003). This type of technology is useful in programs in which adherence to a sequence is important or when a person must complete certain tasks prior to moving on to the next activity or task (Kelders, Nok, Ossebaard, VanGermet-Pijnen, 2012). Tailoring is a process by which people can find the
information that is most useful to them and their personal reason for using the technology (Fogg, 2003). With this technology, the user is able to personalize the experience, focusing only on the most pertinent and useful information. When the site is most relevant to the user’s specific needs, the user is more likely to engage in suggested behavioral changes (Tornig & Oinas-Kukkonen, 2009).

In this same manner, allowing people to practice or rehearse skills at the time they are most beneficial can also help to encourage behavioral change. Suggesting a different behavior and then allowing the user to rehearse it can both teach and reinforce not only the behavior, but when the behavior should be used (Fogg, 2003). For example, one mobile phone application aimed at reducing substance use encourages users to log on when they are having cravings. At that moment in time, the technology can make suggestions and offer ideas for managing the craving. If the client is still feeling like using, the application prompts the user to contact the therapist for further support (Rizvi, Dimeff, Skutch, Carroll, & Linehan, 2011). In addition to the suggestions, clients may benefit from practicing the new skill in a safe, non-threatening environment (Morris, et al. 2010). Simulated environments are used across settings and produce similar results to the actual environments (Ijsselsteijn, 2003).

**Additional Design Considerations**

When Internet based technologies are used in the delivery of mental health treatment, there are also additional considerations beyond changing behavior; legal and ethical issues must also be addressed (Kennedy, 2012). The design of the program must be purposeful and intentional, to ensure that the program being offered is of quality and
benefit to the client, in part by ensuring that the website rises to the same quality of care that would be expected in face to face social work practices (LaMendola & Krysik, 2009).

**Accessibility**

Any web-based program must be accessible to the client. In technical terms, this means that the manner in which the site is designed must make information available to a variety of users. Specifically, users must be able to understand and operate the system (Government Services Office, 2006). In addition, it should be robust enough to hold a user’s interest, but not so complicated that it cannot be used by the intended population (Haynes, 2002). If necessary, features such as a page reader or a search option may need to be added to make this information more useable to the intended population (Kennedy, 2012).

While this is one description of accessibility, within social work practice, the idea of accessibility must also be addressed from a socioeconomic standpoint. Because social workers frequently work with disadvantaged or less privileged populations, social work clients may have limited access to technology services, including both lack of computers or service to connect them to the Internet (Rouffel, 2008). Ability to access the Internet varies depending on a number of factors, but overall, those who have higher income, more education, are younger and are White are more likely to have access to both a computer and Internet services (Stayert & Gould, 2009). In a nationwide survey of families, only 22.6% of families in the lowest income quartile had access to both a computer and Internet services as compared to 76% of families in higher income quartiles.
(Hick, 2006). Given the power that technology has to provide information, and that variables impacting access are related to income, age, ethnicity and education, lack of equal access to technology may be more than an inconvenience, it may in fact be an issue of social exclusion and social justice (Stayert & Gould, 2009).

**Risk Management**

One of the most significant issues related to mental health treatment, regardless of the manner of treatment, is managing client safety. The use of a variety of features is intentionally designed to trigger emotional cues and psychological involvement, so those using these features in a mental health treatment should be aware of potential impacts (Haynes, 2002). Specifically when using online therapies only, the distance between client and provider should not create additional risk to the client (Zack, 2008). Currently, this is an area in which online therapists are not as well prepared. In a study of online therapy practitioners, 26% of therapists report having a client who they believed was a danger to themselves, yet of these, fewer than half (46%) contacted local authorities to follow up on the situation (Finn & Barak, 2010). To manage potential mental health crises, many social work websites have procedures in place to deal with emergency situations, including statements of saying, if this is an emergency, please call 911 or by requiring that a client provide the therapist with local contacts (Santhiveeran, 2009).

While the distance is a concern, suicide hotlines routinely deal with the situation of working with people in remote locations and have procedures in place to manage crises remotely, many of which can be applied to online therapy services as well (Fenichel, et. al, 2002).
Privacy

Much like any client participating in face to face treatment, those receiving have the same expectations about privacy and confidentiality. Under Federal Law, mental health treatment records are protected through the Health Insurance Portability and Accountability Act (HIPAA) (P.L. 104-191, 1996), which requires that any information about clients receiving health care services are protected and will remain confidential. The HIPAA Security Rule requires that any health care entity using technology must have three things in place to ensure privacy and security. The first is a log on procedure that verifies only authorized users, typically only the therapist or billing agent, can access electronic information. The second is that there must be hardware or software that can monitor access and log on activity to determine who is accessing client records and when. The third requirement is that providers will have network protections such as firewalls for information shared through electronic networks (US Department of Health and Human Services, 2011).

While these regulations apply primarily to electronic medical records, online treatment sessions are considered to be treatment notes and subject to the same rules as face to face sessions. Online practitioners are advised both to use themselves and encourage clients to use technology that assists in protecting privacy. Some of these may include use of firewalls for the sites, privacy software, encrypted e-mails or chat programs that limit hacking or simply logging off the computer when the session is completed (Santhiveeran, 2009). Prior to the start of any online social work activity, online practitioners should provide information about HIPAA regulations, security
procedures and limits to confidentiality in a manner similar to the notices that are
provided at the start of face-to-face therapy sessions (Midkiff & Wyatt, 2008).

**Intellectual Property**

One of the benefits of the Internet is that information can be freely accessible.

Often, programmers and designers will share their codes or programming for the
purposes of improving or enhancing an existing product (Tapscott & Williams, 2010).

However, there is also information that is not intended to be used or shared, but through
advancements in software, copy and paste of code or graphics is very easy to do
(Kennedy, 2012). Not only is it easy to steal others’ work, if legal action is initiated, it is
often difficult to prove and there are rarely penalties for misuse of others’ site designs or
ideas (Bouchoux, 2001). This leads designers to consider two issues related to
intellectual property. First, designers should be cognizant to use only code and graphics
that they have expressed permission to use. Second, designers should take steps to protect
work through copyrights of work that they have completed (Bouchoux, 2001: Kennedy,
2012; Tapascott & Williams, 2010).

**Technology Mediated Communications in Mental Health Treatment**

Through the use of social presence theories and persuasive systems designs, there
are now a variety of formats in which social work practitioners can interact with their
clients (LaMendola, 2010). Because the Internet can be used regardless of temporal and
geographic boundaries, technology based therapies offer the ability to provide services to
a variety of clients, including vulnerable populations such as those who are isolated or
homebound, due to illness, disability, severe trauma or extreme anxiety and agoraphobia
This has led to the rise of computer mediated therapies for a variety of populations and treatment issues (Ross, 2011). Despite the benefits of computer mediated therapies and persuasive technologies, there is still some hesitation among providers to implement these types of programs into treatment. One of the primary concerns regarding technology mediated communication is a belief that therapeutic alliance exists only in face-to-face interactions (Feinchel, 2002). However, social presence theories support that many of the qualities of interpersonal interactions can be maintained through technology mediated communications (Short, Williams, & Christie, 1976). Just as object relations theory provides an explanation for how people connect to and understand the other through internalized representations (Goldstein, 2001), theories of social presence also support the idea that “the other” is a symbolic construction, reinforced through interactions (Biocca, Harms & Burgoon, 2003). However, rather than using internalized representations to remain connected to others when not physically present, social presence theories focus on using technology based communications to connect with, understand and interact with the other (Biocca & Harms, 2002; Lee, 2004).

Although technological advancements have offered more options for interaction with clients outside a face-to-face setting, using multiple forms of communication to conduct therapy is not a new idea. Sigmund Freud himself treated some patients through writing rather than seeing them in person (Fenichel, et al. 2002; Ross, 2011). Since the time of Freud, communication technology has improved significantly and mental health professionals have implemented these new technologies in to practice. Use of technology
to enhance mental health therapeutic services was first introduced in the 1950’s in psychiatric education and patient care through the use of two-way, closed circuit televisions (Murphy, et. al, 2009). By the 1970’s the telephone was used during therapeutic intervention, primarily for times when face-to-face interaction was not possible, such as during a crisis. At that time, there was some controversy about the use of the telephone for therapeutic practice, but telephone calls have become a routine part of therapy, with 98% of practitioners reporting the use of the telephone in providing services for their clients, and 69% conducting full therapy sessions via telephone (Mallen, Vogel, Rochlen, & Day, 2005).

In the late 1970’s and early 1980’s, the computer was introduced as a method for providing mental health and therapy services. A program called the Body Awareness Resource Network, one of the first programs of its kind, was an interactive program used to teach adolescents about health issues, such as drugs, exercise and smoking, (Fogg, 2003). A second program, called “Ask Uncle Ezra” provided university students with advice about a variety of topics (Ross, 2011). With the introduction of the Internet in the 1990’s, mental health specific websites began to emerge. These took the forms of informational and educational web pages, online chat rooms, support groups and therapy communications via e-mail (Marson, 1997). By the mid-1990’s, there were nearly 300 practitioners offering direct counseling services on the Internet (Breen & Matusitz, 2010).

In 1997, the National Board for Certified Counselors was the first professional organization to address the emerging practice in their Code of Ethics. They defined webcounseling as “the practice of professional counseling and information delivery that
occurs when clients and counselor are in separate or remote locations and utilize electronic means to communicate” (Ross, 2011).

**Current use of Computer Mediated and Technology Based Treatments**

Currently, there are several options for social workers and clients to communicate, including telephone, videoconferencing, e-mail, web based learning programs, instant synchronous chat and text messaging (Rettie, 2009). One of the ways in which social workers are making use of emerging technologies is by also providing therapy in non-traditional methods. Computer mediated therapy is any type of professional interaction that makes use of the Internet and other existing communication technologies to bring together mental health professionals and their clients (Rochlen, Zack & Speyer, 2004). There have been several ways in which to describe this practice including online counseling, e-therapy, cybertherapy, web based interventions, telehealth and e-health (Ross, 2011).

The use of online interventions has grown significantly, with research demonstrating effectiveness. For diagnoses such as anxiety and depression, online interventions have routinely shown positive outcomes (Griffiths, Farrer, & Christensen, 2010). Specific therapies, such as cognitive behavioral therapy delivered online has shown outcomes similar to the same treatment offered in traditional therapy settings (Anderson, 2009). Technology based interventions are now being used across diagnoses and populations with programs for substance use (Rizvi, et al, 2010), trauma (Knaevelsrud, et al 2007), improving body image among adolescent girls (Paxton, 2008), increasing parental skill level and involvement (Dietz, Cook, Billings & Hendrickson,
2009) and monitoring moods and behaviors via mobile phone applications (Morris, Kathawala, Leen, Gorenstein, Guilak, Labhard, & Deleeuw, 2010). Multiple randomized control trials have demonstrated that technology based interventions have outcomes similar to traditional therapy settings (Anderson, 2009; Barak, Hen, Boniel-Nissim & Shipira, 2008). Overall, this body of research indicates that online support can have a positive impact on individuals struggling with the potentially disruptive effects of a number of different social problems and disorders (Wright & Bell, 2003).

In addition to being effective at treating a variety of mental health conditions, there are several other benefits to online therapies. Because services can be provided regardless of time or space, people can access mental health services from their homes. People who live in remote locations, have physical disabilities or struggle with issues of transportation may benefit from receiving care without having to travel (Leibert, Archer, Munson & York, 2006). For those with certain mental health conditions, such as Post Traumatic Stress Disorder, Agoraphobia and Social Anxiety which may preclude them from going to treatment because of the nature of their illness, may also benefit from distance based counseling (Breen, & Matusitz, 2010). Even if mobility or transportation is not an issue, the convenience of online therapy has routinely been cited as one of the benefits (Rochlen, Zack, & Speyer, 2004).

Social stigma has been reported as one of the primary barriers to seeking mental health treatment (Vogel, Wester & Larson, 2007). The anonymity associated with e-therapy has been cited as one of the primary reasons people seek help via the Internet (Murphy, et al, 2009). For those who may be seeking treatment related to a particularly
sensitive or stigmatized issue, the anonymity of the Internet allows for an increased likelihood of seeking treatment (Midkiff & Wyatt, 2008). The distance created by the space of mediated communications may also allow for easier self-disclosure. In a phenomenon known as the disinhibition effect, people reveal themselves more openly via technology than one would in face-to-face settings (Ross, 2011).

The time between communications of certain types of online therapy may also provide the space for personal reflection. When clients have the time to think about the question and generate a response over time rather than answering immediately, there is an opportunity for deeper introspection and personal understanding (Rochlen, Zack, & Speyer, 2004). There is also a benefit to the client in being able to re-read saved e-mails, text messages or session notes. This not only supports intersession reflection, but can also serve to strengthen the therapeutic alliance by providing a reminder of the relationship, goals and treatment progress, even when client and therapist are not together (Murdoch & Connor-Greene, 2009).

**Computer mediated therapy with BPD/DBT**

There have been recent developments in technology that address use of technology based programs with clients with Borderline Personality Disorder, but overall, use of technology with this population is limited and not well researched. Currently, there are very few online DBT programs or access to support groups via the web. A review of various social networking sites revealed that Twitter, Tumblr, MySpace, blogster/blogspot had no groups or key words related to Borderline Personality Disorder or Dialectical Behavioral Therapy. Facebook revealed twelve user/client groups for
Dialectical Behavioral therapy and two professional groups for therapists practicing DBT. There were no support groups specifically for those with Borderline Personality Disorder, but there were three Facebook pages with both informal and professional resources for BPD. LinkedIn provided the names of four professional organizations with DBT as a common topic. The site that had the most information about receiving support for BPD was Meetup.com, which offered information on eight in-person support groups, but provided no support directly online. While Google searches for Borderline Personality Disorder and Dialectical Behavioral Therapy offer many different options for gathering information, the options for actually participating in an online group were limited. There was only two sites with postings newer than 2008. (http://borderline-personality-disorder.supportgroups.com/; http://www.mdjunction.com/borderline-personality). There are currently two mobile phone applications available for purchase through Google play, but there is no research or literature related to the effectiveness of these mobile applications in managing client symptoms.

The formal literature around use of technology with Borderline Personality Disorder is somewhat limited. There are currently developments underway to provide technology based support to both clients and to train therapists, but these are in the beginning stages. While the studies vary in how technology was used and findings are somewhat limited, all three studies indicated that use of technology with this population could be a viable option for future intervention.

One of the current areas of exploration is whether use of a collaborative virtual environment, such as the Second Life program, could be used as a method for treating
those with Borderline Personality Disorder (Good, 2011). In the Second Life program, people can create Avatars or representative images of themselves and interact with others in a computer generated world. Second Life is actively used by individuals throughout the world for business, education, entertainment and even for therapy (Turner & Turner, 2002). While no study was actually conducted, the authors suggest that given the high need of support for people with BPD, especially in times of crisis, that having a program that is immediately available and can be accessed remotely at any time, may provide the additional support people with BPD need. The authors discuss the software design issues necessary in implementing this kind of program, including the need for a level of social presence and awareness, so that clients have the perception of belonging to a community (Good, 2011). While other studies have demonstrated that users of online therapy groups in the Second Life program feel connected and supported, there are currently no Second Life groups dedicated specifically to Borderline Personality Disorder. The authors theoretically believe that use of Second Life could provide the necessary support, but research behind this idea is only in the beginning stages.

One software application that is better developed, but is still in pilot stage testing, is a Smartphone application known as the DBT Coach. This software allows users to download an application that provides information and guidance on one specific DBT skill – the Opposite Action Skill. Use of this software is intended to provide immediate support to clients struggling with substance use disorders by allowing them to use the software to walk through specific steps to help them manage substance cravings (Rivzi, et. al, 2011). Of the 22 individuals who participated in the study, 85% of them used the
application at least daily and reported high levels of satisfaction, usability and 
helpfulness. In addition, both emotion intensity and urges to use substances decreased 
after use of the coaching session application. However, the authors found that were was 
no change in frequency of phone calls to speak directly to the therapist during the trial 
period. As such, the authors suggest that this application be used as an adjunct to 
treatment, not a standalone method for managing relapse (rivzi, et. al 2011).

A third study is related to training therapists to provide treatment to people with 
BPD. The aim of this intervention is to provide online training to therapists, who will 
then provide the traditional DBT (Dimeff, et. al, 2011). In order for a therapist to 
effectively provide Dialectical Behavioral Therapy, the clinician must be trained. One 
option is for the therapist to attending an in-person, intensive training course. While the 
therapists can learn a great deal from these trainings, they can be expensive, require travel 
and are time intensive. A second option is for the therapist to purchase the training 
manual and attempt to self-teach. To bridge the gap between these two methods, an 
interactive, online training program was developed in which therapists could learn the 
skills and techniques online. This program was developed and offered through the 
Behavior Tech group, the corporation responsible for providing in-person DBT training 
as well (www.Behaviortech.com). The program offered information and examples, 
worksheets, learning games as well as provided simulated scenarios in which the 
therapist could practice the techniques with a virtual patient.

To study the effects of this online training program, a randomized control trial 
was conducted, with therapists being assigned to one of three conditions for learning
DBT: self study of the treatment manual, the multi-media, interactive E-Learning course covering the same content as the manual self-study, and a placebo control group who received a general e-Learning course, non-specific to the content in the other two conditions (Diemeff, et. al, 2011).

Results indicate that those therapists who received the training via e-learning modules reported higher satisfaction, were more likely to implement the skills into practice and demonstrated more long term learning and retention (Diemeff, et. al). The e-DBT learners reported significantly higher satisfaction than the treatment manual condition and were more likely to implement the skills into daily practice. The e-DBT learners spent more time overall engaging in the training and reported a stronger connection to DBT as a treatment modality than the other two conditions (Diemeff, et. al, 2011).

While these studies provide only a brief introduction to the concept of using technology with the BPD population, they provide a foundation for ongoing work into this area. Questions still remain not only about outcomes, especially those related to BPD symptomology, but also about the level of connection clients or therapists feel when using these programs. Although each of the studies addressed levels of satisfaction, there was no indication of how the user’s relationship to the therapist or other group members was impacted through the use of the various media.

**Computer Mediated Therapy and the Therapeutic Relationship**

As these and other forms of technology based therapies become more prevalent and people have more options for treatment, the use of technology is also likely to impact
how people go about seeking and receiving help (Feichnel, et. al. 2002). As technology increases in everyday life and social interaction becomes increasingly mediated, theories of social presence will likely have to continue to understand how technology mediated communications impact any type of interpersonal communication, (Biocca & Harms, 2002) including that of the therapeutic relationship. Even with the rise in popularity of these kinds of treatments, the concerns that lack of face-to-face interaction increases the risk of misunderstanding between patient and clinician remain valid. Therapists have traditionally relied on non-verbal cues, such as affect, eye contact and vocal intonations in addition to what the client says as part of the therapy work. Without non-verbal cues, the relationship is not the same (Recuerpo & Rainey, 2005). Social presence theories support this; face-to-face communications are different than other communications. Relationships vary based on the medium used and the amount of sensory data available. While face-to-face interaction is the highest form of social presence available, other forms of interaction also have social presence and connection, just to a different degree (Christie, Williams & Short, 1976; LaMendola, 2010).

Social presence theory would support that aspects of the therapeutic relationship such as empathy, mutual regard and understanding can also be effectively conveyed in a mediated environment to varying degrees. Other kinds of important relationships were able to be maintained and improved using mediated communications, including married couples (Perry & Werner-Wilson, 2011), families and parent/child relationships (Walker, Dworkin & Connell, 2011) and among classmates (Moreno, et.al, 2011). It is likely that the therapeutic alliance as a relationship would be able to do the same. However, given
the importance that therapeutic alliance plays in successful client outcomes and because therapeutic alliance is such a significant part of the therapy process, assumptions about how therapeutic alliance is affected by mediated communications cannot be made, but rather must be studied.

**Importance of the Therapeutic Alliance in Therapy**

The therapeutic alliance, also known as the working alliance, the therapeutic bond, the working alliance and the therapeutic relationship (Martin, Garske & Davis, 2000) can be defined as the quality of the working relationship between client and therapist to achieve positive therapy outcomes (Andrsyna, Tang, DeRubeis, & Luborsky, 2001). Therapeutic alliance consists of therapist qualities in the relationship including empathy, positive regard, emotional validation, trust and genuineness (Norcross, 2011). In addition to a relationship of understanding, respect and acceptance, the therapeutic alliance is also a mutual agreement of how the client and therapist will work together, with each understanding the roles and responsibilities of the shared connection (Meissner, 1996). The therapeutic alliance is one of the strongest validated factors influencing therapy success, (Ahn & Wampold, 2001) with the therapeutic relationship accounting for 10%-15% of variance explained in treatment outcomes (Krupnick, et. al, 2006).

Positive outcomes in therapy and treatment effectiveness are issues of importance due to the emotional and economic costs related to untreated and undertreated mental health conditions. People who suffer from untreated or undertreated mental health conditions can struggle with functional impairments, difficulties in their relationships, somatic complaints leading to more severe health problems, and in some cases, even with
loss of life (van Beljouw, Verhaak, Prins, Cuijpers, Penninx, & Bensing, 2010). In addition, untreated symptoms can lead to loss of productivity at work, costing workers and employers millions of dollars annually (Hilton, Scuffham, Sheridan, Cleary, Vecchio, & Whiteford, 2009). Resolution of depression or anxiety can result in improved quality of life, better relationships, and better overall health (Pan, Chung, Chen, Hsiung, & Rao, 2011). Positive outcomes in therapy and gains made in mental health treatment serve as a protective factor against the need for future mental health care (Keyes, Dhingra, & Simoes, 2010). To minimize these consequences, it is critical that clients receive the best treatment possible.

**History of the therapeutic alliance**

The working relationship in direct therapy has roots in psychodynamic theory as a means to distinguish the conscious relationship separate from the analytic process (Andrsyna, Tang, DeRubeis, & Luborsky, 2001; Meissner, 1996). Initially, the working relationship consisted only of a need to be cordial to the client, while the relationship part of therapy was considered to be part of the analytic process and included concepts such as *transference*, *countertransference*, and *resistance*. However, practitioners were finding a real relationship that consisted of mutual regard, contractual agreements, and a client’s conscious desire to feel better, which was different from the technical aspects of the analytic relationship. To address the need to define the two relationships separately, in 1936, psychoanalyst Richard Sterba concluded that therapeutic alliance was a form of positive transference that created the motivation for a client to persist in treatment.

Considered to be a reality based alliance rather than “in session” transference, a
distinction in the relationships was created and this conscious relationship was referred to as “rational transference” or “mature transference” (Meissner, p.13). Defined as the non-neurotic, conscious decisions to maintain a working relationship, analysts also began referring this as the “working alliance” (Goldstein, 2001).

In the 1920’s, psychoanalyst and theorist Alfred Adler, continued to develop the ideas related to the health of the person outside what happens in the analytic session. Prior to Adler, the belief among psychoanalysts was they should remain completely neutral so as not to interfere with the analytic process (Hoffer, 1985). However, Adler believed that the therapist must understand the cultural, social and environmental contexts of a person’s life in order to truly understand the person. Adler treated his patients with respect and caring, even outside the analysis room (Robbins, Chatterjee & Canda, 1998.) Believing that this interaction was part of the reason patients were motivated to change, Carl Rogers, a student of Alfred Adler’s, began to explore the importance of this therapeutic relationship (Feller & Cottone, 2003). Rogers developed theories around empathy and believed that there were six conditions that must apply to all therapy in order for change to occur. These conditions make up what is today commonly known as the therapeutic alliance. These conditions include: counselor congruence, genuininess, unconditional positive regard, empathy, communication of empathy and warmth (Rogers, 2007).

In 1936, psychiatrist Saul Rosenzweig first presented a different method of exploring therapeutic alliance, known as the Common Factors Model (Norcross, 2011). Rosenzweig argued that patients were able to get better regardless of treatment method.
used, indicating there must be something other than treatment modality that explains why patients get better. He suggested that these improvements were related to factors that exist across therapies, such as the opportunity for catharsis and the personality of the therapist. These ideas were supported by the American Orthopsychiatry Society in 1940, with an agreement that there were similarities across treatment models that included: agreement of goals between patient and therapist; making the relationship central to the process; that the client is responsible for making decisions (client self-determination) and the focus of treatment should be on helping the client develop a self-understanding (Duncan, 2011).

Since the introduction of the Common Factors model, there have been multiple studies and papers written about the importance of the client therapist relationship (Johansson & Jansson, 2010; Muran & Barber, 2010). Research has supported this, with as much as 30% of the reason for change in therapy attributed to this common factors model and only 15% of change attributed to the treatment type or method used (Lambert, 1992). In addition those therapies that have been deemed to be ineffective or harmful also have had common factors, namely a therapist that was rigid, distant, or a poor match between client and therapist (Norcross, 2011). Regardless of treatment modality, treatment setting or treatment type, these common factors that make up the therapeutic alliance have been found to be related to positive outcomes in essentially all forms of therapy (Castonguay, Constantino, McAleavey, & Goldfried, 2010).

_History of Therapeutic Alliance in Social Work_
The importance of relationship building has always been a key component in social work practice. Early social workers presented as “friendly visitors,” with a focus on use of the relationship to help others make changes or meet goals. With the introduction of Mary Richmond’s *Social Diagnosis* (1917), social workers moved to a more systematic method for helping others (Schulman, 2009). Though not directly referred to as therapeutic alliance, Mary Richmond addressed many of the concepts related to therapeutic alliance. She writes “a social worker can inspire confidence in her patient by her manner, which should be cheerful and at ease,” (Richmond, 1917, p. 457). Richmond also stressed the importance of the working agreement portion of the therapeutic alliance, explaining the nature of the work to be done by defining the purpose of the working relationship and outlining the role and expectation of the worker (Richmond, 1917).

During the rise of psychoanalysis in the 1920’s, social workers and psychiatrists began working together (Goldstein, 2001). The practices of social work had a unique influence on the development of therapeutic alliance in other mental health fields. Theorists such as D.W. Winnicott and Alfred Adler attribute their beliefs about the importance of relationships to watching how social workers practiced. D.W. Winnicott challenged other psychiatrists to focus on the relationships in a manner similar to social workers rather than interacting with patients only to “be available for consultation, see them once a week or for medical authority” (Kanter, 2000, p. 248).

In the 1950’s, Social Work theorist Felix Biestek proposed seven fundamental principles primary to the process of casework, several of which relate directly to the
relationship between client and Social Worker. He believed that workers must be
sensitive to client’s feelings, have a non-judgmental attitude and to provide acceptance of
the client regardless of the situation (Mullan, 1997). With the rise of the Civil Rights and
Feminist Movements, these concepts were carried over, but therapeutic alliance began to
be viewed differently in social work practice. Social work theorists, such as Barbara
Levy-Simon, suggested that while the concepts of empathy and warmth were important,
the client therapist relationship must also be a collaborative agreement. The power
differentials between client and therapist should be acknowledged and a relationship that
is “open, egalitarian and mutual” could mitigate these power differences and create a
positive working alliance (Compton & Gallaway, 1999).

In recent years, trends in therapy have shifted including the use of Evidence
Based Practices and manualized treatments, time-limited treatments due to insurance
constraints, and therapies that are largely solution focused, where the attention is placed
on solving the immediate issue rather than on the development of a relationship (Gelso,
2005). However, despite the method or technique used, the therapeutic alliance continues
to be an important factor in how people go about making change (Norcross, 2011). As
most therapists employ techniques in therapy such as empathy, warmth, and validation of
problems, the therapeutic alliance remains present and one of the key components of
change, regardless of the type of therapeutic technique used (Shedler, 2010). A recent
study demonstrated, with findings indicating that there was no difference in therapeutic
alliance when therapists used a specific treatment manual or if there was not a formal

**Research of Therapeutic Alliance**

Therapeutic alliance is a subject that has been well studied for over 40 years (Feller & Cottone, 2003). The research in this area ranges from individual case studies to multiple meta-analyses, with over 7900 articles available in Psych Info on this topic. There have been multiple randomized control trials across treatment types and treatment settings (Krupnick, 2006, et al; Sharf, Primavera & Deiner 2011). Through the course of these studies, it has been consistently demonstrated that that regardless of treatment modality, treatment setting or treatment type, the therapeutic alliance is related to positive outcomes in essentially all forms of therapy (Castonguay, Constantino, McAleavey, & Goldfried, 2010; Martin Garske, & Davis, 2000). The first meta-analyses were published in the early 1990’s (Horvath & Symonds, 1991). Since that time, over 20 separate meta-analysis reviews have demonstrated moderate to large effect sizes and indications that therapeutic alliance is an important factor in therapeutic outcomes (Norcross, 2011). Of the meta-analyses, findings demonstrate that there is a small to moderate effect size in relationship to treatment outcomes, with effect sizes ranging from .22 to 1.24 (Martin, 2000; Fluckiger, 2012; Tyrone, 2007). Effect sizes remained consistent, even when other possible explanations and moderating variables were included in the analysis, including level of therapist competence or adherence to treatment techniques or by type of illness (Sharf, Primavera, & Diener, 2010).
Because the research has been so well developed, there are several different measurements of therapeutic alliance, including the Helping Alliance Questionnaire (Hendriksen, et. al, 2010), the Vanderbilt Therapeutic Alliance Scale (Andrusyna, Tang, DeRubeis, & Luborsky, 2001) and the Working Alliance Inventory (Munder, Wilmers, Leohard, Linsteri, & Barth, 2010), and the Agnew Relationship Measure (Agnew-Davies, et. al, 1998). In a meta-analysis study comparing these tools, they were found to be similar across the construct in terms of use, therapist/client correlation, and correlation between alliance scores and various clinical outcome measures. However, despite these multiple measures, clients and therapists continue to define the working relationship in therapy as a personal experience within the dyad making it difficult to rely only on a validated measure rather than supporting qualitative statements (Krause, Altimir & Horvath, 2011).

One of these measures, the Agnew Relationship Measure, not only offers a method for measuring therapeutic alliance, the authors have developed a theory of alliance that simplifies and clarifies much of the previous work (Agnew-Davies, Stiles, Hardy, Barkham, & Shapiro, 1998). In their study, five therapists and 95 clients rated 1120 separate psychotherapy sessions using the Agnew Relationship Measure. These results were then analyzed using a Simultaneous Components Analysis (SCA) and a Principle Components Analysis (PCA) to determine factor structure and factor loadings of individual questions. Through this process, they found five dimensions that explain the therapeutic alliance. They named these as: bond, partnership, confidence, openness
and client initiative. However, the client initiative scale had low internal consistency (Cronbach’s alpha of .55), so this subscale was ultimately removed from the scale.

The other subscales demonstrated both good internal consistency (bond = .82; partnership = .80, confidence = .87 and openness = .77) as well as the ability to demonstrate change over time. The authors suggest that each of these areas make up unique parts of the therapeutic alliance. The construct of bond is the emotional relationship between client and therapist. This is both the therapist’s ability to maintain empathy and the belief by the client that the therapist is warm, caring and supportive. The construct of partnership is defined as the client and therapist working together on mutually agreed upon therapeutic tasks and goals. The partnership is what allows clients and therapists to determine outcomes of the therapy process and the steps necessary to achieve those goals.

Openness is how comfortable a client feels sharing with his/her therapist. This construct is based on a client’s ability to talk openly and share personal information without fear of judgment or embarrassment. Lastly, this model includes confidence. This is how the client feels about the therapist’s ability to provide a therapeutic technique. Confidence includes perspectives from both the client and the therapist about the competence, skills and therapeutic abilities and how well the therapist can apply these techniques to help the client achieve positive mental health outcomes (Agnew-Davies, Stiles, Hardy, Barkham, & Shapiro, 1998).

**Therapeutic Alliance and Borderline Personality Disorder**
Because people with personality disorders tend to have extreme difficulty understanding and relating to others, the relationship between client and therapist becomes all the more important (Shedler, 2010). For those providing treatment for personality disorder, regardless of the type of treatment used, the relationship itself must remain in the forefront of the treatment model, second only to ensuring the client remains alive. In the psychodynamic model for treatment of BPD developed by Otto Kernberg, as long as there is no active suicidal behavior, the first issue discussed in any treatment session is the status of the relationship. Any behaviors that create a “threat to the treatment” are introduced and discussed as a matter of highest priority (Kernberg, et al, 1988). It is only when these issues key to the treatment of the relationship are resolved can any other issues be addressed.

Bateman and Fonagay, the developers of Mentalization Based Treatment (2007), also stress the importance on the relationship between client and provider as a key component of treatment. The underlying theory of this model of treatment is based on attachment theory (Bowlby, 1988). The theory behind this treatment is that clients have had some type of disrupted attachment early in life, they are unable to form health relationships as they move into adulthood. In order to address these attachment difficulties, the therapist must help the client re-learn attachment patterns and form relationships, with the first relationship being that of the therapist-client. In this process, the therapy is a joint, cooperative process and it is expected and understood that clients may feel a wide range of emotions, even negative ones directed toward the therapist. As such, these feelings are treated as part of the therapy and relationship itself becomes the
focus of treatment. Therefore, the status of the treatment relationship must continually be assessed and problems addressed so as not to continue to repeat dysfunctional patterns of relationship interaction (Bateman, Ryle, Fonagy, & Kerr, 2007).

In the Dialectical Behavioral Therapy, the therapeutic relationship between client and provider is also routinely addressed in each session. During individual therapy session, the discussions and work to be done are structured with a treatment hierarchy. The stages of DBT treatment require that each session address problem behaviors in a specific order to ensure that there are no safety issues and the therapeutic relationship is addressed on a routine basis (Linehan, 1993a). In the stages of treatment, any suicidal behavior or threat to the client’s life is addressed is always addressed first. Once it is determined the client is safe and suicide is not an imminent threat, the next treatment target is “therapy interfering behaviors” (Linehan, 1993a). These can be any behavior on the part of either the client or the therapist that may disrupt treatment. This step allows the therapist to address what may appear to be relatively minor problems, such as arriving late to session, or significant problems, such as anger outbursts or threats of violence toward the treating professional. The client also has the opportunity at this point to inform the therapist if there are “treatment interfering behaviors,” or anything the therapist may also be doing that impacts the client’s desire to continue in treatment or work through problems. Here, the client is encouraged to discuss feelings about how treatment is progressing and any feelings about the skills, abilities or attitude of the treatment professional. It is only once these issues are resolved that the client and therapist can move into the third stage of treatment, quality of life interfering behaviors,
which may include things like self-harm, substance use, or anger outbursts (Linehan, 1993a). The client and therapist can then work together to address these problems, but only after both are confident there are no threats to the client’s life and no threats to the treatment relationship (Shedler, 2010). This hierarchy supports theories that other than managing immediate, life-threatening behaviors, the status of the relationship and the ability for the client and therapist to continue working together is not only a key factor in treatment, but in fact, the most important issue to be addressed on a routine basis (Freeman, Stone & Martin, 2005).

**Therapist Burnout and the Therapeutic Alliance**

Although each of these models offer suggestions on maintaining the alliance with the BPD client, much of the literature indicates that working with BPD clients can also create a lack of empathy, negative feelings and a lack of desire to help the client, a phenomenon known as burnout (Maslach & Jackson, 1986). While there are a number of reasons for burnout among mental health therapists, (Lent & Schwartz, 2012) those working with BPD clients are at a higher risk for burnout because of the constant demands on the relationship (Linehan, Cochran, Mar, Levensky, & Comtois, 2000). Because the therapeutic alliance relies on both client and clinician involvement in the treatment process, a therapist’s desire to help the client and the ability to maintain warmth and empathy, directly impacts the therapeutic alliance (Agnew-Davies, Stiles, Hardy, Barkham, & Shapiro, 1998). And although the most commonly used treatments for BPD require that the treatment relationship be addressed on a routine basis, there is often a discrepancy between the how the therapist views the relationship and how the
client views the relationship. Literature relating to client/therapist alliance outcomes measures indicates that there is often not a correlation between how the therapist rates the alliance and how the client rates the alliance (Bender, 2005; Blais, Jacobo & Smith, 2010). Because problems understanding and interpreting relationships are inherent in personality disorders, there is often a large discrepancy between therapist and client perspective, but it is unclear whether this discrepancy is due to the nature of the illness or because of true problems within the therapeutic relationship (Bender, 2005; Kramer, et. al 2011). Rather than attempting to correlate different and potentially unreliable perspectives, it has been suggested that it a more reliable way to understand therapeutic alliance when working with people diagnosed with Borderline Personality Disorder is not to focus on the client’s perspective, but rather on the clinician’s desire to help, ability to maintain empathy and presence of feelings of anger toward the client (Forsyth, 2007). While these issues may arise in any treatment relationship and have been described in many different terms including countertransference, secondary trauma, and compassion fatigue (Meissner, 1996) because of the amount of time, energy and resources needed to provide treatment to BPD clients rather than just emotional responses, the construct of burnout is a more fitting response to this therapeutic situation (Kramer, et. al, 2011).

Two of the leading theorists in burnout in the mental health field are Maslach and Jackson (1986). Maslach and Jackson define burnout as “a syndrome of emotional exhaustion and cynicism related to chronic interpersonal and emotional stressors” (Maslach & Jackson, 1981, p. 99). They have developed the Maslach Burnout Inventory, which has been widely studied and evaluated as a measure of burnout, with over 22
different studies exploring the factorial validity of the underlying structure. Reliability and validity of the Maslach Burnout Inventory and have been tested repeatedly and typically have total scale and sub scale reliabilities ranging from .77 to .92 (Kim & Ji, 2008).

These studies have revealed three underlying constructs, including emotional exhaustion, personal accomplishment and depersonalization (Brusaferro, Agnoletto, Gubian & Balestrieri, 2000). Emotional exhaustion is defined as feeling over extended and over involved in client’s lives. It includes components of feeling like the therapist has no time for self or his or her own personal life. Depersonalization is the opposite of empathy, and is in fact, a loss of empathy, feeling as though clients are no longer people. Depersonalization also includes feelings of wanting space and distance from clients and work space or lack of a desire to do one’s job. Last is personal accomplishment. This is a protective factor against burnout, where therapists feel like they are doing something good, are helping people, and have confidence in their skills and abilities to make change in people’s lives (Maslach & Jacskon, 1996).

While each of these constructs is related to the therapist’s ability to maintain the therapeutic alliance, the literature around burnout suggests that situations within the environment can also contribute to therapist burnout. Burnout has been shown to be related to characteristics of the job environment, including lack of appropriate environmental resources or stress and pressure placed on them by high caseloads or unrealistic work experiences (Becksted, 2002). Because of some of these factors, one study found that those therapists working in community mental health are more
susceptible to burnout than those who work in private practice or inpatient mental health facilities (Lent & Schwartz, 2012).

**Research of Therapeutic Alliance in Computer Mediated Communications**

As the research would indicate, the therapeutic alliance is key to positive client outcomes. However, despite the efficacy of clinical outcomes in many of the computer based therapy programs, there are questions that still remain about whether one of the key components of therapy, the therapeutic relationship, can be maintained when using technology based interventions. Although theory supports that therapeutic alliance can be built and maintained remotely, the role of therapeutic alliance in computer mediated communications is just in the beginning stages of research (Hanley, 2009). In fact, many of the studies right now are in the preliminary stages, with research designs composed mainly of qualitative studies, small scale survey data or quantitative studies with a limited number of participants (King, Bambling, Reid & Thomas, 2006; Haberstroh, Duffey, Evans, Gee & Trepal, 2007; Murdoch & Connor-Greene, 2009; Simpson, Bell, Knox, & Mitchell, 2005; West & Hanley, 2006). While these studies can provide a picture of the nature of the online therapeutic relationship, studies that actually compare online alliances to face-to-face alliances are limited (Murphy, Parnass, Mitchell, Hallett, Cayley & Seagram, 2009). Although limited, there are some studies that have begun to explore the online therapeutic relationship in greater depth. Although not rigorous in their methods, these studies are routinely cited in the literature as the primary studies related to understanding the development of the therapeutic relationship via computer mediated communications.
Day & Schneider (2002) are frequently cited as one of the key studies in addressing the role of therapeutic alliance via technology based communications. While not directly related to online interventions, this study attempts to understand the difference in the therapeutic alliance through different forms of technology. Eighty participants recruited from a mental health practice clinic were randomly assigned to receive five sessions of Cognitive Behavioral Treatment through either video conferencing, telephone or in the traditional face-to-face setting. Findings demonstrate neither a statistically significant difference in process nor in the outcome among the three groups. All three groups reported an overall decrease in symptomology with no one group statistically better than any other group. In addition, all three groups reported similar levels of therapeutic alliance, with no difference between groups.

Cook and Doyle (2002) contacted online therapists and requested help in locating clients who may be interested in participating in an online research trial. Fifteen people agreed to participate in the study. Type of treatment was determined by therapist and client, but all participants used either e-mail or synchronous chat as their primary communication method. At the end of treatment, the clients were given the Working Alliance Inventory (WAI) (Busseri & Tyler, 2003). Using a one sample t-test, the scores from the online sample were compared to the mean score from the face-to-face validation study of the WAI. Results indicate that while scores from the online sample were higher than those from the validation study, there was not a statistically significant difference.

Leibert, Archer, Munson, & York (2006) are also well known for their study in regards to therapeutic alliance. In their study, 81 participants were recruited from public,
online mental health groups to participate in online therapy. Modality of online treatment was determined by therapist and client. At the end of treatment, the clients completed two validated measures to determine level of therapeutic alliance, the Working Alliance Inventory (Busseri & Tyler, 2003) and the Client Satisfaction Inventory, (McMurtry & Hudson, 2000) both of which have been validated in face-to-face therapy settings. In addition to these two measures, clients also completed an open ended survey with questions about their experience in participating in online therapy. Using an independent samples t-test, the mean scores from the online sample were compared to the mean scores from a Working Alliance Inventory validation study. The same process was used for the Client Satisfaction Inventory. Results showed that therapeutic alliance on both measures was statistically significantly better in the face-to-face studies than in the online sample. Despite the negative quantitative findings, the results from the survey data indicate clients felt an overall satisfaction with online therapy. The clients reported the privacy, anonymity and flexibility as the main reasons for participating in online treatment. They also report that despite lack of verbal cues, they did feel connected to their online therapist.

These studies have laid the groundwork for several other studies. While the research in this area itself remains limited, there are researchers who are looking at this issue using different forms of technology, with different populations and even attempting to make comparisons between online and face-to-face groups.

Reynolds, Stiles & Grohol (2006) recruited 17 online clients to evaluate the quality and development of the therapeutic relationship. At the end of each session,
clients and therapists completed two measures of alliance including the Session Evaluation Questionnaire and the Agnew Relationship Measure (Agnew-Davies, et. al., 1998). A total of 205 sessions were evaluated. Using primarily descriptive statistics, the authors determined that the mean scores of each of the scales was similar to the mean scores in previously published results on face-to-face therapy, however, no inferential statistics were used to make this determination.

Reynolds & Stiles (2009) replicated their earlier study, but with more clients and a greater number of sessions. Thirty clients completed the Session Evaluation Questionnaire and the Agnew Relationship Measure weekly, resulting in data for 475 sessions. The authors again compared the means of their data with previously published data and found means above clinical cutoffs used in other studies using the Session Evaluation Questionnaire and the Agnew Relationship Measure. However, in addition to descriptive statistics, the authors also used linear growth modeling to understand how the online relationship develops over time and what client or therapist factors may impact changes. Results from the growth curve modeling indicate that those clients who have fewer symptoms and greater social supports had greater increases in therapeutic alliance than those clients who were more isolated and more symptomatic.

Murphy, Parnass, Mitchell, Hallett, Cayley & Seagram (2009) recruited participants from a mental health clinic. The regular process for this clinic is to offer the opportunity to participate in either online therapy or face-to-face therapy. This study compared the differences between online and face-to-face counseling in both clinical outcomes, as measured by the score on the Global Assessment of Functioning (GAF) and
client satisfaction based on an internal satisfaction survey. The GAF change scores of 26
online participants were compared to 101 change scores of clients receiving face-to-face
therapy. Using a one-way ANOVA, results indicated there was no significant difference
in the change of GAF scores between online and face-to-face counseling. Over the course
of a two year period, forty five online participants completed the Client Satisfaction
Survey (CSS), an internal, non-validated survey regarding satisfaction with services
received through the clinic. The CSS scores from the online participants were compared
to the scores on the forty three face-to-face clients. There was not a statistically
significant difference between face-to-face and online modalities in terms of client
satisfaction.

A belief that those who have grown up in the NetGeneration would have more
comfort with the development of online relationship (Tapascott & Williams, 2010)
prompted Hanley (2009) to address the issue of therapeutic alliance with youth. In a
mixed method study, 46 youth aged 11-25 participated in an online therapy program and
completed the TQS Therapeutic Alliance Quality Scale. In addition, seven youth
completed individual interviews about their experience with online therapy. Results from
evaluation of the TQS scale indicate that youth were able to connect to their therapist,
with 76% reporting medium to high levels of therapeutic alliance. Results from the
qualitative interviews revealed that youth actually preferred the online therapy. They
report benefits to be ease and anonymity. They report the lack of non verbal cues as
benefit rather than a hindrance, stating that if the therapist could not see them, they were
more comfortable expressing emotions.
One of the areas of interest for online therapy is for those who struggle with PTSD. Knaevlsrud & Maercker (2007) randomly assigned 49 participants to an online treatment program and 47 participants to the wait list control group. At the end of the treatment, those who received therapy had significantly fewer PTSD symptoms than those who received no treatment. In addition to looking at symptom outcomes, the authors also wanted to investigate therapeutic alliance development by having the participants complete the Working Alliance Inventory (Busseri & Tyler, 2003). Because the wait list control group had no one with whom to create a therapeutic alliance, there was no way to compare WAI scores between the two groups. Instead, the relationship between outcomes and therapeutic alliance was analyzed. Results indicate that those participants who had a higher therapeutic relationship scores also had lower symptom scores at the end of treatment, with the working alliance predicting 15% variance explained in the post treatment symptom scores. In addition, 76% of the participants reported online treatment to be a positive experience and 60% did not miss the face-to-face interaction.

A second PTSD study by Germain, et. al., (2010) compared the use of videoconference therapy and face-to-face therapy. Forty-six people were assigned to either video conference or in person sessions. The clients received 16-25 sessions of Cognitive Behavioral Therapy. The Working Alliance Inventory and the Session Evaluation Questionnaire was administered five times during treatment. Independent samples t-tests at each testing and overall score indicated no difference between the two groups. In addition, a repeated measures ANOVA was used to understand the
development of alliance over time and found that there were similar linear equations in both groups.

Omrod, Kennedy, Scott & Cavanagh (2010) completed a pilot study of a program aimed to treat depression online. Twenty-three people completed eight sessions of an online treatment program with therapist guidance. The participants completed a Beck Depression Inventory (BDI) prior to starting the program and then again at the end of treatment. In addition, the participants also completed the Agnew Relationship Measure (ARM) (Agnew-Davies, et. al., 1998) at the end of treatment. Results indicate that the program reduced depression, with BDI scores significantly lower at the end of treatment. In addition, scores on the ARM were higher than the midpoint value in the ARM validation study. However, unlike other studies, there was not a significant correlation between changes in depression score and therapeutic alliance.

Klein, et. al (2009) evaluated whether the amount of contact the client had with the therapist impacted therapeutic alliance. Fifty-seven people participated in an online treatment for panic disorder. The clients received eight sessions of an online tutorial plus therapist contact. The participants were assigned to receive either high therapist contact, which was a minimum of three e-mails each week or low therapist contact, which was only one e-mail each week. At the start of the study, participants completed a pre-test, measuring level of anxiety and panic symptoms. At the end of the eight sessions, clients completed post-test regarding changes in panic symptoms. The participants also completed a treatment satisfaction survey and the TQS Therapeutic Alliance Quality Scale. Results indicate that both groups had significant improvements in panic symptoms
and there was no difference between groups in terms of improvements in panic symptoms. There was no statistically significant difference between groups in treatment satisfaction or in therapeutic alliance between the high contact and low contact groups.

Overall, these studies indicate that the building of therapeutic alliance online is possible. In many cases, the relationship appears to progress no differently online than it does in face-to-face settings. However, to date, studies in this area do not employ rigorous enough research methods or sufficient statistical power to state this with any level of certainty. Although studies are becoming larger and employing quasi-experimental designs including comparison groups, to date, formal research in this area is only beginning.

Therapeutic alliance in general has been well studied. The effectiveness of online interventions has also begun to move into the stages of more rigorous testing. However, as indicated by the therapeutic alliance literature, there is a critical interplay between therapeutic alliance and outcomes. Therefore, effectiveness of online intervention literature must also include the question of therapeutic alliance. This is an area in which there is not yet sufficient information. Early qualitative, case study reviews, and naturalistic reviews have begun to explain the phenomenon of online therapeutic alliance (Marks et. al, 2009).

**Need for Further Research**

Since its beginnings, social work has been a mobile practice, with social workers conducting their work where the people are located (Ferguson, 2006). As people are living more and more of their lives in online environments (Tapascott & Williams, 2010),
social workers must be able to adapt to the changing needs of the clientele and do their work where the people are. The Internet has become more than a place to get information, it provides a community. When people go on to the Internet, they are not only doing work or looking for specific information, they are also looking for affiliation, support and connection to others (Kreijns, Kirschner, & Jochems, 2003). When people engage in an online community, there is a need to establish identity with others, to be able to present one’s abilities and the need to be understood by others for the purpose of developing relationships (Aragon, 2003). People are using the Internet as their community. One study showed that 25% of social network users reported some type of depressive symptoms in status updates. In response to these updates, each of the users consequently received support from online friends (Moreno, et. al, 2011). A second study of users of social networking sites found that activities that take place online do translate into day to day life. Emotional injuries sustained in the cyberworld, such as being “unfriended” triggered the same emotional responses as losing a real world friend. This indicates that there is awareness that activities that happen on line are not fake or pretend, but in fact, are real relationships with real people (Tokunga, 2011).

As relationship is a key component to social work practice (Schulman, 2009), the ability to develop and maintain relationships online is an area that must be addressed in order for online social work practices to be successful (Recuerpo & Rainey, 2007). Theory would support the idea that relationships can be maintained even when two people are not together and that face-to-face interaction is not necessary for the development or maintenance of a successful relationship. While the process for
connecting to the other via technology is different than it is in face-to-face interactions, people can convey emotions, thoughts, feelings and even mannerisms through mediated communications, (Recuerpo & Rainey, 2005; Krijens, Kirschner & Jochems, 2003). An entire language of online relationships, know as presence techniques, has been developed through the use of emoticons, symbols, and a technique known as emotional bracketing, where the emotion name is put in brackets after the statement, is also being used to convey and understand the intentions and thoughts of the other (Murphy & Mitchell, 1998). There are techniques that exist in online communities that demonstrate affiliation and support, such as a “like” on Facebook or a “retweet” on Twitter (Dunlap, 2009).

Although theory suggests therapeutic alliance should not be compromised by use of technology, research has yet to definitively back this up. Preliminary studies indicate some promise in this area, but there is simply not enough known about how relationship develops, what factors are associated positive with online alliance. Taking it a step further, there are few studies that explain the relationship between alliance and outcomes and if this is different in mediated therapy practices. Each of these areas will need to be addressed with more rigorous research methods in order to better understand the phenomenon of building and maintaining therapeutic alliance in a mediated environment.

Despite the current gaps in research, there may be times in which computer mediated communications are a necessity. For those who are homebound, who are limited by the very nature of their illness or those reluctant to seek treatment due to stigma, a variety of treatment options may improve their willingness to seek treatment.
As social work has a commitment to finding ways to remove barriers for underserved populations, and technology based interventions may be the best option.

Technology does not only need to be used when there is no other choice; use of technology can also be a clinical decision. Technology can be used to control the intensity of the relationship, to provide additional support or to set boundaries through creating distance (Short, Williams & Christie, 1976). The use of technology to mediate the relationship could serve as a way to transition clients out of therapy, provide supplemental support outside regular sessions or provide a boundary to decrease intensity in the relationship (Ross, 2011).

As so little is known, despite regular use by practitioners, this research attempts to explore the role technology plays in therapeutic relationships. The gaps in literature lead to questions about the planned use of technology as part of the therapeutic process. Theoretically, the use of technology could play an important part in the therapeutic process, by offering additional support to the client, by providing additional resources for therapists and by providing a community and sense of belonging. To date, this remains only theoretical as studies in this area are just emerging. More research is still needed to better understand what may transpire when technology is included in the relationship.
Chapter Three: Methods

This study examined the extent to which therapeutic alliance can be maintained and enhanced based on an approach that incorporates the application of social presence theory. In this study, clients and therapists could access a variety of Internet based website DBT resources. The resources increased the range of available therapeutic interactions from face to face and telephone to multimedia and computer based assessment. The study hypothesized that therapists who intentionally vary their social presence by using a range of social interactions to communicate with their clients can maintain a positive therapeutic alliance.

To explore these questions, a convergent, parallel, mixed methods design was used, addressing social presence, burnout and therapeutic alliance. Internet based websites containing DBT resources were provided to clients and therapists involved in a community mental health Dialectical Behavior Therapy program. The clinical use of the Internet based website resources was then evaluated using both qualitative explorations as well as quantitative measures. Once the resources were provided to the clients and therapists, the study focused on what changes as a result of different types of client/therapist interaction that were either exhibited or reported. Specifically, four research hypotheses were the focus of this study:

Research Hypotheses
**Hypothesis #1**: The more tools therapists have to vary social presence, the more therapists will use those social presence tools to communicate with clients.

**Hypothesis #2**: When therapists use a range of social presence tools to communicate with clients suffering from borderline personality disorder, therapeutic alliance will improve.

**Hypothesis #3**: When a range of social presence tools to communicate with clients suffering from borderline personality disorder are used, client outcomes will improve.

**Hypothesis #4**: When a range of social presence tools to communicate with clients suffering from borderline personality disorder are used, social work therapists will feel less stress and anxiety about working with this population and therapist burnout will decrease.

**Research Design**

This study used a convergent, parallel mixed methods design. This design has been described as one of the most common approaches used in mixed methods methodology (Creswell & Plano Clark, 2011). In this design, the quantitative and qualitative data are collected and analyzed independently. The results from the different methods of inquiry are then brought together to try and deepen understanding of the research question. This type of methodological design was appropriate for this study in that the literature surrounding each of the underlying theories is in different stages of exploration. For example, while the concepts of burnout, therapeutic alliance, and client psychiatric outcomes have been explored in depth throughout the literature, theories of social presence are just emerging in the literature, and there continues to be ongoing
debate about the best way to both define and measure it (Biocca, Harms & Burgoon, 2003; Insko, 2003). As such, a variety of methods was needed to be able to understand the research questions as a whole. The social presence theories and how they related to the other concepts were explored using primarily qualitative inquiry, which allows for a more in-depth understanding of an area that is less well known or studied (Patton 2002).

However, qualitative analysis alone did not offer enough information, especially as it related to specific outcomes or changes over time. The literature provides validated quantitative measures to understand therapeutic alliance, burnout and client outcomes, providing a way to explain these phenomenon in a different manner than qualitative inquiry alone would allow. Because the research hypotheses specifically ask about change over time, quantitative techniques not only provided a different lens through which to view these concepts, but, more importantly, offered methods to demonstrate change over time that the qualitative data gathered for this study could not offer (Cassell & Symon, 2004).

While each of these areas of inquiry can provide unique and useful information, a particular strength of this design and the primary purpose of using it here is to bring complementary but different data to help address the research question (Cresswell & Plano-Clark, 2011). As the results come to demonstrate, the underlying theories overlap and support each other, so multiple methods of inquiry allowed for a compare/contrast of the findings in order to achieve an acceptable level of validation and corroboration. The selection of the design follows the suggestions of major methodologists in mixed methods design, when inquiry is needed for a purpose of providing demonstration of
effects at the same time, while still wanting depth beyond statistical explanation (Cresswell & Plano Clark, 2011). The quantitative and qualitative portions of the study each offered unique methods for exploring the range of social presence tools used to communicate with clients suffering from borderline personality disorder. When findings from the two methods of inquiry were brought together, the qualitative statements helped to explain the quantitative findings (Padgett, 2008). In cases where the quantitative findings were different than expected, the qualitative statements helped to clarify the numeric differences. In the same manner, the quantitative data helped to lend credibility to the qualitative statements. To maximize the quality of understanding about social presence, and the interaction of social presence with other clinical theories, both types of inquiry were beneficial and served as complimentary explanations to a relatively unknown topic (Cresswell & Plano Clark, 2009).

**Population and Sample**

**Therapists**

The study was conducted in collaboration with Jefferson Center for Mental Health Dialectical Behavioral Therapy (DBT) program. Jefferson Center for Mental Health (JCMH) is a not for profit, community mental health center, providing mental health care to people in three counties. Two of the counties serve primarily mountain and rural communities. One of the programs offered to clients is a Dialectical Behavioral Therapy program. JCMH has been offering the DBT program to clients since 2000. Data from JCMH indicate that between 2004-2011, the DBT program has provided therapy to approximately 150 clients each year (mean=153.3, sd=39). At the start of the study, there
were ten different DBT groups at three different sites with 24 DBT trained therapists. By the end of the study, there were six groups running, with 15 DBT trained therapists facilitating these groups. A hundred percent of the therapists involved in the DBT program participated in the research in some manner, by providing feedback for the development of the site, completing the validated measures or participating in the final focus groups. During the course of the study, five therapists left JCMH and three remained with the agency, but stopped providing DBT services. Accounting for those therapists who left the agency or the DBT program and those who were unable to complete the pre-test measures, the final number for the therapist participants was nine (60% of the therapists) for the quantitative measures and 15 for the focus groups.

Of the therapists who were included in this study, there were 11 women and four men. Fourteen of the therapists were Licensed Professional Counselors (LPC) and one had a Doctorate of Psychology (PsyD). The therapists had been in practice for some time, with all 15 of them having a minimum of three years of professional experience. The length of time in practice ranged from three years to 26 years and the mean length of years the therapists had been in the field was 12.3 years (sd=8.3). Each of the therapists had completed the DBT Intensive Training Program to learn key concepts and practices related to Dialectical Behavioral Therapy. This is an intensive, two week program that teaches clinicians about the tenets and practices of DBT (BehaviorTech.com, 2012). In addition to this training, all of the therapists participate in ongoing DBT training through a weekly DBT consultation team with their small teams, a monthly DBT administrative meeting and a workshop or outside DBT training on a yearly basis. There was no specific
sampling procedure; all therapists who provided DBT services were invited to participate. The only inclusion/exclusion criteria were that they needed to be part of the DBT program and employed at JCMH.

Consent forms were signed by each of the therapists at the start of the study (See Appendix E). The researcher met with the DBT team prior to the start of the study at one of their monthly administrative meetings. The researcher explained the research plan, what they would be asked to do if they opted to participate. It was explained that their decision to participate in the study would not impact their employment or their ability to take part in the DBT program at the agency in any way. There were no incentives provided, but the researcher did provide meals for the meetings when the website was reviewed and during the focus groups.

Once the website was completed, the therapists were invited to review the website prototype. On the day of this review, the therapists were all provided with formal consent letters explaining the research and giving them the opportunity to participate further. It was explained that statements, comments or suggestions about the website itself would be used not only to make changes to the site, but that their statements would also be included in qualitative analysis. They were informed the prototype session and their related comments would be audio taped. All of the therapists signed the consent letters to participate in the research project and to have their participation audio taped.

At the end of the intervention period, the research procedures were again reviewed prior to the start of the focus groups. All of the therapists consented to participate in the focus group sessions and have the focus groups audio taped. The
procedures for the quantitative portion were also reviewed and the post-test measures were also administered at the focus group sessions.

**Clients**

The client population for this study included men and women, who had been part of the DBT treatment at some point in the previous two years. There was no sampling procedure for participation in the study. There were no exclusion criteria from the study; all DBT participants were invited to use the website. De-identified client data with all of the Basis 32 scores used for internal evaluation purposes were provided to the researcher; no clients or data were excluded from this data set.

Although there were no specific exclusion criteria for the study, in order to be in the DBT program, clients must meet certain criteria. To be part of the program at this agency, the clients must have been diagnosed with a Borderline Personality Disorder. The clients can have a variety of Axis I diagnoses, but those clients diagnosed with a psychotic disorder, such as schizophrenia, are excluded from participating in the DBT program. In addition, any client with a developmental disability is not eligible to participate in the DBT program. Those clients with violent histories or aggression toward others are also excluded from participating.

**Group Assignment**

The group assignment was based on when the intervention was available. The first group, (non-intervention group) included those clients who had participated in DBT between June 2011 and April 2012, prior to the introduction of the DBT website. There were a total of 70 participants in this group, known throughout this study as the “non-
intervention group.” Any clients that had only a single time point were not included in the analysis, as the focus on the analysis was change scores. Subsequently, all of the participants had completed measures for at least two time points, but not necessarily all three time points. The age for this group ranged from 18-61 and the mean age was 38.43 years (sd=10.7). The gender was primarily female, with 80% female (n=56) and 20% male (n=14). The race of the participants was 82% Caucasian (n=58); 5% Hispanic (n=4) and 11% reporting other (n=8). The marital status of the participants was mixed, with 34% reporting divorced (n=24); 11% married (n=8); 35% reporting never married (n=25); 11% separated (n=8); 2% widowed (n=1) and 7% not reporting (n=4). The participants educational status showed 46% having attended some college (n=32), 16% with a college degree (n=11), 25% completing high school/receiving a GED and 8% did not complete high school, 5% did not report their educational status. Most of the participants were not working, with 70% currently unemployed (n=50). (See Table 1).

The second group, known as the “intervention group,” included those clients who participated in DBT between April 2012 and January 2013. There were a total of 54 clients in this group. The age for this group ranged from 19-56 and the mean age was 37.22 years (sd=10.5). The gender was primarily female, with 77% female (n=42) and 23% male (n=12). The race of the participants was 91% Caucasian (n=49), 3% Hispanic (n=2), and 6% reporting other (n=5). The marital status of the participants was mixed, with 35% divorced (n=12), 17% married (n=9), 45% never married (n=25), 10% separated (n=5), 2% widowed (n=1) and 3% not reporting (n=2). The educational status of the participants was 42% some college (n=23), 28% with a college degree (n=15),
22% with a high school diploma or GED (n=12) and 5% with no high school diploma (n=4). Most of the participants were not working, with 65% unemployed. (See Table 1).

Analyses were conducted to determine if the intervention and non-intervention groups were the same demographically. Independent samples t-tests were used to determine differences between the groups on the age variable. Chi-square analyses were used to analyze differences in nominal variables. There were no statistically significant differences in the demographics of the two client groups. Independent samples t-test indicate that there was not a statistically significant difference in age, (t=.677, p=.506). Chi-square analyses indicate no differences in gender ($X^2=2.616$, $p=.270$) race, ($X^2=2.6$, $p=.457$), marital status, ($X^2=4.8$, $p=.457$) or by education ($X^2=6.4$, $p=.435$), or by employment status, ($X^2=1.8$, $p=.762$). (See Table 1).

All participants in this study had a diagnosis of Borderline Personality Disorder. Axis I diagnoses varied by client, but the specific Axis I diagnosis information was not linked to the outcome data and was not available to the researcher for this project.

Consent from the client group was obtained through different processes depending upon the measure or method being used. For the quantitative portion of the study, there was no direct client consent obtained. The agency routinely collects a self-report, validated scale of psychiatric symptoms called the Behavior and Symptom Identification Scale (Basis 32) (Eisen, Normand, Blanger & Spiro, 2004.) The agency has been collecting this data as a way to evaluate the DBT program since 2008. When people become clients of JCMH, they sign a form stating that they give permission for this information to be used for purposes of agency evaluation and research. The
researcher did not initiate any new processes related to collection of this data; it was collected by the agency in the same manner as it had been for the past several years and then a copy of de-identified data was provided to the researcher by the agency. For the second quantitative measure, the Agnew Relationship Measure (ARM), the consent form was attached to the measure itself. The clients were provided with a copy of the research consent and the ARM scale at the same time the Basis 32 was administered. Consent for the qualitative portion of the study was gathered prior to the start of the open house sessions. Any clients attending the open house were provided with both a written and verbal explanation of the procedures and those who wanted to participate signed a consent form (See Appendix E). All clients who attended the open house sessions signed the form and agreed to have their comments included in the research study.

The DBT Website Intervention

Website Development

After the initial meeting with the DBT team to present the research plan, the researcher attended several DBT administrative meetings to gather information about the DBT program and get ideas from the therapists about the website. The therapists provided ideas about things that would be helpful for their clients to access, such as demonstrations of the skills. The therapists also wanted a place where the clients could complete their homework, monitor their mood and behaviors online, with the option to e-mail this directly to their providers.

The therapists also asked specifically about creating content to help transition people out of treatment. They report one of the bigger difficulties they have had is with
people who have completed the skills group training. The therapists report that these clients have learned the skills, but need help implementing the skills into day to day life. They also report that these clients are struggling with losing the connection of the group, so they would like to be able to provide some level of support while supporting the clients as they build on the success made while in treatment.

The therapists provided feedback on what may also be useful clinical information to have available via website. They wanted tips and ideas about mindfulness activities, specifically, they wanted suggestions on how to match mindfulness activities with the lesson being taught in the skills training group. They also wanted quick and easy reminders of things learned in their intensive DBT training, such as the commitment strategies and validation techniques (Linehan, 1993a). The therapists also asked about having a way to remember the behavioral techniques of reinforcement, punishment, extinction and other tools used in classical behavior modification (Skinner, 1976).

The therapists also clarified the items they did not want, such as a discussion board in which clients could communicate directly with each other. They had concerns that without strict monitoring by therapeutic staff, a message or discussion board could create the opportunity for clients to offer each other poor advice. In the DBT training manuals, it is suggested that clients not have contact outside the group or rely on each other for support due to concerns that suicidal and self-harm behaviors may be too overwhelming for other clients to have to manage without therapeutic support (Linehan, 1993b). Although this discussion board would provide another manner for varying social
presence, because it is outside the scope of DBT practice and would require constant monitoring, the client discussion board was not included in the design.

When all of the information about the content of the site was collected, the researcher then worked with the JCMH team to create the website content. The therapists agreed to video tape role plays of individual and group sessions. The therapists also provided ideas for mindfulness practices, homework suggestions and “cheerleading statements,” a DBT technique used to offer client support (Linehan, 1993b). The website was reviewed for content by an expert in DBT. Dr. Cheryl Chessick, a professor at University of Colorado Denver, Department of Psychiatry and a DBT researcher, reviewed the site for the purposes of accuracy and DBT fidelity. The website was approved for content. Once the content was created, the researcher met with the web developer to put the site together and begin testing the flow and features of the website.

**Legal and Ethical Issues**

*Copyright*

After there was a prototype of the site created, the JCMH legal team met with the researcher and the JCMH administration to review any possible legal or ethical issues related to the site. The legal advisor discussed the issues of copyright, which was addressed in two different ways. First, the legal team wanted to ensure that this website did not infringe on any current copyrights or patents related to Dialectical Behavior Therapy, DBT, or DBT based websites. Although there is much on the site that is based on the work of Marsha Linehan and her treatment manual, *Treatment of Borderline Personality Disorder*, (1993), there were no direct infringements. The lawyer found that
Dr. Linehan does not own a copyright or trade name of DBT, so it can be used freely in other works.

Once the site was completed, the web pages were copyrighted by the website developers and claimed as intellectual property by JCMH. Each page has the following statement: “© Copyright 2012 All Rights Reserved. Jefferson Center for Mental Health.” The therapist website has a similar copyright, stating “© 2012 Resources for DBT Therapists “

Risk Management

Because the site was being used as an adjunct to treatment, the therapists and administration had no real concerns about managing client safety. The agency as a whole already has an after-hours emergency protocol in place, none of which would change with the introduction of this website. However, as a precaution, this statement is located on each page of the website:

“None of the information we provide you is intended to make any diagnoses, prescribe any treatment, and is definitely not a substitute for contacting a mental health professional. This site is not intended for emergency use. If you are experiencing a mental health crisis and are already a patient of JCMH, please contact your therapist directly, call 303-***-**** day or night and ask for Emergency, call 911, or go to the nearest Emergency Room for further evaluation.” (www.jcmh.org/dbt, 2012).

In addition to this information on the site directly, the after-hours crisis team was informed of the DBT website. They were provided with information about how to log on, when to refer a client to use it and how to respond should a client talk about the website during a crisis phone call.

Technical problems
One of the concerns by the therapists was that use of the website may actually cause a client to become more upset or emotional if they have technical problems. While there was no way to implement a 24 hour technical problem hotline, there is a statement on each of the pages that states: “For technical issues please e-mail us.” A link was provided where clients could e-mail any problems. The e-mails were then routed to three people: the JCMH web developer, the director of the DBT program and the researcher, so that one of the three people could resolve the problem as quickly as possible.

*Privacy*

The issue of privacy was complicated by an internal agency information technology process. The agency was in the process of developing a “client portal” in which clients could access their medication information and make appointments. However, at the time of the launch of the DBT website, this portal was not yet available. This meant that the agency felt there was no way to provide individual specific client log-on and passwords to each DBT client. Rather, all the information would have to be made available to everyone and it would not be possible to track individual users. Because there was no way to protect client privacy through specific log-on and password protected processes, some of the affordances the therapists requested were not included in the final site. For example, since there was no way to ensure privacy if clients were completing and saving activities online, the interactive homework and the mood journals were not included in the site. In addition, the JCMH administration stated they did not want clients to e-mail therapists directly due to concerns about privacy of clinical information. As such, this affordance was also not included in the final site.
Although individual, client specific log-on and password information was not able to be provided, the agency administration still felt it was important to protect the site for both safety and proprietary reasons. The clinical and information technology administrators at the agency decided to create a Universal Password. This password could be given to any JCMH DBT client, but would potentially limit non-JCMH clients from accessing the site.

To ensure the web information specifically designed for use by the therapists was limited to JCMH therapists, the site was protected with individual log-on and password information. Each therapist was given a unique log-on and password to be able to access the site.

*Digital Divide*

There was some concern by the staff that clients would not have access to computers, and even if they did, the clients would not have the technical ability to be able to access the site. There were two open house sessions held for the purposes of client training, in which computers and Internet service were available for client use. In addition, the agency has a community drop in center, with free computers and Internet. The researcher met with the director of this program to discuss the website and set up training sessions for clients and staff. The website address and log-on information was available at the drop-in community center throughout the intervention period.

*Prototype and Therapist Feedback*

Once the website was mostly completed, the researcher and web developer from the agency met with all of the therapists to test the website and receive feedback. This
provided the therapists a “first look” at the site as well as helping to catch any bugs in the navigation or features. The therapists provided suggestions based on the work they do in group and individual sessions, including changing some terminology or wording to reflect their practices. In addition, they requested the addition of a “forms” page, where clients could download handouts they typically provide in group sessions. The web developer was able to address problems as they came up, making real time changes during the prototyping meeting.

**Introduction of the Website**

After all changes suggested in the meeting were made and the legal and ethical issues were addressed, the website was made available to clients. The clients were informed about the site in three different ways. First, Open House flyers were posted throughout the agency. Those clients in DBT, recently graduated, or considering joining DBT were encouraged to attend. Secondly, flyers about the site were handed out in DBT group sessions and the username and passwords were included in the weekly DBT homework packets. Finally, the therapists were all given small business cards with the DBT web address and username and password information that they could hand out to clients during individual or group sessions.

To inform the therapists about their portion of the site, the researcher attended a DBT administrative meeting and demonstrated the different features and affordances. The therapists then received an e-mail with their individual log-on and password information. A second e-mail with username and password information was also sent out the following month to serve as reminder of the available tools.
The site was made available to clients May 1, 2012. Although the site remains open for client use today, for purposes of data collection, the intervention time period ended on December 31, 2012, providing a six month intervention time frame.

**DBT Website Site Map**

The website was created using an intentional design, with features specifically created to both encourage change in behaviors and to illicit psychological responses from the users. The affordances, features, layout, design and navigation of the website were all created for specific purposes based on various design theories (LaMendola & Krysik, 2009). The decisions how, where and in what format the content was to be displayed were based upon theories of persuasive systems design and social presence. The site contained multiple affordances, including animated demonstrations of the skills, interactive exercises, text based information and downloadable worksheets, as an attempt to vary the types of sensory cues available to the user and provide the information in a way that appeals to multiple learning styles (See Table 2).

The intervention website had two distinct areas: one section for the clients and one section for the therapists. Although the two sites were part of the same intervention, for the purposes of clarity, they will be referred to as two separate sites: The “client site” refers to the portions created for the client and “therapist site” which has the information specifically for the therapists.

**Client Site**

When users log on to the DBT website, they are greeted by a welcome page (see Image 1). This page is the first experience users have with the site and is intended to
create a welcoming tone and an immediate connection to DBT as a treatment. The home page has a welcome video that describes the purpose of the site while also demonstrating how to navigate through each of the various pages. From the home page, the users can access several different pages depending on their individual needs, a process known as tailoring (Fogg, 2003). Tailoring is a concept in which users choose the information that is most relevant to them, allowing them to readily access the information that they need the most. This process makes the users experience feel more personalized.

From the home page, the users can access a number of different pages. The first of these is the “New to DBT” page that contains videos of the therapists demonstrating individual and group sessions. There is also text based information about the DBT treatment and an interactive quiz to help the user determine if DBT is an appropriate treatment.

The DBT skills page contains a list of all the DBT skills, including video demonstrations and downloadable worksheets. Based on the persuasive systems design feature of reduction, this provides a quick list of each of the skills. The user can then choose a skill to get further information. Once a skill is chosen by the user, the link to that specific skills page has a number of methods for learning, including text, video and practice examples. This not only provides a variation in sensory cues (Lee, 2006) but also allows users to access the information that best supports their individual learning style (Aragon, 2003). On this same page, the users can also access the “skills finder” which can help them determine which skill may be most appropriate for their particular situation. Using the persuasive systems design feature of tailoring and suggestion, the
skill finder helps the user access the most pertinent information at the time it is most needed (Fogg, 2003).

The DBT graduates page is for those who have completed the first stage of treatment by learning the skills and have completed the skills training group. Moving from a very intense program to no treatment at all can create anxiety, so this page is intended to provide a connection as the clients transition out of treatment. The graduates section has a variety of information about creating a “life worth living” through achieving some type of personal goal. It also is intended to help clients move forward by encouraging self-sufficiency, increasing productivity in work or school activities and building relationships outside the mental health system (Comtois, et al, 2007). The user can access previously learned DBT skills through other pages, but can also begin to create an achievable goal and use the downloadable worksheet to help them move through this process. While the learning purposes of this page are to help clients continue with the progress they have made, it also provides some type of connection to the treatment, therapists and DBT community as they move forward.

There is also a page in which the clients can view supportive statements from their therapists. This page has cheerleading statements, comments, poems, pictures and messages, intended to provide encouragement to the clients using the site (see image 2). This not only provides an emotional connection by seeing and hearing the words of their specific therapist, it also allows for the program itself to act as a support system by providing words of encouragement (Fogg, 2003).
The forms and announcements pages are a way for clients to access information related to the face to face DBT treatment. This allows for a connection to the treatment, as the site reinforces what is being taught in the face to face sessions. It also provides an additional support for therapists when clients lose their diary card or homework sheet – the therapist can refer them to the site to download or read information that they can use in individual sessions. The clients can also access the announcements page, which provides general information about the groups, such as cancellations, start dates, accepting new referrals and information about new groups that may be available.

While the site itself is intended as a learning tool, a connection to the DBT treatment and additional support for the therapists, it was also intended to serve as a distracting technique (Linehan, 1993b). Distracting is one of the skills taught in the DBT group and is a way for the clients to simply think about something else or do something else until the thoughts causing emotional responses can pass. Distracting allows for time and space for emotions to calm. It was believed that accessing the site itself could serve as a distraction and give clients something to do in times when they are emotionally upset. As such, not only can clients access skills and remind themselves of the goals of treatment, they can also play games or do crossword puzzles. The researcher and therapists believed that simply by giving the client something to do on the website could provide a distraction from overwhelming emotions.

*Therapist site*

Much like the client site, when users log on to the DBT website, they are greeted by a welcome page, with a video and quick links to each of the other pages. This page is
also intended to provide an immediate connection to the treatment, and provide support with a welcoming tone. Because the audience for this site is slightly different, in addition to the welcome video, there is also a page with text and quick links that describes the purpose of the site, the research and makes suggestions about the manner in which the site could be used.

Like the client site, the therapist site had three purposes: to provide information about the skills, provide reminders about previous training and to provide a connection to the treatment and other therapists through the use of the site. One of the ways in which the site both offered learning opportunities and reinforced the connection to the treatment itself was through the DBT training tips page. This page offered multi-media information that reviewed DBT concepts and topics. For example, the commitment strategies, which are specific techniques used to engage a client in treatment (Linehan, 1993a), were presented in a text based format, with graphics and examples, as well as with an animated video demonstrating the skills. This page also offered information using various affordances and sensory experiences to review concepts of behavior modification, validation techniques and dialectics (Linehan, 1993a). There were power point presentations about DBT and Borderline Personality Disorder, Adolescent DBT and the DBT graduate group, that the therapists could download and either watch themselves or use in trainings for other staff or community members. Finally, there were links to YouTube videos of Marsha Linehan herself talking about the biosocial theory. This not only provided information, but watching the videos of the developer of DBT were intended to trigger an emotional connection to the treatment.
The therapist site also offered another way to create connections among the therapists through the use of a discussion board. This was an interactive message board in which therapists could pose questions about the treatment, make suggestions for changes to content of the website itself or just receive support from other DBT therapists.

The therapist site also offered a place where the therapists could access information needed for group and individual sessions. Per the therapists’ request, a mindfulness page was created, so all of the ideas and examples for mindfulness activities could all be stored together. Using the concept of both reduction and tailoring (Fogg, 2003), a mindfulness section was created for the website (see image 3). This section used reduction by collecting all of the mindfulness activities and putting them together in one, easily accessible place. The mindfulness activities were lumped into different categories, based on the type of activity. In this way, the users could pick and choose what level of activity they would like in their mindfulness practice, and go to only the list of those specific activities, using tailoring to only choose the most relevant information. In addition, the activities were also linked to specific DBT lessons, providing suggestion (Fogg, 2003) about which activity may fit best with certain DBT skills.

The final feature on the therapist site was a place where therapists could complete interactive assessments. Although all of the therapists involved in this study were trained to make diagnoses and screen for appropriateness for DBT treatment, there were tools available on the website to help therapists make some of these decisions, in part because the literature support the use of validated assessments in addition to diagnostic interviews with clients prior to starting DBT (Soler, et. al, 2009). When a client is not well known
to the therapist or when the therapist received referrals from non-DBT trained clinicians, the assessments help to provide some additional resources to help make decisions. In addition to the clinical value, the use of an interactive affordance provided an additional manner for therapist and client to interact and communicate if the assessment was used during session. Two pre-treatment assessments were available on the DBT site, to help clinicians determine whether their client might benefit from DBT services: one assessment to measure readiness for change (URICA), and one measurement to gauge the level of severity of borderline personality disorder symptoms (BEST).

**URICA**

University of Rhode Island Change Assessment. Readiness for change: The readiness for change was measured by the University of Rhode Island Change Assessment (URICA). This is a 32 item survey that assesses a client’s motivation for making change (McConehay, Proshka & Velicer, 1983). This is a widely used scale used for assessing change, with scale reliabilities ranging from .88 to .90 (McConehay, Proshka & Velicer). Although developed to assess change in substance abuse clients, there have been several modifications to assess for motivation for change with gambling, offenders of domestic violence, obsessive compulsive disorders, diet/exercise and anxiety. Because DBT participation requires a significant time commitment, drop-out is not uncommon. A recent meta-analysis estimated dropout rates for research based treatment at 26% (Kliem, Kroger & Kosfelder, 2010). Reviews of both controlled and quasi-experimental studies have estimated dropout rates ranging from 18%-30% (Feigenbaum, 2007). In one study examining the relationship between
commitment to change and dropout rates, the authors found that those clients who scored in the pre-contemplation stage of treatment on the URICA (University of Rhode Island Change Assessment) were more likely to drop out of treatment. Those who scored high on the Committed to Action sub-scale demonstrated the most change in pre-post symptom assessments. This study indicates that those who are ready to make changes are not only more likely to stay in DBT treatment, but also benefit more than those who are still in pre-contemplative or contemplative stages of treatment (Soler, et al., 2008).

On the therapist site, the therapist could administer the URICA during a client session or provide the client with a print out of the measure to bring back at a later date. Once each question was asked and the assessment was completed, the computer provided results with recommendations about the client’s readiness to change based on the score on the assessment. The clinical cut offs indicated whether the client is in pre-contemplation, contemplation, action or maintenance. Based on these results, a clinician was able to make a decision about whether to focus treatment on motivational interviewing strategies to increase desire to change, or to actively begin treatment for those clients ready to engage in change strategies.

BEST Borderline Severity Index

Because DBT has had such positive outcomes, it has been translated for multiple populations (Feigenbaum, 2007). However, not every client needs this level of treatment. DBT treatment requires 96 sessions to complete treatment, well beyond the limit of many standard behavioral health policies. While the skills may be useful to the general population, DBT is specifically designed to address certain symptoms of Borderline
Personality Disorder. If clients do not present with symptoms that can be learned through one of the four treatment modules, DBT may not be the appropriate treatment for that client. To determine the severity of BPD symptoms and whether DBT is a good match for a particular client, the therapists could complete the BEST Borderline Evaluation of Severity Index (Pfohl, 2009). The BEST is a 15 item self-report questionnaire that measures the prevalence of BPD symptoms on a 5 point Likert scale. This scale has demonstrated strong internal consistencies, test-retest reliabilities and high convergent validities with clinician rated BPD assessments. In addition, the BEST has also demonstrated the ability to detect changes in BPD over time, making it useful for pre-post testing or repeated measures analysis (Pfohl, et. al 2007).

Much like the URICA, the therapists were able use the interactive assessment on the site and determine the severity of a client’s symptomology to determine if they need DBT treatment. The therapists could also use the site to measure progress in therapy by having the client complete the BEST at several different time points throughout therapy. The therapists were able to use the assessment as part of a session or print out a copy and have the client bring it back at the next session. When the questions were all answered and the assessment complete, the computer program offered a suggestion about the need for DBT as an appropriate treatment based on clinical cut-offs. Those scoring less than 20 points were encouraged to pursue an alternative form of treatment (Pfohl, 2009).

**Support of Technology**

While the literature theoretically support the benefits and value of implementing technology, studies have indicated that simply because a technology becomes available,
does not mean that people will use it. Just creating an environment in which people can communicate via technology does not necessarily mean that participants will interact using these methods (Kreijns, Kirschner & Jochems, 2003). Studies of technology integration have found that even when there is access to resources available and users have adequate skill to use technology, there must also be a desire to make changes and motivation to do so (Belland, 2009). In order for technology to become accepted, there must be not only reasons to interact, but also an organizational environment that supports the use of the technology through introduction and reinforcement within the practice setting (Garrison & Anderson, 2003). When workers feel as though they are part of the process, they are more willing to adopt new practices (Kayser, Walker, & Demaio, 2000).

While access to the technology is the first step, adequate technology skills, positive attitude about the technology and motivation to incorporate the technology into practice are all factors that must be considered in technology integration (Garrison & Anderson, 2003; Kim & Keller, 2009). To support the ongoing use of the site, the researcher met with both therapists and clients regularly to serve as a reminder. The researcher provided two Open House sessions where clients could attend and receive individual instruction on how to use the site. The researcher also attended two client DBT skills group trainings to introduce the site to the clients and answer any questions about access and navigation. For the therapists, the researcher provided two specific trainings about the site, attended monthly meetings with all of the therapists to answer questions and regularly sent out e-mails with new information posted on the site. When therapists would ask questions about specific DBT programs or research, their questions and the answers were posted on
the site in the form of power point presentations or article links, so the therapists would have to access the site to get the supporting information they needed. For example, the therapists wanted to know about the evidence supporting DBT with adolescents. A power point presentation was uploaded to the website, where the therapists could view the information as needed.

Data collection

Quantitative Process

Analytics

Analytics is the term used to describe the data that is gathered from the tracking of the use of websites. Analytics are quantitative and visual data that can that allow for the discovery of patterns within the use of certain websites. Analytics can reveal information about number of visits, time on site, page visits, time on various pages and user profiles (Gonzalez-Torres, Garcia-Penalvo & Theron, 2013). Analytics tracking were embedded on each of the pages of the website to determine the number of times the site was viewed, which pages were viewed most frequently, the amount of time spent on the site and an whether the users were new or returning visitors. Because the project did not allow for individual tracking of analytics, the analytics are reported only as descriptive information and were not subject to any other form of analysis.

Therapist Data Collection

Once prototyping for the websites was completed, the researcher attended the monthly CORE DBT meeting, which all of the DBT therapists attend. At this meeting, the researcher explained the two quantitative measures and requested that the therapists
complete the pre-test measures. The researcher handed out the two measures, pens and pencils and asked that the therapists complete the measure and return to the researcher by the end of the meeting. Although there was time available in the meeting to complete the forms, some of the therapists opted not to complete the measures at that time. Some of the therapists stated they would fill them out later in the day and return them to the DBT supervisor. The supervisor did not receive any pre-test measures. The following day, an e-mail was sent to all of the therapists as a request/reminder to complete the pre-test measures. A link with access to online versions of each of the instruments was provided in the e-mail. None of the therapists completed the measures online. A total of eleven out of nineteen pre-test measures were collected.

The post-test measures were completed prior to the start of the focus groups. At the focus group sessions, the therapists were given time to complete the post-test measures. All of the therapists completed the measures at that time. There were 15 post-test measures available. When accounting for therapist drop out from the DBT program, the end result was nine matched pre-test/post-test pairs.

Therapist Measures

Communication Methods Scale

The therapists were asked to complete two measures. The first scale measured how therapists typically communicated with their clients, including use of technology, to interact with clients. While there are some validated scales that attempt to measure social presence in higher education settings (Kim, 2011) and there have been some advancements in using other techniques, such as social network analysis to understand
social presence overall, there is still some argument within the literature about the best way to measure social presence (Choi & Strobel, 2012).

There are currently no validated scales that measure social presence in general (Insko, 2003). Rather than attempting to measure the construct of social presence through a validated measure, the therapists were asked to complete a survey about their behaviors by rating their use of various communication methods. To understand how the therapists used technology, they were asked to complete a short survey about how frequently they communicate with clients using various affordances or types of technology (See Appendix C). This survey was a 17 item Likert scale, in which 1= never use and 5= several times each day. This scale asked about use of face to face sessions, telephone, text messaging, e-mail, internet based resources and social networking. This pre-test/post-test survey was used to determine if there were changes in use of technology and social presence, specifically as to whether certain affordances introduced through this project, such as websites or e-mail are used more frequently when therapists have these additional options available to them.

The questions from the technology use scale were added together based on type of technology to create three subscales. There was no “total score” tabulated since each of the subscales measures different kinds of communication. The face to face subscale asked questions about use of face to face sessions, including both as a routine process and in emergency or crisis sessions. The telephone questions asked about use of telephone as a method of communicating with clients. The telephone subscale questions were restricted to actual conversations on the telephone, not text messaging or using cellular phones for
internet use. The final category was called “other technology” and included use of video conferencing, such as Skype, text messages, e-mail, websites, CD’s, photos or video resources. The questions from each of these categories were added together to create composite use scores.

Once the composite scores for each sub scale were created, scores from each of the pre-test categories were compared to scores in the same categories from the post-test. These scores were then analyzed using paired t-tests, which is the best method to determine changes within the same person over two time points (Meyers, Gamst & Guarino, 2006).

*Maslach Burnout Inventory*

Because this study is evaluating therapeutic alliance, it is important to gather information about the relationship from the therapists’ perspective. However, when working with clients with Borderline Personality Disorder, the literature has indicated that standard measures of the relationship between therapist and client may not be the best indicator of the state of the relationship (Blais, Jacobo & Smith, 2010; Bender, 2005; Gunderson, et. al, 1997; Levy, et. al., 2010; Kramer, et. al 2011). Instead, it has been suggested that a better measure of therapeutic alliance from a clinician perspective are ratings of stress or burnout, such as ability to offer empathy and anger reactions (Forsyth, 2007). Because this study’s client population is all people diagnosed with Borderline Personality Disorder, a therapist measure of therapeutic alliance was likely not going to be beneficial. Therefore, a measure of burnout was chosen as both an indicator of
therapeutic alliance, but also as a way to actually measure the level of stress and fatigue on the therapist from working with this population.

The Maslach Burnout Inventory (MBI) is a validated instrument used to measure worker stress on three subscales: Emotional Exhaustion, Depersonalization and Personal Accomplishment (Maslach & Jackson, 1981). The MBI has been used widely around the world to measure worker burnout. In a recent meta-analysis, reliabilities remained stable across 45 different studies, with overall alpha scores ranging from .71 to .88 (Aguayo, Vargas, de la Fuente, & Lozano, 2011). In addition to being used in multiple mental health worker studies (Lent & Schwartz, 2012), the Maslach Burnout Inventory is typically used as the preferred tool for DBT research (Linehan, Cochran, Mar, Levensky, & Comtois, 2000).

The MBI is a 22 item scale that asks about the therapists’ view of working with clients. There answers are rated on a 1-5 scale in which 1= not at all and 5= very often. The higher the score on the scale, the more burnout the person feels. The scale focuses on relationship issues rather than environmental stressors or negative work environments as a cause of burnout (Beckstead, 2002).

Overall, the scale reliabilities for this study, as measured by Cronbach’s alpha, were within acceptable limits (Devellis, 2007). There was some difficulty with the reliabilities of the subscales initially, but upon removal of two questions, each of the subscales and total score reliabilities were acceptable. The total pre-test reliability was .86, the post-test was .82. The Emotional Exhaustion Scale was .862 at pre-test and .760 at post-test. The Depersonalization subscale initially had a reliability of .551 at pre-test
and .331 at post-test, both of which indicate poor internal consistency among the items. Question #5 “I feel I treat some clients as though they were impersonal objects” was removed from the analysis, which raised the reliabilities to .70 at pre-test and .701 at post-test. There was a similar problem with the Personal Accomplishment Scale, with initial reliabilities at .443 for pre-test, but an acceptable .836 at post-test. Question #7 “I deal effectively with problems of clients” was also removed. This put the scale reliabilities for the Personal Accomplishment subscale at .701 for pre-test and .852 at post-test.

The individual scores from the questions were added together to create a composite total score. In addition, the scores from each individual subscale were added together to create subscale scores. These scores were analyzed in two separate ways. First, a paired samples t-test was used to compare pre-test scores with post-test scores to determine changes in individual burnout scores, which is the best method to determine individual changes over two time periods, (Myers, Gamst & Guarino, 2006). Secondly, the therapists were categorized into two groups: users of the site and non-users, based on therapist self-report. Once in these categories, an independent samples t-test was used. The independent samples t-test is used when there is one continuous variable and one categorical variable. This test can compare the means of the continuous variable based upon group assignment or grouping category (Myers, Gamst & Guarino, 2006). The independent samples t-test was used to determine the mean differences on the burnout scales between those therapists who used the DBT website and those who did not.

Client Data Collection
For the past several years, it has been standard practice at JCMH to evaluate client outcomes and psychiatric symptoms using the Behavior and Symptom Identification Scale (Basis 32) measure (Eisen, Normand, Blanger & Spiro, 2004). The therapist administers the Basis 32 to all group members during a skills training group at the start of each new DBT module. The researcher did not initiate any new processes related to collection of this data; it was collected in the same manner as it has always been. A copy of de-identified Basis 32 data was provided to the researcher by the agency.

The Basis 32 data is collected at three different time points: pre-treatment, after module one and again after module two. Each of the modules is eight weeks in length, with a one to two week break between modules, so the Basis 32 was administered every 8-10 weeks, depending on the group. Although there are technically four modules included in the DBT treatment, JCMH runs their DBT program in three module units, including the two week mindfulness as part of the six week modules. This means that the JCMH has three modules instead of four. The therapist group leader collects the Basis 32 data at the start of each new module. Because the data is collected at the start of the new module, there is no post-test after the clients have fully completed the treatment. This creates three separate data points that were used for analysis.

For the second measure, the Agnew Relationship Measure (ARM), the therapists were provided with copies of the ARM and asked to administer the ARM at the same time and in the same manner as the Basis 32 is collected. Copies of the ARM, with a research consent attached, were provided to all the therapists at the same time they received their Basis 32 packets at the start of each module. The clients were asked by the
group leader therapist to complete the ARM in addition to the Basis 32 at the start of each new DBT module.

**Client Measures**

**Basis 32**

The first client measure was used to determine symptom changes over time. The measure is called the Behavior and Symptom Identification Scale (Basis 32). This is a validated measure used to evaluate psychiatric symptoms on five domains: depression, impulsive behavior, relationships, daily living, and psychosis. This measure has strong internal consistency, with Cronbach alphas for outpatient setting ranging from .72-.92. In addition, it correlated highly with other measures of mental health, with a .76 correlation between the Basis 32 and Assessments of Global Functioning scores (Eisen, Normand, Blanger & Spiro, 2004; Eisen, Ranganathan, Seal & Spiro, 2007). The scale is 32 questions that ask about a variety of psychiatric symptoms and day to day functioning. The scores are rated on a 0-4 scale in which 0= no difficulty with this symptom at all to 4= extreme difficulty with this symptom. To score the Basis 32, the scores from each of the questions were added together to create a composite score. In addition, the scores from the questions relating to each specific psychiatric problem were added together to create the subscale scores for each of the different domains.

Scale reliabilities for this study were analyzed using Cronbach alpha values. The scale reliabilities for the Basis 32 for this study were strong and all within acceptable limits (Devellis, 2007). The Cronbach alpha for the total score for time point one was .952, for time point two was .979 and for time point three was .980. For the depression
subscales, the reliabilities for time point one were .870, for time point two were .950 and .936 for time point three. For the relationships subscale, the reliabilities for time point one were .877, for time point two were .955 and .964 for time point three. For the daily problems subscale, the reliabilities for time point one were .806, for time point two were .918 and .918 for time point three. On the impulse control subscale, the reliabilities were .794 for time point one, .849 for time point two and .762 for time point three. On the psychosis subscale, reliabilities were .774 for time point one, .853 for time point two and .867 for time point three.

The scores from the total scale and each of the subscales were analyzed using two different methods. To determine change over the three time points, as well as differences based on group, a Repeated Measures Analysis of Variance (ANOVA) was used. The Repeated Measures ANOVA allows for a within-subjects/between-subjects design, as well as offers explanation as to whether the change over time is related to group assignment, known as an interaction effect. The within subjects factor of the Repeated Measures ANOVA allows for demonstration of change over time when there are two or more time points. The between-subjects factor acts in a manner similar to a one-way ANOVA in that mean scores can be compared among two or more groups (Meyers, Gamst & Guarino, 2006). However, a benefit of this particular method of analysis is that both the within subjects (time) and between subjects (group assignment) factors can be analyzed at the same time to determine if the between subjects factor impacts the within subjects factor (Stevens, 1996). In this case, the Repeated Measures ANOVA can explore
not only if there are changes over time, but if there is an interaction effect and changes over time are influenced by which treatment group the client was assigned.

In the ANOVA method of analysis, the statistic can indicate whether or not there is a difference among groups, but it does not specify what that difference is. To determine where the differences are, post-hoc testing is needed (Myers, Gamst & Guarino, 2006). In this study, when there was a statistically significant ANOVA statistic, the groups were then analyzed using paired samples t-tests for time point differences and independent samples t-test for grouping assignment differences. While this can help to delineate the differences among the time points and groups, doing multiple comparisons can artificially increase the possibility of type I error. In order to control for this, a Benjamini-Hochberg procedure was implemented to account for multiple comparisons. Benjamini-Hochberg method is a sequential approach that modifies the value at which the null is rejected based on the number of comparisons being made (Thissen, Steinberg, & Kuang, 2002).

While the Repeated Measures ANOVA can determine whether or not there are differences in the mean scores between groups, a second analysis method, Hierarchical Linear Modeling (HLM) can provide more detailed information (Shin, 2009). HLM is a regression model that can predict how much influence one variable has on another, by accounting for both changes over time and group assignment in a single analysis (McCoach, 2010). HLM is a more powerful statistical method for analyzing longitudinal data in that it not only demonstrates change, but can predict how variables will impact change trajectories (Shin, 2009).
Using the HLM model, the data were analyzed using a growth curve over three time points, with the group assignment as the second level independent variable. The first level equation accounts for change in Basis 32 scores over time, creating a growth curve. The second level of the equation is a regression of the independent variable of group assignment on the growth scores to predict changes in the trajectories of the Basis 32 scores.

*Agnew Relationship Measure (ARM)*

To evaluate therapeutic alliance, a scale called the Agnew Relationship Measure (ARM) was used. This is a client self-report that measures relationship in three areas: bond, partnership and confidence. This scale has shown to have strong reliability with Cronbach alpha scores ranging from .77 to .82 (Agnew-Davies, et. al, 1998). This measure asks about the clients’ perception of the relationship with the therapist, how they believe the therapist feels about them, about how skilled the therapist is at providing therapy and whether there is agreement about the work that needs to be done in therapy.

There were some problems with the administration and collection of the ARM. First, due to time frames related to agency deadlines and the need for the website to be available in the 2012 fiscal year, there was not enough time for the researcher to access all of the clients in DBT before the website could be made available. In order to get true pre-test information and get to all the clients before the website was made public, the therapists were asked to complete the ARM surveys at the same time the Basis 32 scales were administered. This process created some confusion within the agency, as one of the agency supervisors told the therapists not to administer the ARM survey. The agency
currently collects a client satisfaction survey called the Client Directed Outcomes Initiative (CDOI) (Duncan & Miller, 2000). The supervisor felt that because the client already complete the CDOI on a consistent basis, completing the ARM in addition was not necessary. She did not understand that the CDOI and ARM measures different things, with the CDOI focusing on client satisfaction, while the ARM focuses on relationship issues. Although the ARM was needed for purposes of research, she felt like the administration of the ARM was an additional burden on the client. Therefore, acting on this supervisor’s direction, many of the therapists did not offer the clients the opportunity to complete the ARM.

Only seven ARM surveys were completed during the pre-test collection period. Of those, three of them had to be eliminated because they were for therapists who were no longer at the agency or part of the DBT program. Of the other four, all of them had perfect scores, making them unusable due to lack of variability. For these reasons, the ARM was excluded from any further analysis.

**Qualitative Process**

Qualitative data were collected in several different methods. The researcher was involved with agency over the course of two and half years, so during this prolonged engagement process, a number of qualitative sources were made available to the researcher. The informal qualitative data was gathered through observations and notes at agency meetings. Data was also collected through e-mail correspondence with therapists, administrators, web developers and the information technology staff. A journal was kept through the process documenting each of these sources of data.
Formal data collection was gathered in three separate ways. First, there were two meetings designed specifically for the purposes of viewing the website prototype. These meetings were for the purpose of having the therapists view the website prototypes and provide feedback about content and navigation. These meetings were audio taped and transcribed for analysis purposes. There was no sampling method involved, all DBT therapists were invited to attend and offer comments or suggestions. This was an open meeting in which there were no specific questions or interview guides used, only a demonstration of the website and feedback from the therapists as they navigated the site.

The second formal method of data collection was during the client open house sessions. There were no sampling methods; all DBT clients were invited to attend the website open house and training session. There were flyers posted throughout the agency and individual therapists provided announcement flyers to clients during individual and group therapy sessions. At the open house sessions, there was a similar process used to the prototyping session. A brief demonstration of the site was provided and the clients were then free to navigate the site on agency provided computers during that time. The clients provided suggestions and feedback. These sessions were not audio taped, but notes of client comments were taken by the researcher throughout the session and later included in analysis.

Finally, at the end of the six month intervention period, two formal focus groups with the therapists were held. These focus groups were set up in advance, with the researcher sending out invitations to participate to all DBT therapists. The first group was held at the agency site, had nine participants and lasted 75 minutes. The second
group was also held at the agency, but on a different day at a different location. It had six participants and lasted about 35 minutes. The focus groups were set for a time when the therapists normally meet, so none of the therapists had to block out client time to attend. Although an interview guide was created prior to the start of the focus group, once the therapists started talking, the conversation was allowed to follow a natural flow. When there appeared to be a lull in the conversation or it appeared the previous topic had ended, the researcher either probed for further information or asked about a new topic. While there were not specific interview questions, in each of the groups, and interview guide offered topics for the researcher to probe, specifically about clinical decisions behind referring a client to the website, use of the therapist website, and how this related to their relationship with clients and with the treatment. Both groups had therapists who used the site and those who did not. Questions about why it was or was not used were also posed and offered within each of the groups.

Qualitative Analysis

Once the focus groups were completed the audio tapes were transcribed. This data was combined with notes from meetings, open house sessions and the prototyping sessions to create a single data set. Coding of the data set was done using a theoretical coding method. In this type of coding, the categories are linked to a previous set of theoretical constructs (Saldana, 2009). Specifically, the data was analyzed using an a priori theoretical coding method called template coding (Cassell & Symon, 2004). Template coding is similar to grounded theory, but allows for more flexibility. Codes are created a priori using literature based theoretical constructs, called “templates.”
However, differing from traditional theoretical a priori coding methods, template coding allows for changes to the codes during the process. For example, codes can be inserted, deleted or modified as codes emerge in the data, allowing for alternate explanations rather than a strict model-fit (Cassell & Symon, 2004).

The templates for the coding process came from two different sources. First, the literature guided the development of different social presence codes. Based on the work of social presence theorist Ruth Rettie, social presence was defined as: “the emotional experience that arises from the communication process including a feeling of closeness or a sense of belonging to a relationship, a community or group.” (Rettie, 2008, p.293). Using this definition, four social presence themes or concepts were identified: *emotional experiences, communication process, feeling of closeness* and *the sense of belonging*.

The first code, *communication process*, was defined as the method by which therapist and client communicated or interacted. To have a communication process, there must first be a mutual activity that serves as the basis for the interaction. In this case, participating in the DBT therapy served as the basis or the reason for communication and interaction between therapist and client. Any statements related to working together with the client on DBT or therapy activities were coded as a communication process. The communication process code also included the features used to vary the communication process. Any statements related to how therapists or clients used specific affordances to vary the way in which information was shared were coded as *communication process*.

The variations in the communication process offered several examples of how the website evoked different emotional responses, so the second code was *emotional*
experience. This code was defined as the way in which the clients or therapists engaged with specific affordances that triggered an emotional response. This code was used for statements that went beyond information and learning, and included any statements that encourage psychological involvement in the interaction.

While the website may have invoked a variety of psychological experiences, the feelings of closeness code was used with statements that related directly to the client therapist relationship. This code was defined as feeling as though the other is supportive and available, even if no direct communication is taking place. This code was applied to statements about connecting with clients remotely, but was also used when the therapists wanted to use the technology to create some distance. In this way, feelings of closeness code was also included statements about methods by which clients and therapists could control the intensity of the relationship. For example, when there was an immediate response to a need for connection, even if it is not the therapist themselves responding. The technology itself can serve to provide an immediate need for connection that the therapist may not be able to provide. Conversely, the feelings of closeness code also included examples of times there was a need to provide space and distance, done by intentionally using different affordances to lower the level of social presence between the therapist and client.

The fourth social presence code was sense of belonging. This code was defined as ways in which the participants used the website to feel part of a community or group, and to demonstrate their role within that community. This code included statements about how the features allow the clients or therapists to represent themselves through the use of
the website. This self-representation is a demonstration of how they are individually connected to the DBT program and community through the use of the site and how others in this online community view the user.

The second source for qualitative codes came from the validated quantitative measures and associated theories. The definitions for the codes for burnout and therapeutic alliance were based directly on the definitions used for the subscales in the quantitative methods portion of this study. The codes for therapeutic alliance were based on the theories used to develop the Agnew Relationship Measure and the ARM subscales served as the template for the qualitative definitions for coding (Agnew-Davies, Stiles, Hardy, Barkham, & Shapiro, 1998). Using the authors’ definitions, four codes were extracted from their theories. These codes were *caring*, which is derived from the bond subscale, and is defined as the emotional relationship between therapist and client. This code included statements in which the client views therapist as warm, friendly and supportive, or statements about the therapist caring for the client.

The second therapeutic alliance code was the *working relationship*, which is related to the partnership subscale, and is defined as the mutual understanding between therapist and client about the treatment. This code is defined as an agreement about goals, processes and outcomes, namely, the work that needs to be completed for the client to get better.

The *respect* code was based on the confidence subscale in the ARM. This code was defined as the competence, skills and abilities of the therapist. This code included
statements from the therapist about their own self-assurance about providing competent treatment.

The final therapeutic alliance code was *acceptance*, which comes from the openness subscale on the ARM. This code is defined as the quality of the relationship that allows for the client to share information with his/her therapist without fear of judgment. It is the environment created in which the client can freely share information. Any statements about lack of embarrassment or not feeling judged were examples of the acceptance code.

Similarly, the definition of burnout from the Maslach Burnout Inventory and the subscale definitions served as the templates for analyzing the burnout codes (Maslach & Jackson, 1986). The two definitions used in qualitative coding that came from this scale were *emotional exhaustion* and *depersonalization*. Emotional exhaustion is defined as feeling over extended by work or feeling over involved in clients’ problems. Statements relating to not having time, having too much to do and feeling as though they could not complete their work were coded as emotional exhaustion. The *depersonalization* code was defined as difficulty with treating clients with empathy or kind regard. This code includes the lack of desire to help and the need to distance from clients. Statements about needing space, loss of empathy or negative statements about clients were coded as depersonalization.

As the code book was being developed, it appeared that emotional exhaustion and depersonalization codes did not cover the entire concept of burnout theoretically (Beckstead, 2002; Lent & Schwartz, 2012). To address this, two more codes were added
that addressed agency factors that impact burnout. These two codes were called *negative work environment*, which was defined as agency issues that lead to burnout and *positive work environment*, which is the availability of resources to manage burnout within an agency. Statements related to the agency directly, including agency policy, caseload, or work expectations, either positive or negative, were coded as work environment. Because these codes were based on theory rather than emerging during the coding process, these two codes were treated as a priori codes and were included as part of the template model of coding rather than treated as emergent codes.

Finally, because it is directly related to the hypotheses, any statements that related to client outcomes were included in the analysis. There was one code called *symptoms* and referred to any statements about improvement or decline in psychiatric functioning of the clients.

Once these codes were identified and defined, a code book was created. This code book then served as the guideline for analyzing all of the data from multiple sources, including transcripts, notes and agency communications. The a priori coding was completed using a model fit analysis. In this type of coding, statements are either coded into one of the categories or as nothing at all. When completed, the data reveal whether there is a model-fit to the theory, demonstrating whether the qualitative data presented are a “fit” for the theories (Cassell & Symon, 2004).

Once the code book was developed and codes defined, the code book was used as a guideline for all of the qualitative analysis (See Appendix D). Using all the qualitative data sources and this code book as a guideline, the researcher did three separate rounds of
coding. The first round of coding was an open coding (or pre-coding) process used to organize the data, begin to look for patterns within the data and to begin to determine if there were codes/concepts present that were not defined in the code book (Saldana, 2009). Through this initial process, many of the statements appeared to be double coded and were explained by both social presence codes and a second concept. Theoretically, because social presence is a part of any relationship, it would make sense that social presence would exist simultaneously as the therapists discuss client relationships or work relationships. Template coding allows for higher order and lower order codes as a way to demonstrate a hierarchy within the concepts (Cassell & Symon, 2004). Therefore, it was decided that social presence would be a first order factor and could be double coded with other concepts.

This first round of coding also allowed for the researcher to address any emergent themes that were not defined a priori. During this process, in addition to identifying a priori codes and beginning to sort them, any concepts that appeared to be unrelated or different than the a priori codes were set aside and treated as emergent codes. These were then analyzed separately and defined after the first round of coding. Once these emergent codes were defined, they were then also included as possible codes to consider for future rounds of coding.

Because of the change in the coding process to include higher order codes, the second round of coding focused only on social presence codes. This process was a model-fit exploration, to determine if the social presence codes were in the data or not. A statement was included in the social presence concept and coded using one of the
template codes. If it did not appear to be related to social presence, the statement was set aside with no social presence code attached.

In the third round of coding, the model-fit exploration was used for the other constructs of burnout, therapeutic alliance and any of the emergent codes/definitions that were revealed in earlier rounds of coding. Using the same method as with the social presence codes, statements were coded related to the specific therapeutic alliance codes, burnout codes or emergent codes if the statements met the definitions in the code book. If not, the statements were set aside with no codes attached.

When this process was complete, the code book was updated with examples of each of the codes. In addition, the emergent codes were revised, defined and added to the code book. The code book and a section of the transcript data from the focus groups was then provided to the second coder. The second coder used a similar coding process, first looking for social presence codes, then going through a second time to look for examples of therapeutic alliance and burnout. The researcher and the second coder then met to determine the number of agreements and disagreements to provide a reliability analysis and provide triangulation (Patton, 2002). A reliability analysis was conducted, comparing the number of agreements to the number of disagreements using a kappa method of correlation analysis. The kappa statistic not only provides a standardized measure of reliability among various studies, the kappa also takes into account chance agreements, which can be inflated when reporting only percentages of agreements and disagreements (Lee & Suen, 1984). For this study, the resulting kappa was .746. In the
social sciences, a kappa score above .60 kappa is an acceptable level of inter rater agreement (McHugh, 2012).

Once there was consistency between the two coders, the data was reviewed one last time. In this final round, the codes among the different themes were reviewed to determine if there were any patterns or relationships between the codes. This process allowed for demonstration of the overlap between the higher order social presence codes with the codes related to therapeutic alliance and burnout. This process began to provide some information about how specific components of social presence relate to other relationship based constructs, like the therapeutic alliance.

_Credibility and Trustworthiness_

The credibility and trustworthiness of this project were enhanced by using several different techniques. First, the researcher used prolonged engagement. This is a process by which the researcher is involved with participants over a longer course of time (Patton, 2002). For this project, the researcher was with the agency for two and half years, met with the DBT team on a monthly basis, met with the supervisor of the DBT program on a monthly basis in person and had weekly e-mail or telephone contact, and remained in constant contact with the agency administration about the project.

A second method was the use of member checks (Padgett, 2009). After the both the qualitative and quantitative data was analyzed, the researcher met with the DBT supervisor and two DBT therapists to discuss the findings. They offered several explanations from their point of view as to why certain findings came about and
expanded on statements that may have previously been made. These clarifications are discussed further in the results and discussion section.

Triangulation, a method of gathering information from multiple viewpoints and sources (Patton, 2002) was used in several different ways. The researcher used data from multiple sources including both client and therapist point of view, in informal meetings and in structured focus groups. There were two separate therapist focus groups and similar information was presented in two separate settings. Finally, there were two different coders looking at the data to verify results. The coders met to determine agreements and disagreements, strengthening the understanding of the data (Patton, 2002).

However, one of the strongest methods of reliability, validity, credibility and trustworthiness of this study is in the use of the mixed methods design (Cresswell & Plano-Clark, 2011). When the two methods were brought together, the findings from each method were used to corroborate or explain the results that provided a much deeper understanding of the topic and some validation to the qualitative analysis.

**Convergent Design**

Once the data from each of the methods were analyzed, the qualitative and quantitative findings were merged to understand how the data explain each other, contradict each other or provide collateral and complementary information to understand social presence, burnout and therapeutic relationships. To do this, the data from the different methodologies were presented individually and then together to try and address the questions posed in each individual hypothesis. For each hypothesis, when the two
sources of data were brought together, they were then reviewed to determine how the data interacted. In cases where the data corroborated each other, this further enhanced the reliability of the two separate analyses (Cresswell & Plano-Clark, 2011). Secondly, when the data contradicted each other, the results were explored using member checks to come up with possible explanations as to why there were different findings. Regardless of whether the data confirmed or contradicted the results of the other method, bringing the two together provided an overall deeper understanding of the results and provided different ways to answer the same question (Padgett, 2009).
Chapter Four: Results

The findings from the analysis of the data were used to explore the hypotheses posed. Because this study employs a parallel process, convergent, mixed methods design, the data are presented in a similar manner. The results from each research method are presented separately, and then brought together in a convergent process to begin to explain how the data address each hypothesis.

Quantitative Data

Analytics and site usage

Analytics are methods of monitoring and recording the use websites (see Table 3). During the seven month intervention period, the client site had a total of 176 visits from 70 unique users. The calculation of unique visitors to a site is based on the IP address of the users computer. When a computer is used to establish a network connection to the Internet, the computer is assigned a unique set of numbers that act as an identifier. In effect, the unique visitor statistic actually indicates that there was a log on to the web site from 70 different IP addresses, not a log on to the web site by 70 different clients. It is unknown whether any of the “unique visitors” were the same person logging on from different IP addresses. There were 1,396 page views, with an average of 7.93 pages seen during a single visit. The average length of time on the site was 6.39 minutes, but this also takes into account a 27% bounce rate, which is when people visit the home page and
immediately leave without interacting with the site. While many of the visits initially took place in the month of June, the site continues to have 10-15 visitors each month.

The therapist site, which was password protected and only accessible to JCMH therapists, had 108 site visits from 12 unique visitors. There were 816 page views, with an average of 7.56 pages visited each time. The average length of time on the site was 5.5 minutes. Much like the client site, the most visits took place in July and August, with use dropping off in the following months. However, even with use decreasing, there continue to be consistent users, who visit the site about 10-15 times each month.

**Therapist Measures**

*Communication Method Scale*

The therapists completed pre and post test measures related to the manner in which they frequently communicate with clients. Nine therapists completed both pre-test and post-test measures. The scale is a 1-5 scale that measures the frequency in which each method of communication is used, with higher scores indicating more use of that method and lower scores indicating lower use of that method. The questions were grouped into categories based on type of communication and added together to create three subscales: face to face communications, telephone communications and “other” communications, which includes Internet based resources, text messaging, video conferencing or e-mail.

*Assumptions*

The three scales were analyzed independently using paired t-tests for each of the three scales. The t-test was chosen as it is the best method for evaluating change within
the same group of people over two time points (Myers, Gamst, Guarino, 2006). Prior to analysis of the data, the assumptions for the t-test were analyzed. The two assumptions for a paired samples t-test are normal distribution and independence. Normality was tested using skew and kurtosis of -1 to 1 (Myers, Gamst & Guarino, 2006).

The data did not fully meet criteria for normal distribution based on a skew and kurtosis of -1 to 1 (see Table 4). The skew for the pre-test for telephone was .799, the kurtosis was 2.25; the skew for post-test for telephone was 1.4 and the kurtosis was 3.1. The skew for pre-test for face to face was -.006, the kurtosis was -.116; the skew for post-test face to face was .873, the kurtosis was .130. The skew for pre-test for other was .778, the kurtosis was -.089; the skew for post-test for other was -.034, the kurtosis was 1.03. Based on these findings, the skew for the post-test for telephone indicated minor violations. The t-test is robust to minor violations of skew (Bai & Ng, 2005), so this t-test is still acceptable to use. The kurtosis on several of the scales was violated somewhat more significantly. However, when looking at normality testing, kurtosis is less useful information. It may impact other analyses, but it does directly impact normality and therefore is not as useful in normality testing (Bai & Ng).

The assumption for independence is based upon how the data were collected, to ensure that there was no clustering or grouping of the data (Myers, Gamst & Guarino, 2006). The data were all collected independently, so there is no reason to believe that the assumption of independence was violated.

Findings
The results indicate that between pre-test and post-test, there was no statistically significant difference between use of telephone to communicate with clients (t=-1.5, p=.160) nor was there any statistically significant difference in the use of face to face communications (t=1.16, p=.305). However, there was a statistically significant difference on the “other forms of communication” subscale (t=-3.24, p=.018). On the “other” subscale, which includes e-mail, text messaging, video conferencing or referrals to websites, the mean scores increased from 11.6 (sd=2.8) to a mean score of 13.2 (sd=1.8), indicating that the therapists used other methods of communication more frequently than they had in the past (See Table 5).

**Maslach Burnout Inventory**

The Maslach Burnout Inventory (MBI) is a 22 item scale that measures burnout as whole as well as specific factors of burnout on three individual subscales. Nine therapists completed both pre and post test measures. On the MBI, the answers to the individual questions range from 1-5, indicating how strongly the participant feels about each statement, with higher scores indicating higher levels of burnout. The questions for the individual items were added together to create the scores for the subscales.

**Assumptions**

The pre-and post-test scores were analyzed using paired t-tests. The paired t-test was chosen as it is the best method for evaluating change within the same group of people over two time points (Myers, Gamst, Guarino, 2006). Prior to analysis of the data, the assumptions for the t-test were analyzed. The two assumptions for a paired samples t-
test are normal distribution and independence. Normality was tested using skew and kurtosis of -1 to 1 (Myers, Gamst & Guarino, 2006).

The assumptions for paired t-tests are independence and normality. The data was collected in a similar manner to the communication use scale, with no belief the data would be clustered in any way. Much like with the other measure, there is no reason to believe the assumption of independence was violated.

Normality was tested using skew and kurtosis of -1 to 1. The skew for the pre Emotional Exhaustion scale was .335 the kurtosis was .384; the post test skew was .111 and the post test kurtosis was 1.1. On the depersonalization scale, the pre-test skew was -.053, kurtosis was -2.1; the post-test skew was -.185, the kurtosis was -1.5. The personal accomplishment scale had a pre-test skew of 1.4, the kurtosis was 3.03; the post-test skew was 1.4, the kurtosis was 2.2. The total burnout score had a pre-test skew of .693, the kurtosis was .552; the post test had a skew of .604; the kurtosis was -.869. (See Table 4).

Much like with the communication methods scale, there were slight violations of the assumption of normality. However, as t-tests are robust to such violations, the data was analyzed using these raw scores.

**Findings**

Results from the paired t-tests indicate no statistically significant differences between pre-test and post-test scores on the total burnout scale, with the pre-test mean score of 48.57 (sd=9.8) and a post-test mean score of 50.1(sd=8.2), t=-.724, p=.493. There were no statistically significant differences pre-test mean of 21.7 (sd=5.2) and post-test mean of 21.7 (sd=3.5) on the emotional exhaustion subscale (t=.410, p=.694).
There were no statistically significant differences in the pre-test mean of 10.6 (sd=2.8) and the post-test mean of 10.7 (sd=1.9) on the depersonalization subscale (t=-.154, p=.882). There were no statistically significant differences in the mean scores on the personal accomplishment subscales, with a pre-test mean of 16 (sd=2.8) and a post-test mean of 18.2 (sd=5.1), t=-1.49, p=.180. (See Table 5).

The post-test burnout scores were also evaluated to determine if there were any differences based on whether or not the therapists used the DBT website. The therapists were broken into two groups: users and non-users. The scores were then analyzed using an independent samples t-test, which is considered to be the best test to use for comparing the means of two different groups (Myers, Gamst & Guarino, 2006).

The assumptions for an independent samples t-test are the same as for a paired t-test, which has already been presented. However, there is one additional assumption, which is homogeneity of variance. In other words, this is an assumption that the variances of the two groups are relatively equal (Myers, Gamst & Guarino, 2006). The data were analyzed using a Levene’s test for equality of variances, in which a non-significant p value indicates the variances are assumed to be equal. The Levene’s test indicated that the variances were assumed equal for all three subscales, emotional exhaustion scale, (F=.100, p=.763), depersonalization (F=.086, p=.780) and personal accomplishment, (F=1.12, p=.312). The total burnout score also assumed equal variances (F=2.01, p=.206).

The independent samples t-test revealed that the post-test scores, the group that had used the website had statistically significant higher total burnout scores with a mean
56.7 (sd=5.8) than those that did not use the website, with a mean of 43.5 (sd=2.5), t=-4.16, p=.006. Those who used the website also had a statistically significant higher depersonalization subscale mean of 12.2 (sd=.96) than those who did not use the website, mean 9.2 (sd=1.2), t=-3.7, p=.009. There was not a statistically significant difference in scores by user group on the emotional exhaustion scale (t=-2.02, p=.089), with user mean of 23.3 (sd=2.7) and a non user mean of 19 (sd=3.1) or on the personal accomplishment scale (t=-1.9, p=.099), with a user mean of 15.5 (sd=2.6) and a non-user mean of 21.2 (sd=5.7).

Client Outcomes

**Basis 32-Repeated Measures ANOVA**

Client symptom outcomes were evaluated using the Basis 32 symptom index. In this measure, the symptoms are rated on a 0-5 scale, in which 0= no problems and 5= significant impairment. Higher scores indicate more difficulty while lower scores indicate better psychiatric functioning. To demonstrate improvement in client outcomes, scores should decrease over time. Scores on the Basis 32 ranged from 3 to 109.

The Basis 32 scores were evaluated in two different multi-level model methods of analysis. First, to determine change over time, differences in changes by group and whether group assignment had an interaction effect on the change over time, a Repeated Measures Analysis of Variance (ANOVA) was used. When the Repeated Measures ANOVA demonstrated any differences among time or group, post-hoc comparisons were used to further analyze the differences. To tease out the differences in time or by group
assignment, the groups were separated out and time was analyzed by each individual group rather than all together. Because multiple comparisons can inflate Type I error, the value for rejecting the null hypothesis was modified using the Benjamini-Hochberg method. This method accounts for the number of comparisons being made and subsequently lowers each individual limit for significance at from .05 to the appropriate level (McDonald, 2009).

Prior to analysis, the pre-test (or time point one) values were compared between groups to ensure that there were no statistically significant differences between the two groups based on the Basis 32 measure. The non-intervention group had a starting mean total score of 53.4 (sd=26.4) and the intervention group had a starting mean total score of 57.4 (sd=24). This was not a statistically significant difference between the groups, (t=-.892, p=.374), indicating that any differences between the group mean scores at time point one was likely due to random variation.

Assumptions

There are four assumptions associated with using a Repeated Measures ANOVA. The first is that the data are normally distributed. While there are some stricter tests that can measure normality, the most common way to determine normal distribution is through analyzing the skew and kurtosis (Myers, Gamst & Guarnio, 2006). When analyzed by timepoint, for timepoint 1, the skew was: total score = .070; relationships = -.081; depression = -.222; daily living problems= .223; impulse control =.830 and psychosis .857. The kurtosis for timepoint one was: total score = -.673; relationships = -.805; depression = -.628; daily living problems = -.503; impulse control =.068 and
psychosis = .045. For timepoint two, the skew was: total score = .168; relationships = .041; depression = .089; daily living problems = .146; impulse control = 1.8 and psychosis = 1.5. The kurtosis for timepoint two was: total score = -.307; relationships = -.427; depression = -.691; daily living problems = -.313; impulse control = 4.3 and psychosis = 2.6. For timepoint three, the skew was: total score = .389; relationships = -.025; depression = .195; daily living problems = .652; impulse control = 1.4 and psychosis = 1.5.

The kurtosis for timepoint three was: total score = -.559; relationships = -.1.3; depression = -.715; daily living problems = -.384; impulse control = 2.17 and psychosis = 2.0 (See Table 6). While these limits are slightly above the standard limits, ANOVA is robust to violations of the assumption of normality, especially when these values are so close to 1 (Main & Navarro, 2009). The kurtosis for the total score as well as each subscale is between -1 and 1 within acceptable limits for describing normality (Myers, Gamst & Guarinio, 2006).

In addition to a normal distribution among all the data, a second assumption is multivariate normality. This means that each individual cell within the ANOVA also meets the criteria for normal distribution (Keselman, Algina & Kowalchuk, 2001). This assumption was tested by looking at the total scale and each subscale by group assignment and by time point. When normal distribution was analyzed by intervention group, the skew for group one was: total score = .302; relationships = .078; depression = -.031; daily living problems = .330; impulse control = 1.14 and psychosis = 1.05. The kurtosis for group one was: total score = -.562; relationships = -.662; depression = -.669; daily living problems = -.422; impulse control = .835 and psychosis = .324. For the
second group, the intervention group, the skew was: total score = .01; relationships = -.272; depression = -.133; daily living problems = .171; impulse control = .901 and psychosis = 1.2. The kurtosis for the non-intervention group was: total = -.289; relationships = -.677; depression = -.838; daily living problems = -.410; impulse control = .534 and psychosis = 2.0 (see Table 4).

Although there were some minor violations to skew in some of the cells, because the cells sizes are relatively equal and have more than 15 participants per cell, the violation of multivariate normality is robust to these minor violations (Keselman, Algina & Kowalchuk, 2001). In addition, the kurtosis in some of the cells was violated somewhat more significantly. For example, the kurtosis of the impulse control subscale in timepoint two was 4.3. Despite this, in the behavioral sciences, non-normal kurtosis is typically a result of scale use measurement or patterns of answers, rather than problems with normality distributions (Main & Navarro, 2009). Kurtosis can potentially compromise statistical power, but does not necessarily impact normality and therefore is not necessarily useful in normality testing (Bai & Ng, 2005). For these reasons, the assumptions of multi-variate normality are met and not considered to be a problem for further analysis.

The third assumption in Repeated Measures ANOVA is that of Independence. Assumptions of independence suppose that the data was collected independently and that no one score would influence another score in any way. However, when using multi-level models, this assumption is automatically violated. The scores were collected from the same individuals over three time points, thus violating any assumptions of independence.
However, the Repeated Measures ANOVA analysis model corrects for this, by analyzing the data in a manner that accounts for the fact that the data is from the same person over multiple time points. This is the rationale for using a multi-level model that can account for multiple administrations among the same individuals (Shin, 2009).

The final assumption in Repeated Measures ANOVA is that of sphericity. Sphericity is similar to the concept of homogeneity of variances, but accounts for the circular nature of a repeated measures design. The assumption of sphericity states that the variance of the differences between two cells will equal the variance of the difference between any other cell in the analysis. While a typical test for sphericity is Mauchly’s, this is often considered too conservative and not robust to violations. Rather, with smaller sample sizes, a more appropriate test is the epsilon, or the Greenhouse-Geiser test. When the Greenhouse-Geiser test is greater than .7, the assumption is met. If the assumption is violated, further output data, including both the F ratio and the degrees of freedom, must be modified to account for this violation (Keselman, Algina & Kowalchuk, 2001).

For this data set, the assumption of sphericity is met. For the total score repeated measures, the Greenhouse-Geiser was .803. For the subscales, the Greenhouse-Geiser score was: relationships = .969; depression = .898; daily living problems = .996; impulse control = .904; and psychosis = .838. Because all of these scores meet the criteria of being greater than .7, the assumption of sphericity is met and no modifications will need to be made.

*Repeated Measures ANOVA Findings*
The results of the Repeated Measures ANOVA (see Table 7) indicate that on the Basis 32 total score, there was a statistically significant main effect, indicating that the participants changed over time, $F(2,48)=8.9$, $p<.001$. There was no difference based on group assignment. $F(1,24)=.113$, $p=.740$. There was no interaction effect between change over time and group assignment, $F(1,24)=.009$, $p=.925$, indicating that both the intervention and non-intervention group had similar changes over time. Because there was neither a difference in group assignment nor in an interaction effect, the data were all analyzed together to determine differences based only on time. Paired t-tests show that there was a statistically significant difference between timepoints 1 & 2 ($t=4.29$, $p<.001$), with a scores dropping from 54.6 (sd=24) points to 45.1 (sd=21) points; a statistically significant difference between timepoints 2 & 3 ($t=3.07$, $p=.005$), with a drop from 45.1 (sd=21) points to 35.4 (sd=20.2) points; and a statistically significant difference between timepoints 1 & 3 ($t=4.35$, $p<.001$) with a difference of 54.6 (sd=24) points to 35.4 (sd=20.2) points. The Benjamini-Hochberg correction was not applied as the p values were low enough to meet significance, regardless of any corrections to lower the value for rejecting the null hypothesis. Plainly stated, these findings indicates that participants in both groups had statistically significant decreases in scores over time, but group assignment was not a factor in how or if scores were different at each time point.

On the relationships subscale, results show there was a not statistically significant main effect in differences by time, $F(2,50)=.465$, $p=.631$. This means that as a whole, relationships did not change over time. There was no difference in the between groups main effect of group assignment, $F(1,25)=.108$, $p=.746$. However, there was an
interaction effect in change over time by group assignment, $F(1,25)=5.24$, $p=.031$. This means that the way in which the groups measured during each time point was different depending on which group they were in. To determine the interaction between group assignment and change over time, the mean scores from each time point were analyzed separately by group. This was done using paired samples t-tests to look at differences between the various time points within each group. In the intervention group, there were no statistical differences between any of the pairings: timepoints 1 & 2 ($t=.629$, $p=.538$); timepoints 2 & 3 ($t=-.164$, $p=.874$); or timepoints 1 & 3 ($t=-.741$, $p=.483$). In the non-intervention group, there was not a statistically significant difference between timepoints 2 & 3 ($t=1.78$, $p=.09$). However, there were statistically significant differences between timepoints 1 & 2 ($t=2.35$, $p=.023$), with scores dropping from 14.9 (sd=6.5) points to 12.8 points (sd=6.5) and for timepoints 1 & 3 ($t=3.08$, $p=.006$), with scores dropping from 14.9 (sd=6.5) to 9.8 (sd=6.9) points. A Benjamini-Hochberg correction was implemented to account for the multiple comparisons. When this was done, the limit for rejecting the null remained at .05 for comparison of timepoints 2&3. Because $p=.09$ for this comparison, there continued to be no statistically significant difference. For the comparison between timepoints 1&2, the value for rejecting the null was dropped to .03. Since the .023 $p$ value for this comparison was lower than .03, this remained a statistically significant difference. For the comparison of timepoints 1&3, the limit for rejecting the null was lowered to .018. As the $p$ value for this comparison was .006, which is still lower than .018, this comparison also remained statistically significant difference. Once the modifications were made, the findings indicate that for the
intervention group, there were no changes over time on the relationship subscale. However, the non-intervention group had a statistically significant decrease in relationship difficulties over time.

On the Basis 32 depression scale, the results show that there was a statistically significant main effect, indicating that the participants depression scores changed over time, $F(2,50)=5.5$, $p=.007$. There was no difference in group assignment, $F(1,25)=.01$, $p=.979$. There was no interaction effect in change over time as determined by group assignment $F(1,24)=.228$, $p=.637$. Because there was neither a difference in group assignment nor in an interaction effect, the data was all analyzed together to determine differences based only on time. Paired t-tests show that there was a statistically significant difference between timepoints 1 & 2 ($t=2.5$, $p=.014$), with a scores dropping from 15.1 (sd=6.5) to 13.4 (sd=5.9); a statistically significant difference between timepoints 2 & 3 ($t=2.3$, $p=.029$), with scores dropping from 13.4 (sd=5.9) to 10.4 (sd=5.6) points; and a statistically significant difference between timepoints 1 & 3 ($t=3.41$, $p=.002$) with scores dropping from 15.1 (sd=6.5) to 10.4 (sd=5.6). A Benjamini-Hochberg correction was implemented to account for the family wise error. When this was done, the value for rejecting the null of comparison of timepoints 2&3 remained at .05. With a .029 p value, this remained a statistically significant difference. However, the corrections changed the value for rejection of the comparison between timepoints 1&2 to .021. As the p value was .014, this remained a statistically significant difference. The correction method also modified the rejection value of timepoints 1&3 comparison to.006. As the p value was .002, this remained statistically significant. With these new
significance values, the comparisons among all of the time points remained statistically significant. This indicates that overall, participants had significant drops in scores over time, but group assignment was not a factor in how or if scores were different at each time point.

The results of the Repeated Measures ANOVA on the Basis 32 problems in daily living scale show that there was not a statistically significant main effect, indicating that although the scores decreased over time, these were not statistically significant differences, $F(2,50)=2.37$, $p=.104$. There was no difference in group assignment, $F(1,25)=.073$, $p=.789$. There was no interaction effect in change over time as determined by group assignment $F(1,24)=.738$, $p=.399$. Because there was not statistical significance in the group assignment or an interaction effect by group assignment, no post-hoc testing was needed.

For the impulse control subscale, the results show there was a statistically significant main effect, with mean differences in the time points, $F(2,54)=3.62$, $p=.033$. There was a difference in group assignment, $F(1,27)=6.12$, $p=.019$. There was no interaction effect in change over time as determined by group assignment $F(1,27)=.279$, $p=.602$. To determine the differences by groups, the mean scores from each timepoint were analyzed separately by group.

This was done using paired samples t-tests to look at differences between the various time points by each group independently. In the non-intervention group, there were no statistical differences between any of the pairings: timepoint 1 & timepoint 2 ($t=1.65$, $p=.104$); timepoint 2 & timepoint 3 ($t=0.986$, $p=.339$) or timepoint 1 & timepoint
3(t=2.215, p=.052). In the intervention group, there was not a statistically significant difference between timepoint 2 & timepoint 3(t=2.33, p=.055). However, there were statistically significant differences by time in the intervention group at timepoint 1 & timepoint 2 (t=3.9, p=.001) and at timepoint 1 & timepoint 3(t=4.07, p=.003). The mean differences between timepoint 1 (5.8, sd=3.5) and timepoint 2 (3.5, sd=3.2) and the differences between timepoint one and time point three (5.3, sd=2.1) were statistically significant. To account for the multiple comparisons, a Benjamini-Hochberg correction was implemented. This process left the p value for comparison of timepoints 2&3 at .05, but changing the level for significance to .009 for timepoints 1&2, and changing the significance value of timepoints 1&3 to p=.001. With these new values, the differences remained statistically significant. This indicates that for those in the intervention group, there were improvements in impulse control over time. There were no statistically significant differences for those in the non-intervention group.

For the psychosis subscale, there was not a statistically significant main effect $F(2,52)=.609$, p=.548. There was no difference in group assignment, $F(1,25)=.02$, p=.888. There was no interaction effect in change over time as determined by group assignment $F(1,25)=.304$, p=.586. Because there was not statistical significance in the group assignment or an interaction effect influenced by group assignment, no post-hoc testing was needed.

**Hierarchical Linear Modeling**

While Repeated Measures ANOVA testing can indicate whether or not there are differences in the mean scores or differences by groups, Hierarchical Linear Modeling
(HLM) testing accounts for the change as growth, rather than those due to differences. In addition, while the Repeated Measures ANOVA can indicate there is a difference, HLM can explain how much of a change can be contributed due to different variables. As such, HLM was also used to analyze client outcome data.

To analyze the data, a two level equation model was created. The first level is the growth curve and accounts for change over time. The second level equation adds in the grouping variable to determine the effect of group assignment on growth. The first level equation explains how much change is expected over time. For each additional time point, the values decrease by the presented beta score. The second level equation explains how much the group assignment contributes to the change in score. In this study, the non-intervention group = 1 and the intervention group = 2. This means that for each increase in group assignment (going from non-intervention group to intervention group) equals an increase in the beta for that scale.

The grouping assignment accounts for changes to the growth curve, not necessarily to the raw score. The associated betas demonstrate how the group can accelerate growth or decelerate growth. In the analysis, a positive beta scores on the grouping variable would indicate that a group assignment of 1 would indicate a slowed acceleration to psychiatric functioning, whereas negative beta scores indicate that a group assignment of zero would indicate those scores decline more quickly.

While other factors, such as age, race, gender or other demographic information are often included in regression models in social work, because these factors do not directly impact the hypotheses, they were excluded from analysis. Any additional
variables added to the equation run the risk of causing loss of statistical power or creating multi-collinearity, which makes it more difficult to explain how much of the variable accounts for change (Tabachinick & Fidell, 2000). Because the intervention and non-intervention group had no statistically significant differences in the demographic data, demographics were not included in the regression models.

**Assumptions**

The assumptions for HLM are similar to those of a typical linear regression, but there are not as many. There are four assumptions that must be met for HLM. The first of these is normal distribution (see table 6). Similar to the ANOVA, while there were violations to the skew and kurtosis of the data, regression is generally robust to minor violations in normality (Tabachinik & Fidell, 2000).

The second assumption is that of independence, which similarly to the Repeated Measures ANOVA is automatically violated in a multi-level model. The data is nested intentionally, which is why a multi-level model is used. Therefore, while this assumption exists, the model itself corrects for the fact that the data is not independent (Shin, 2009).

The third assumption is that of linearity. This means that the data tend to correlate in a linear pattern, rather than a U shaped pattern, or no pattern at all (Tabachinik & Fidell, 2000). As demonstrated by Graph 1, the data follow a linear pattern.

The final assumption with HLM is that of homoscedasticity, an assumption that indicates equal statistical variances. It is tested by ensuring that the error residuals are not correlated with each other (Myers, Gamst & Guarino, 2006). Homoscedasticity is typically tested by running plots of the error residuals to determine there are not patterns.
This was completed and the graphs demonstrate no correlations between the error variances.

**HLM Results**

On the Basis 32 total score, the $\beta=-3.01$ (std=1.02), $p=.004$, $\beta=4.1$, $p=.196$. This indicated that growth curve was statistically significant, and that for each time point added, the scores decreased by 3 points. The $R^2$ for change over time, was .03, meaning that 3% of the variance is explained by individual within subjects factors. Being in the intervention group was not a statistically significant indicator of change $\beta= 4.1$ (3.2), $p=.19$. This means that the entire group changed over time, but there was no difference in the rates of change between the intervention and non intervention groups. The $R^2$ for the group variable was .03, meaning that 3% of the variance can be explained by group assignment (see Table 8).

For the relationship subscale, there was a statistically significant change over time, $\beta=-.6$ (.31), $p=.04$. For each increasing time point, the scores decreased by .6 points. $R^2$ was .005, meaning that .05% of the change explained by individual within subjects factors. The group assignment was not a statistically significant predictor of change over time, $\beta= 1.41$ (.89), $p=.11$. The $R^2$ for group assignment on the relationships scale was .03, indicating that 3% of the variance explained was due to group assignment.

On the depression subscale, there was a statistically significant change over time, $\beta=-.99$ (.29), $p<.001$, meaning that scores decreased by .99 points for each subsequent time point. The variance explained for change over time was .04, meaning 4% of the variance explained is due to within subjects factors. Group assignment was not a
statistically significant predictor of change, $\beta = 1.17 (\text{.86}), p = .17$. $R^2$ for the between subjects factors was .04, indicating that 4% of the variance explained was due to group assignment.

On the daily problems subscale, there was a statistically significant change over time, $\beta = -.59 (2.5), p = .02$, meaning that daily problem scores decreased by .59 points for each time period. $R^2$ was .01, with 1% of the variance explained by within subjects factors. Group assignment was a statistically significant predictor of change, $\beta = 1.7 (\text{.77}), p = .02$. This indicates that for those in the intervention group, change over time was slowed by 1.7 points per time period. Simply put, those in the non-intervention group had better daily living score decreases than those in the intervention group. Variance explained by the grouping assignment was 4% ($R^2 = .04$).

There were also statistically significant decreases for the impulse control subscale over time $\beta = -.55 (.2), p = .005$, meaning that for each time point, scores decreased by .55 points. $R^2 = .04$. Group assignment was not statistically significant predictor of change, $\beta = -.29 (\text{.61}), p = .63. R^2 = .02$.

Changes in the psychosis subscale were not statistically significant over time, $\beta = -.25 (\text{.18}), p = .17$. Because there was no change over time, the second level equation would have no bearing. Since there is no change over time, there is no need to evaluate what factors may accelerate or decelerate that growth.

**Qualitative Findings**

* A priori template codes
The data were analyzed using a template model of coding, in which the data were compared to a priori codes to determine whether or not they were present in the data. In this analysis process, the coding is an example of model-fit, wherein the concepts either exist in the data or they do not. This was the approach used to determine whether or not the data revealed codes related to social presence, therapeutic alliance, burnout and client symptoms. Although the process focuses on an a priori, model-fit process, template coding also allows for flexibility in that un-coded data can be analyzed as emergent codes (Cassell & Symon, 2005).

**Social Presence Codes**

**Communication process**

Examples of the communication process code were seen throughout the data. Two therapists offer explanations of how they use varying communication processes with clients to do the DBT. As one therapist explained:

“I explained it to the group and suggested they check it out… look at this, it can help you."

There were also examples of mutual activity among the therapists based upon being part of the DBT program. They report using the site to become better DBT practitioners by enhancing their own knowledge and skills:

“It totally piqued my interest. It was validating as well. I like the simplicity of it. I keep going back to the dialectics and how it is described in there. It’s just so simple… and the language… it’s something I can easily use with clients. I found it reinforcing, I guess. It felt good, like I know what I’m doing.”
“I used it to look for ideas for mindfulness activities before group.”

The data revealed that therapists used the entire spectrum of available communication methods to interact with clients or with each other. They continued to use high levels of social presence, including face to face and telephone sessions, but supplemented these with use of the website. Many of the therapists say that they referred the client to the website when they were not able to meet or to reinforce what was being done in session.

“I had a client who was really struggling, but I won’t be able to see her for another two weeks. So I gave her the information and some things to look at.”

“I told her to look at the skills on the website ahead of time and then we were able to review them as part of the session.”

The therapists also continued to use lower levels of social presence, such as text based/written handouts, but since many of the same handouts were available through the website, they referred the client to the website as well. One therapist explains:

“This is a good place to find it [information] if you forgot what we did in group.”

“she [the client] had her DBT notebook, so I told her to look in there, but said this was something else she could also use.”

Although the therapists continued using the paper handouts as they had always done, one client talks about the ease of having all of the information together on one site explaining that the site was much easier to use:
“this is way better than having to dig through my notebook to figure out what I want… it’s all right there and easy for me to find what I need… or have the website help me choose which skill to use.”

_Emotiona**l Experience_

Both the clients and the therapists provided thoughts on how use of the site produced some type of emotional response through different features:

Therapist -- “If they know us and could use it {the pictures on the site} to look at our face and get warm fuzzies.”

Client – You should get {one of the therapists} to make more videos/recordings. I love to hear her voice. It’s so calming and soothing…”

_Feelings of closeness_.

The therapists talked about how they used the site when they were not available to still be able to provide information or support. The clients responded by feeling connected, knowing they could access support if they needed.

Therapist - “None of us wants to be on call 24/7, but this just provides another tool…showing that we are supporting them. ”

Client - “Because I can access the site on my phone, it’s like you’re in my pocket…right there with me if I need you.”

The _feelings of closeness_ code was seen when the therapists discussed how the level of synchronicity, or response time between the two communicating parties, is increased, this increases feelings of connection. One therapist explains a recent
discussion with a client about how technology could provide a faster response than he could:

“One of the clients just went on vacation and was in New York during the hurricane. She talked about being able to access the skills when she needed them most. To have your phone with you while you’re walking around… How supportive and reinforcing that is for the client.”

There were also statements about how the therapists also used technology to slow the immediacy and level of intimacy to modify the relationship demands. For example, one therapist reports encouraging clients to look at the website before calling her, hoping they will be able to figure out the problem rather than relying so heavily on her. Many of the therapists discussed using the website as a way to transition clients out of treatment in a way that still allows them to feel some level of connection without the same level of direct involvement.

“We don’t really want them in group – we know they have the skills. I tell them to go review the site rather than trying to get them back into treatment.”

“I am so happy to be able to use it with people done with treatment. It gives them something to hold on to, to make it easier to transition out of treatment, but still feel connected.”

*Sense of belonging*

The *sense of belonging* code revealed ways in which the affordances demonstrate how the therapists are individually connected to the DBT program and community through the use of the site. The therapists felt as though the websites accurately presents
what they do and that it creates a positive representation of the kind of atmosphere they want to promote with clients. The therapists state that having this site presents to others that they are committed to DBT and providing care for the client. One therapist explains:

“Having this site makes us better therapists. It makes us better than other places that do DBT… to have this thing in addition to therapy. It just elevates the level of care we can provide.”

The sense of belonging also applies to being part of a DBT community. Although the mutual activity code addressed the type of work to be done, the sense of belonging codes revealed that there are emotional experiences and feelings of connection associated with being part of a group or community. In this case, this was defined as being part of the DBT community. One therapist explains how having access to the site makes them feel more connected to the treatment and those involved with DBT:

“Any time they take an interest in DBT or they have that experience when they see something related, they’re so excited to share it when they come back to group. So I think getting on the website is an indirect way to connect them to the group, the skills training and the therapist. I feel like it makes them feel more connected to the things we’ve already talked about and discussed.”

Therapeutic Alliance

Caring

There were several examples present in the data about the therapeutic relationship. The data revealed several statements related to the therapist demonstrating
warmth, caring, understanding and support. Some examples of how they can offer support and caring through the use of the site:

“I’m always available if you have questions, but look at this, it’s something that can help you.”

“I think of it as team member… it may not be in the room with us, but it’s part of the process.”

“I use it to encourage people… an easy way to access to what they need.”

Working relationship

The working relationship was revealed through statements about the work that needs to be completed to improve psychiatric functioning. The therapists frequently talked about the website as a tool for helping clients get better. The therapists offered examples of how they use the website to teach and reinforce the DBT skills.

“I think it’s a great tool, a really nice tool, for the client and for me… to be able to work back and forth. I learn more myself as I help them learn.”

“I used the readiness for change assessment with a client and that was helpful. Especially because it was the first time I had met her and I wasn’t sure she was ready. I pulled it up during our session and it guided our conversation.”

Respect

The respect code was revealed as the therapists discussed their own levels of confidence that increased by having the technology available. Much like with the client site, the therapists commented on how helpful it was to have all of the information in one spot. It was easy to locate, an easy resource to access and they knew they could quickly
find what they needed. The therapists report using the mindfulness activities page frequently, with one therapist explaining:

“It’s when I’m scrambling – I need a mindfulness, so I quickly go in and find a mindfulness on my way to group.

The therapists report that the additional information was helpful to them, primarily reminding them of what they already know. For example, one therapist states:

“I looked at the teaching part… not sure what you call it… where it has the dialectics and stuff. Just looked at those things to enhance my knowledge.”

Acceptance

The final therapeutic alliance code was that of acceptance. This code was located in statements about how the client is able to freely share information without being judged. While there were fewer examples of this code in the data, what was revealed was that the affordances themselves allow for more client openness. One therapist explains that her client is open with her, but the use of different forms of technology would allow for the client to be more discreet in doing her therapy homework outside the treatment setting. The therapist states:

“My client said she would be more likely to do her diary card if it were on an app [mobile phone application] because she would be less embarrassed. She stated that no one would know what she was doing – thinking she was just playing a game or texting or something.”

Burnout
As the literature indicates, the therapeutic alliance from the therapist point of view is often best measured by exploring feelings of burnout. The data offered different examples of burnout, specifically related to the relationship demands of the clients. There were two codes related to burnout—emotional exhaustion and distancing/depersonalization. While personal accomplishment is included in the theory related to burnout, there were no examples of personal accomplishment found in the data.

*Emotional Exhaustion*

The therapists offered a few examples of emotional exhaustion, many of which served as the reason they did not use the website more frequently or at all:

“I already spend enough time after hours doing my own work, and trying to get done, that I’m not doing anything else. And I refuse to take work home, so I won’t look at it on my own time. So if I don’t get it done at work, I just won’t get to it.”

“I think with me, there’s always a learning curve. If you add in one more thing to the job… it’s like more of a stressor… at first. But then as you learn to use it and it becomes more automatic, it’s helpful.”

“for me, it’s just been a matter of time. It’s seems like I’m always busy with something or distracted. It’s one of the things I’ve been trying to get to. I have the little slip and it’s been sitting on my desk. But week after week I just can’t get to it. I had some time yesterday, but I think I blew the password or something. I’ve tried. It’s really on my mind to use this as a tool and really utilize it, but it’s about time management. I think it would be really helpful.”

*Depersonalization*
There were examples of *depersonalization*, which was primarily related to a lack of desire to help and the need to distance from clients. There were a few examples of the desire to gain some space from the clients as well as examples about how the use of the website helped them to create some distance.

“It’s kind of helped me feel less stressed if I’m not available. So if I’m on vacation, or in the evenings or the weekends, there’s always something they can to look at.”

“I can’t wait to use it with one client – maybe then she’ll stop calling me so much.”

**Work Environment**

In addition to these codes based on the quantitative measures, a code called *work environment* was also included. This included a positive work environment, in which use of the website served as an additional resource or a way to overcome agency barriers.

“We’re the only DBT trained clinicians in our program. I put it {the website information} out there for the clinicians to use because they don’t have the background and training that we do. This way, they can use it with the clients and all I have to do is direct them to the site.”

“We can’t see clients weekly, so I was able to give her the site and have her do some work until we could meet.”

Work environment also included negative factors that make it difficult to do their job. The data revealed that agency policies, such as restrictions on their computer use, created problems, leading to frustration. Much like the emotional exhaustion, this code
offered several explanations as to why the therapists were not able to use the site in the manner in which they wanted. The therapists offer some examples of how the website impacted their work environment:

“I found it hard to find. If I’m on my computer, it’s on my favorites and I can find it, but if I am at a different site, which I frequently am, I couldn’t find it. It’s not necessarily just the username and password, it’s just getting to the site.

“I thought it was accessible from the main portal. I couldn’t figure out how to find it. I had the client in my office and we were looking for it and didn’t know how to find it. I couldn’t get to it and couldn’t tell the client how to access it. That was pretty frustrating.”

*Symptoms*

There were very few examples within the data about client symptoms. Most of the therapists were unsure about the role the site played in helping to actually improve psychiatric symptoms. While all believe in DBT as a therapy modality to help people get better, they could not provide any examples of how clients have improved specific to use of the website. They note that the website helps the clients learn the skills, but could not make the connection between what role the website played in improving their BPD symptoms. One therapist states:

“I have more than one client in the group who has done a lot of research online about DBT and diary cards… but I don’t see any difference in symptoms or presentation of symptoms.”
“Who is to say whether it’s the website, or going to group, or doing the skills or the diary card…it’s kind of hard to tease out.”

“I haven’t seen any difference…but maybe it’s too early in the process.”

Although the therapists were positive about having access to the website, they were clear that any symptom changes were the result of the treatment as a whole. All of the therapists were clear that they believed the website should only be used as an *adjunct* to treatment. None of them felt as though this could be a standalone treatment or that clients could get better using just the website. Rather, they thought the website was best used as an enhancement to what is already available or as a follow up after a client has already completed treatment. One therapist explains:

“I don’t think anything can replace the group. Clients come back with questions on how to apply it or implement it, and it’s the peers that are dealing with the same issues and being successful. I think it has its place, but it may not be the first way of teaching or helping people get better… more as an addition.”

**Emergent Codes**

**Supported Learning**

While the a priori codes related to social presence, burnout and therapeutic alliance were found throughout the data, there were also other codes that emerged in the data through the open coding process. These codes were not planned but emerged from the analysis of the data and offer the possibility of an even deeper understanding of the role of technology in a mental health setting.
Many of the therapists discussed how they used the website to help clients learn the skills. They offered several examples of how the website was able to provide information in a variety of formats to accommodate different learning styles. In addition, clients reported that they felt more at ease in group and not as pressured to learn everything at once, since they could go back and review the information on their own at a later date. These statements appeared to fit together and support an emergent code referred to as supported learning.

Supported learning was defined as “the use of the technology for the purpose of learning DBT skills and techniques.” In these cases, the intent of the technology was to encourage and enhance learning of the different skills and techniques, but not necessarily for the purpose of fostering a connection to others. To be coded as supported learning, the statements were about learning. Many of these statements were related to use of different affordances to be able to support this learning. In one case, a therapist discusses how she uses the website to encourage clients to understand a skill better:

“I will use it with clients if they're having trouble grasping a skill, you know, getting on there and perhaps watching a video instead.”

“I like anything that breaks the tradition of print. Since everyone learns in different ways, I think it's really valuable to have the visual or audio.”

The clients also report using the website to support their learning. One client shares her experience with being able to work on the skills outside the treatment session:

“Excellent website. I can work on things on my own, try things on my own without my therapist having to walk me through it.”
While overall these statements appear to be a separate category related to learning of the skills, during member checks, the therapists were able to expand upon the concept of supported learning. They explained that they want the clients to learn and truly understand the DBT skills and feel like the website can help facilitate this. They liked how the website could address different learning styles, such as offering examples, text, video or suggestions for practice. However, they report that learning the skills is only the first step. They want the clients to be able to implement them into their lives. They want their clients to get better and believe that learning these skills will help them do this. In this manner, although supported learning is a separate code, it relates to the therapeutic alliance. It helps the clients get better. It supports the partnership and mutual goals between them, which is for the client to improve their lives through the use of the skills. And it is through the website that this learning of the skills is facilitated, especially when the therapists don’t have enough time to “teach” the lessons as part of their session or as a reminder of what they did during their time together. The therapists explain:

“[with my client] I don’t see her as often, so she was able to look at the skills before and we could review them in session.”

“I also try to talk about mindfulness a lot and that’s something that would help them in their daily lives, so they should check it out and maybe start to practice.”

**Borderline Stigma**

One of the codes that emerged related to the stigma associated with Borderline Personality Disorder. The therapists discussed how BPD is often presented in other websites and other places on the Internet. They report noticing a very negative
connotation with other websites that discuss BPD and how this can be very disheartening for clients. Two different therapists explain what happened with their clients:

“I have a client who did a lot of research on her own. She brought in all this information she had found online and said, ‘I'm screwed…I want to get better, but this is horrible’ I think they need to be able to hear it in a different way.”

“What happens is we start talking about BPD and then people get on the internet and start researching BPD… and it's usually something somebody doesn't want…”

While there was agreement among the therapists that the clients need to hear about BPD in a different way, many of them were surprised that this website did not address BPD directly and felt this was something missing. One therapist suggested adding a section explaining the biosocial model for clients, stating:

“I've run into other sites and they just don't have a nice vibe to them. The biosocial model takes the sting out of the disorder”

These statements were coded as *borderline stigma* and defined as any negative statements about Borderline Personality Disorder or people diagnosed with BPD. It includes statements about how BPD is viewed within the general public, especially on other websites. It also includes ideas or suggestions as to how the therapists or clients could counteract pejorative statements about BPD. For example, one therapist suggested having BPD information available for the client to be able to share with family and friends, stating they could show them the website to help others understand what the client is going through.

*Digital Divide*
As with any project that utilizes information and communication technologies that require equipment and electronic connection, there were ongoing questions from the start about how to handle situations in which clients did not have access to computers or Internet services. In the literature, the gap between those who have computers and those who do not is known as the digital divide (Stayert & Gould, 2009).

Throughout the entire project, concerns about the digital divide came up over and over again. From the initial meetings up through the final focus groups, therapists were concerned that clients could be excluded because of lack of computer access. Therefore, a code related to computer access was created and called digital divide. Initially, this code related primarily to economic factors and was defined as the inability to of a client to access a computer or the Internet lack of resources. This included any statements about clients financial resources impacting their ability to use the website. One therapist provides an example, stating:

“many clients still do not have internet access or home computers. I am very selective in who I refer to the site based on what I know about their availability of computers.”

This statement was echoed by a client, who stated that although she had access to the Internet both through her computer and her phone, she did not have Internet access readily available:

“I would use the site more, but I don’t have enough time on my data plan. I can go to the library and use the free wireless, so that’s what I have to do.”
But for some therapists, clients having to leave the house to use computers or Internet was not necessarily a bad thing. In fact, they encouraged their clients to go to the library or other places where they could use a computer or Internet, just so they get out of the house. The act of leaving the house to go do something, even if it is just to look at a website, forces them to do something other than sit at home, ruminating about their problems.

“I think it’s okay if they have to go to the library. It makes them leave the house, gives them something to do.”

However, through the coding of the data, it was revealed that it was not just access to computers that was a limitation, it was also computer know how. Many therapists stated that even if clients went to the library to get on the computers, they wouldn’t have the ability to get on to the site or navigate it. They felt like some of their clients would not be able to use the site due to lack of knowledge. One therapist explains:

“There are a lot of people in our program who don't have access to computers. They don't have computer skills; they don't know how to use them.”

This led to the expansion of the digital divide code into two areas: economic factors and skills/knowledge. The skills/knowledge code was defined as inability to access a computer or the Internet due to lack of knowledge about computers or lack of knowledge about how to navigate the Internet. While many of the statements initially were believed to be attributed to client lack of knowledge and skill with computers, it was revealed that this code also applied to the therapists. Some of the therapists shared that
the reason they did not use the website or refer their clients to use it is because of their own lack of confidence related to computers. One therapist shares:

“For me, it’s getting over my own anxiety about technology. I think sometimes, because I’m not as savvy with that [using the computer], I feel like I get left behind, and that can cause stress.”

**Convergent Design**

Once all the data were analyzed, the two research methods were brought together to attempt to explain results related to each of the hypotheses. The findings from the different methods are presented to address each hypothesis.

**Hypothesis #1**: The more tools therapists have to vary social presence, the more therapists will use those social presence tools to communicate with clients.

Results indicate that when therapists have additional tools to communicate with clients, they will use them. The analytics demonstrate that both therapists and clients used the site. The communication use scale also demonstrates a statistically significant increase in use of other technologies when they are made available. The qualitative data supports this, with therapists offering examples of ways in which the site allowed them to work with clients differently. Two examples discuss using the site to meet client needs:

“A client lives in the mountains and we couldn't figure out how to meet her needs, so we had her begin the skills using the website.”

“I had a client waiting to get into group. She was able to go on to the site and start working it. She loved the site. She was very enthusiastic and glad it was there since we couldn’t get her into group right away.”
Hypothesis #2: When therapists use a range of social presence tools to communicate with clients suffering from borderline personality disorder, therapeutic alliance will improve.

While there were no quantitative findings to support this hypothesis, the qualitative statements demonstrate that the therapeutic relationship is much like any other relationship and is subject to the theories of social presence. This is demonstrated through the overlap of qualitative codes of social presence and therapeutic alliance. For example, 60% of the time, when there was a mutual activity code, the therapeutic alliance code partnership was also present. The DBT was both the context for the relationship (mutual activity) and the method used to achieve some type of therapeutic change. Similarly, 45% of the time emotional experiences and therapeutic bond were similar, both explaining emotional reactions related to the relationship itself. Finally, the ability for clients to be open was improved when they had access to multiple affordances and a way to vary the communication methods. Although this double code only came up two times, it is supported in the literature as a way to encourage the sharing of embarrassing or stigmatizing information through the use of lower levels of social presence.

Hypothesis #3: When a range of social presence tools to communicate with clients suffering from borderline personality disorder are used, client outcomes will improve.

The data partially support this finding, with both qualitative and quantitative findings offered mixed results. The Repeated Measures ANOVA and Hierarchal Linear Modeling demonstrated that clients improve over time, but that access to the website was not related to any changes. In the repeated measures ANOVA, on the relationships
subscale, the non-intervention group fared better, improving their relationships whereas there were no changes for the intervention group. Similarly, the HLM analysis revealed that those in the non-intervention group had statistically significant decreases in the daily living problems, while the intervention group showed no change over time on this subscale. The qualitative statements from the therapists support the lack of findings related to symptom improvement related to website use, with the therapists overall hesitant to attribute any symptom change in their clients due to use of the website.

There was one exception to this. On the impulse control scale, the intervention group improved over time whereas the non-intervention group did not. One client offered a suggestion as to why impulse control may be influenced by the website, stating “now I have something do to when I am up at 2 a.m.” The therapists supported this idea in their qualitative statements, reporting that they believe the use of the site itself can serve as a distraction from strong emotions and impulsive behaviors.

**Hypothesis #4:** When a range of social presence tools to communicate with clients suffering from borderline personality disorder are used, social work therapists will feel less stress and anxiety about working with this population and therapist burnout will decrease.

The findings of this hypothesis were contradictory. The burnout scales indicate that use of the website did not decrease burnout over time. Despite these findings quantitatively, qualitatively, the there were several examples within the data about how the website provided an additional resource that alleviated burnout. The therapists shared examples of feeling less stressed about taking time off or responding to client requests.
The therapists noted that it was an additional tool that allowed them to put distance between themselves and the clients. And when asked directly, the therapists stated that they did not think the website caused them any additional stress or workload. Many of these questions are further evaluated in the discussion.
Chapter Five: Discussion

The findings from this study add to our understanding of the role of computer mediated communications as part of the therapeutic process. Despite the many hesitations within the social work literature about use of technology in social work practice, this study begins to challenge these concerns by helping to demonstrate that the therapeutic alliance can be maintained and possibly even enhanced when technology mediated communications are added to the treatment regimen. Because so much of life now happens via technology, people have come to expect to be able to access their communities of support regardless of location. It is likely that people would also like to be able to access therapy services in the same manner. Some providers have already moved to using this model, so to ensure best practices, it becomes critical that there is some research and understanding as to how the therapeutic process is impacted when technology is added to the equation.

One of the ways in which this study contributes to the literature is by beginning to explore how those factors important in the therapeutic alliance are subject to theories of social presence. Theories of social presence postulate that relationships, even those relationships that are based on therapeutic work, can be initiated and maintained through the use of technology mediated communications. In this study, computer mediated communications were explored from several different angles to begin to understand and explore the ways in which social presence and variations in communications may be part
of the therapist/client relationship. There were four separate hypotheses; each evaluated using both qualitative and quantitative methods. As the findings indicate, each of these hypotheses contributes different but complementary responses to the overarching question about what happens when different methods of communication are introduced to the therapy relationship.

**Hypothesis #1**: The more tools therapists have to vary social presence, the more therapists will use those social presence tools to communicate with clients.

The findings indicate that when therapists and clients have additional tools available, they will use them. The communication use scale demonstrated a statistically significant increase in use of “other” technologies. Since the therapists had access to a new resource they did not previously have, it is not overall surprising that there were increases in the use of other forms of technology. Since there were not statistically significant changes on the face to face or telephone scales, it may also be that there really were no changes in how the therapists went about doing their work other than including the website as an additional way to meet client needs. Many of the therapists supported this idea, indicating that they pick and choose who and when to recommend use of the site. So although the website may not have replaced traditional therapy practices, it provides another option that therapists can use.

The individual items in the “other” scale were not analyzed independently, so it is also unclear whether the therapists increased other forms of communication beyond use of the website. Agency policy limits direct communication between therapist and client through e-mail and text messaging, so even if therapists were using these methods, they
might be unlikely to report them. At the end of the study, the agency did agree to allow therapists to begin using text messaging with clients as long as they used password protected mobile devices approved through the agency. With the addition of this new technology, it may be beneficial to again ask the therapists not only if their use of a variety of communication methods increased, but specifically, what would they be likely to use.

The notion of using the website as an adjunct rather than a replacement was presented in the focus groups and then reinforced through member checks. The therapists were clear that they believed the website to be an additional resource, but “not the first way of teaching.” This thinking may also be the reason the “other” types of communication increased, but there was no change in what was already being done. While not specifically asked, the therapists may have also believed that their job cannot be done by a computer. They stated the clients still need the face to face support of both the therapists and group leaders, but this may have also been a reaction to feeling connected to the work they do, rather than believing the work they do can be done as well by a website. Future research could explore these questions further, comparing the use of technology as an adjunct treatment as compared to using technology only to do the therapy work, including the use of web-based programs that require no direct interaction from the therapist at all.

The analytics data also support this hypothesis, indicating that both therapists and clients used the site. While it is somewhat confusing that there were 70 unique client visits when there were only 50 clients in the intervention group, this can be explained in a
few different ways. First, therapists also logged into the website. These log ons would be counted as users, even though they are not clients. Second, analytics tracks users using IP addresses, not individual specific log on information. Therefore, the clients or therapists who log on from multiple locations would be tracked as two separate users. For example, if a client logs on to the site from his or her home computer as well as from a mobile device, this would be counted as two separate uses. Finally, to encourage use of the site, the therapists were not restricted to which clients could use the site. Many of the therapists indicated that they had used the site with non-DBT clients when they wanted to teach a specific skill, but not use the entire model. Unfortunately, a significant limitation of this study is that it is how the analytics were tracked. The constraints placed on the study by organization policies meant that there was no way to track individual clients to determine exactly who logged on, how often they logged on, how long they remained on the site or what they viewed while there. Not only does this create difficulty in determining use overall, therapists could not verify their clients’ activity using analytic tracking data.

Despite these complications, the analytic data does still offer some insight into how the website was being used. Although visits dropped off over the course of the intervention, there were still 10-15 visits to each site each month; 79% of those viewing the site after the first month were returning visitors. This would indicate that there was a reason people continued to use the site and return to the site after viewing it initially. Qualitative data from the communication process codes revealed one of the main reasons the therapists continued to use the site as part of their practices was because everything
was located in one place. Whether it was finding the appropriate skill or locating a mindfulness activity for group or being able to explore multiple skills at the same time, having all of the information together appears to be one practical benefit to the site.

Many of the clients and therapists expanded on this thought, stating that not only was everything in one place, the variety in affordances made the website easier to use. For example, the clients already have a paper notebook that has all of the skills together in one place. However, many clients indicated that they preferred to use the website over the notebook because it was easier, faster and accessible whenever they needed it. Many of the therapists supported this idea, clarifying that they like having multiple options for presenting information, such as video, audio or interactive practices to be able to accommodate multiple learning styles. The therapists commented on how the learning tools and videos provided on the therapist website were easier and more understandable than trying to read the DBT textbook (Linehan, 1993a).

Although the website was used on a consistent basis by some therapists, there were several pages and features that were not used at all by the therapists. On the client site, almost every page had similar analytics data. This was not true for the therapist site. On the therapists’ site, the mindfulness activities page was used regularly. The clinicians acknowledge checking this site just prior to their group sessions to get ideas for what they would teach in their group that day. This particular page may have done nothing more than centralize information and make it easily accessible across the agency. However, increasing access to information is a form of increasing the social presence of the DBT activity in the agency. In effect, while this may not have met a need for connection
between the client and therapist through increased social presence, it improved resource management and provided another avenue for sharing the social presence of DBT practice.

While not visited quite as frequently, the other page that was used regularly on the therapist site was the ‘DBT training tips and reminders.’ This page was primarily a re-stating of the training they had received and provided concrete examples about specific DBT concepts. The fact this page was so popular was a somewhat surprising finding. Although the reasons for use of this page could have been for the sake of learning or clarifying information they previously knew, none of this was new information for the therapists. All of the therapist participants in this study have been formally DBT trained. In addition, the therapists review information from the book on a monthly basis and attend DBT refreshers regularly. This brought up questions as to why, if the therapists already had access to this information in other formats, would the clinicians visit this page on their own?

When asked about this in member checks, the therapists stated they believed the reasons for visiting these pages was to connect to the treatment itself. They shared that being able to review concepts or get a refresher when they were lost or unsure was helpful. They stated that it felt good to go to the site and remind them they were doing the treatment correctly was supportive and “validating.” This particular page helped with supported learning, but beyond this, it also provided a connection to the treatment and a sense of belonging to the DBT community. Because people felt connected to the DBT
community, the social presence of both the DBT program and the group itself were served by access to the website.

While the training tips and reminders provided a way to connect to the community with no actual interaction with other providers, the area in which they could interact with other providers was never used. The discussion board had no visitors. There may be several explanations for this. It is possible that the clinicians simply did not have the time they would like to spend on the website. Given more time to interact with the website, there is potential they would have used this function to get support from others. However, it is more likely that this feature simply was not necessary because the therapists had access to higher levels of social presence. The therapists already meet weekly with others to review their individual clients, discuss suggestions for treatment and have the opportunity to receive support for themselves. The therapists also have a monthly meeting in which they are reminded about treatment components and encouraged to try different techniques. In addition to these formal training reminders, the therapists have regular supervision as well as access to supervisors and co-workers as needed. Because the therapists had access to face to face support whenever they need it, it is more likely that the discussion board was not necessary. A feature like this, where therapists can interact remotely, would likely be more applicable to those therapists who practice independently or do not have regular communication with other therapists. Future studies could explore this question by offering this same site to those who are in private practice or remotely located rather than those who are in a central setting, to see if there would be differences in use of the discussion board feature.
The other feature that was not used regularly was the assessment tools page. This was again a somewhat surprising finding in that the therapists specifically requested a way to better assess their clients prior to treatment. Although some of the clinicians used the assessment tools for certain clients, many of the clinicians did not use them at all. In fact, there were only two assessments completed on this page during the intervention period. During member checks, there was no real explanation for the lack of use of this site other than time. The therapists explained that to use the assessments, they either have to do the assessment as part of the session, which requires them to log on to the site and go through it during the client’s time or they have to print it out, send it home with the client and score it later. Many of the therapists indicated they would have liked to have used the assessments more frequently, but as previously indicated, they stated that they simply did not have the necessary time to use the website to its full potential. While this is probably the most likely explanation, the therapists also later explained that in general, the therapists are not in the routine of using evidence based screening tools or validated assessments to inform their practice. They report that although they administer the Basis 32 assessments per agency policy, they never know the results. They stated that no one ever tells them the outcome of the analysis of the data, so they do not use the Basis 32 scores as an indicator for need for treatment and never know if clients make changes over time. If using the assessments was part of their regular clinical work and they had time built into their schedule to assess and understand outcomes, it possible that they would have used this feature differently.
For those who did not use the site at all, the reasons typically related to time or agency policy/problems. These issues were coded as burnout rather than related to site use. These two specific examples are discussed further in relation to hypothesis #4.

Overall, the findings support hypothesis #1, indicating that therapists and clients will use additional tools when they are available. Although there are a number of variations on how the tools are used, and that some are used more frequently than others, providing additional tools for supported learning, increased client and therapist interaction and linking people to the treatment itself is a good first step.

**Hypothesis #2:** When therapists use a range of social presence tools to communicate with clients suffering from borderline personality disorder, therapeutic alliance will improve.

This particular hypothesis is the basis for this study and the question that many providers struggle with when deciding whether or not to implement computer mediated communications into social work practices. Although there were not quantitative measures to support this finding, the qualitative portion begins to provide some information as to what happens within the therapeutic alliance when computer mediated communications are also used. While there is still much work to be done in this area, preliminary results from this study indicate that the therapeutic alliance is not harmed, but in fact, may be enhanced by the use of computer mediated communications.

The qualitative portion of this study provided individual experiences and examples of these relationship issues. The data from this study support that the therapeutic alliance is a relationship and subject to theories of social presence no
differently than other kinds of relationships. The manner in which both clients and therapists talked about the work being done in the DBT program indicated that there was a relationship. Both therapists and clients provided statements related to caring about the other, interacting with the other, and feeling connected to the other, all statements related to the concept of “bond” in the therapeutic alliance. The therapists demonstrated they wanted their clients to get better, the concept of “partnership” in the therapeutic alliance, explaining the supported learning code in the data and offering reasons as to why the therapists would encourage use of the site. The therapists wanted to be better therapists, known in the therapeutic alliance literature as “confidence,” thus explaining why they would use the therapist site to enhance their own learning. The clients and therapists indicated the feelings about the other remained the same, regardless of the treatment setting.

These statements are strengthened in that each of the therapeutic alliance codes also corresponded with the social presence codes. Social presence codes were used to find examples of relationships when computer mediated interactions were in place. The therapeutic alliance codes and social presence codes overlapped throughout the data, indicating that the therapeutic alliance is a relationship, and theories of social presence apply to that specific relationship. The key components of social presence are represented by very similar constructs within the therapeutic alliance literature. For example, the mutual activity which serves as the basis for the computer mediated interaction in social presence is the same as the therapeutic agreement, or working relationship, or partnership in the therapeutic alliance literature. In this case, doing the
DBT work, being part of the DBT community, and improving psychiatric outcomes by doing DBT was not only the shared activity, but also solidified the type of work and anticipated outcomes related to the therapy being done. The psychological involvement and emotional experience constructs, which are a fundamental part of social presence, are represented similarly through the caring or bond in the therapeutic alliance. The feelings of closeness that link people in online communities was also present in this data, with therapists and clients reporting feeling connected to the treatment, and those similarly involved in the treatment, by being part of the DBT program. Each of these overlapping constructs supports that the therapeutic alliance is no different than other kinds of relationships, even those mediated by computers or other forms of technology.

The overlapping of the social presence and relationship codes indicates that the alliance can be maintained via computer mediated communications. However, the data also revealed examples of how the website and varying levels of social presence may be able to enhance the therapeutic relationship. The website was created using an intentional design process, one in which the layout, the features, the text and the animations were included in the design for a specific reason. For example, the initial DBT session examples were created using the actual therapists, intended to trigger an emotional connection as they are viewing the therapists on the screen. However, the demonstrations of the actual skills were created using animations and pretend characters, so that the client could focus on the learning of the skill, not on the emotional connection they may have to the person in the video.
The intentional design of different affordances not only allowed people to learn the DBT in different methods, it also impacted how clients share information. In a concept known as the disinhibition effect, clients are able to be more open sharing embarrassing or stigmatizing information when they can use lower levels of social presence (Ross, 2011). In this data, there were examples of clients indicating less embarrassment when they could do their work without others knowing what they were doing. In addition, therapists felt that if clients could share the website with friends or family members, this may be an easier way to receive help or educate them about their difficulties without having to sit down and talk with them face to face.

Another example of enhancing the therapeutic relationship is when the therapist can take a break from the direct contact, but still provide support. Those therapists who wanted distance, space or some relief from the therapeutic demands still cared about their clients, but just did not want to interact with them as frequently. In these cases, the therapists used the sites to vary the intensity of the relationship, while still trying to provide some level of support. There were examples in the data of therapists replacing higher levels of social presence with less intense levels of social presence, such as encouraging clients to use the website before calling. The data also revealed the therapists also used the website as a way to move the clients out of treatment when it had ended. The example cited frequently in the focus groups using the website as a type of after care. As the clients were anxious about decreasing support that is associated with completing treatment, rather than the clients moving on, the anxiety about loss of the therapist and DBT group led to higher relationship demands. Rather than trying to meet
those demands with face to face sessions when it was not clinically indicated, the therapists offered the website as an alternative. The website was a method for the clients to stay connected without the therapist having to be the one to provide this additional support.

In addition to learning, the website was intended to serve as a representation of the relationship when the therapist and client are separated. This may be the reason it was used to transition clients out of treatment, by giving the client a way to connect without any intrusion into the relationship. Being able to access the website, especially when feeling alone, having a representation of the relationship, even if there is no direct contact, can trigger an emotional response of safety and security. Knowing that the therapist is available, even when the therapist is not technically available, is one way in which the therapeutic alliance may be enhanced.

This study cannot conclusively conclude that the website resources created a stronger therapeutic alliance. It is also possible that the therapists with an already strong therapeutic alliance were likely to encourage a client to use the website for additional support. The therapists often used the website as part of their other therapeutic work. Several therapists talked about using the website during a face to face session, to demonstrate how to use the site, so the client could access it later. One therapist explained that she uses the website during phone coaching, asking the client to log on to the website during a telephone call so they can walk through the skill together. This is an example of co-presence, a social presence concept in which two people are engaged in the same activity, just in different locations (Biocca & Harms, 2003). So although the
mechanisms behind the interaction of social presence and the therapeutic alliance are not clear, there is a link between the two areas of study. The exact nature of how the two areas interact is an area for future study, but for now, it provides some evidence that social presence variations created through the use of computer mediated communications, has some relationship with the therapeutic alliance.

Although the data from this study sets a foundation for exploration of social presence and therapeutic alliance concurrences, there are some limitations. Because the client and therapists already had a therapeutic relationship based on face to face interactions, the use of the website in these examples may not be applicable to those settings in which the therapy exists only through computer mediated interactions. Although in this study the alliance was strengthened and enhanced through the use of additional technology based tools, it cannot necessarily be said that the same would be true for those relationships that do not have face to face sessions in addition. This would need to be the focus of further study.

Despite the fact that the therapeutic alliance is so important to treatment and the hypothesis about the role technology plays in the therapeutic alliance, there were no quantitative measures to support or oppose this particular hypothesis. Only seven Agnew Relationship Measure surveys were completed during the pre-test collection period. Of those, three of them had to be eliminated because they were for therapists who were no longer at the agency or part of the DBT program. Of the other four, all of them had perfect scores, making them unusable due to lack of variability.
The low numbers of this particular measure were directly related to poor data collection techniques and communication issues between the agency and the researcher. Because of both difficulties in timing of the Institutional Review Board and internal agency time frames, the administration of the ARM fell to the therapists rather than the researcher collecting the data directly. The initial plan was for the therapists to collect the ARM at the same the Basis 32 scale was administered since the clients were already doing a measure. However, there was some confusion about the role of the ARM and whether it was clinically necessary for clients to complete it. Therefore, many therapists did not have the clients complete the ARM along with the Basis 32.

However, the literature indicates that even if more measures had been collected, the data may still have been unusable. It has been suggested over multiple studies that, with Borderline Personality Disorder clients, self-report therapeutic alliance measures are not reliable (Blais, Jacobo & Smith, 2010; Bender, 2005; Gunderson, et. al., 1997; Levy, et. al 2010; Kramer, et. al 2011). It is unknown whether increased numbers of clients completing the survey would have increased the reliability enough to be able to use the surveys for statistical analysis. Had there been usable data from the ARM, there still would have been restrictions on the analysis of this data. One limitation to this study is that there were no measures of therapeutic alliance collected during the non-intervention period. So while the data might have indicated improvements over time, there would not have been any comparison data to determine whether any changes over time were influenced by the introduction of the website.
Despite the lack of quantitative findings supporting this hypothesis, the strength of the qualitative data provides some promising information that the therapeutic alliance can be supported, maintained and even enhanced by the use of varying social presence to provide additional methods of communication and interaction.

**Hypothesis #3:** When a range of social presence tools to communicate with clients suffering from borderline personality disorder is used, client outcomes will improve.

The findings related to this hypothesis were somewhat mixed. Clients did improve over time, but the design of this particular study did not allow for analysis as to why there was change or what factors may be directly responsible for contributing to the change. The Repeated Measures ANOVA and Hierarchal Linear Modeling demonstrated that on the total Basis 32 scale, clients improve over time regardless of group assignment. This was not a surprising finding; multiple DBT studies indicate that with this type of therapy, client outcomes improve over time (Linehan, et. al, 2006). However, one of the findings from both types of longitudinal analysis found that having access to the website was not related to symptom change. In fact, the $r^2$ for the change over time/group assignment model was only a .03 for the total score scale, indicating that only 3% of the variance explained was from this model. This indicates that there are several other factors influencing change other than group assignment. In any treatment/therapy model, there are typically several things that impact change over time, including the skills of the individual therapist, the individual client characteristics and issues external to the treatment environment (Wampold, 2011). Even within the DBT treatment, there is some question as to which components are specifically responsible for change (Levy, 2008).
While it is possible that all changes in symptom improvement are solely the result of the DBT treatment, regardless of whether the clients used the website, there are other some other possible explanations as to any differences between the intervention and non-intervention groups.

One has to do with the statistical methods used. In general, longitudinal and multi-level models require larger samples sizes (Shin, 2009). Power analyses indicate that with the Repeated Measures ANOVA, with a moderate effect size, the minimum sample size at .8 power would have to be 50. For the HLM, to achieve a moderate effect size at .8 power, the sample would have to be 138. While the numbers are close to the given sample, if there is only a small effect size, this particular sample may not have had sufficient statistical power to demonstrate change (g*power analysis). A larger sample might be able to produce different results at different effect sizes.

It could also be that those in the treatment group had higher Basis 32 scores to start with. The non-intervention group had a starting mean total score of 53.4 (sd=26.4) and the intervention group had a starting mean total score of 57.4 (sd=24). Although this was not statistically significant difference in the pre-test scores (t=.892, p=.374), the overall higher scores could possibly indicate that the intervention group had more severe symptomology to begin with start with, or that there were other, unobservable differences between the two groups.

However, there was one area in which the intervention group had an improvement in scores that was not present in the non-intervention group. This was on the impulse control subscale. This is important in that one of the main goals of DBT
treatment is to reduce impulsive behaviors. Those who had access to the website had scores that decreased in a manner differently than the non-intervention group. While it cannot be said that the website may have somehow influenced the change in the impulse control subscale, there is a relationship present that was not there for the control group.

The fact that this particular subscale showed a significant difference is very important. Borderline personality disorder is defined by impulsive acts, such as self-injury and suicide attempts. The beginning treatment goals are always to reduce impulsivity before moving on to other issues, such as improvement in mood or working through day to day problems (Linehan, 1993a). Being able to decrease impulsive behaviors is a key component of DBT treatment and warrants further exploration. What is of particular interest is the contribution of multiple methods of DBT activities and focused social presence interactions and whether this somehow contributed to reductions in impulse control.

One theory is that the website provided a distraction. The website provided something for the client to do during times that would otherwise be potentially dangerous in terms of impulsive acts. That time when no one is around to support them, the website gave them something to do to distract from the overwhelming emotion. However, it may have been more than simply giving the client something to do. The website may have served as a reminder about the treatment commitments they had made. They did not just visit any website at 2 a.m. – they visited the DBT website. Because of the social presence properties associated with the site, it was able to serve as a reminder of their treatment goals. It provided them with reminders about skills to use. It served as a
representation of the treatment, the relationship with the provider and the promises they had made to themselves. In this way, having a proxy of the treatment and relationship available regardless of time and place and when clients may need it most may be the explanation for why the impulse control scores were lower for the intervention group.

Conversely, the in the HLM analysis, being in the non-intervention group was a statistically significant predictor of change over time (B=1.7, p=.026). This indicates that for this particular scale, those in the non-intervention group improved at a rate differently than those in the intervention group. The reasons for this could also be explained based on DBT theory. Just as impulse control is the first treatment issue addressed, the problems in daily living is typically only addressed when the impulses are under control and self-harm and suicide are not longer such a significant problem. It could also be that those in the intervention group had not gotten to the stage of treatment in which relationships or problems in daily living are addressed. The non-intervention group may have already moved beyond the first stage of treatment and did not needed to spend as much time on impulse control, but rather could focus on problems in their day to day lives.

The qualitative findings overall did not offer much in terms of client change/symptom improvement. Rather, the therapists were overall hesitant to report any symptom change in their clients as the result due to use of the website. The therapists agreed that there was no real way to tease out what helped the clients improve – individual treatment, group treatment, the website. Even within the DBT literature, which components contribute to the improvement the most is not delineated, rather it is a
treatment model. To determine whether a website alone would produce similar results is something that would have to be further tested. In addition, further explorations into the differences between DBT treatment and DBT treatment + website are areas for future research.

**Hypothesis #4:** When a range of social presence tools to communicate with clients suffering from borderline personality disorder is used, social work therapists will feel less stress and anxiety about working with this population and therapist burnout will decrease. The findings of this hypothesis were contradictory. The burnout scales indicate that use during the intervention period, the burnout scores did not decrease over time. While not statistically significant, scores actually increased during the intervention period from 48.57 (sd=9.8) at pre-test and 50.1 (sd=a post-test mean score of 50.1(sd=8.2). There could be several explanations for this. First, the sample size for the therapists was only nine. G*power analyses indicate that a minimum sample size of 27 would be needed to detect any type of change. The low sample size may have been a reason for lack of findings, as nine pre-post tests do not necessarily have the statistical power to meet significance levels (Myers, Gamst & Guarino, 2006).

However, it could also be that the website had no impact at all on the therapists’ level of burnout. In many cases, the website was an unused resource: available but untapped. Because of other issues, many of the therapists did not have time to visit the site, were not able to access it when they needed it or simply forgot it was there. In fact, only about nine of the 15 therapists visited the site, and only about five of them used the site on a regular basis.
A somewhat surprising finding was that the therapists that used the website had statistically significantly higher burnout scores than those therapists who did not use the site. One possible explanation is that website actually caused more distress. It is unlikely based on qualitative findings, but it is a possibility. It could also be that those who were the most stressed went looking for support and were more likely to use the website. People who struggled with feelings of burnout may have accessed additional resources and support that the non-users did not need. So rather, it may have been that the website neither increased nor decreased burnout, but it was that those who were already burned out that needed the resource.

While both of these are possible explanations, it is more likely related to the manner in which the data was collected. The therapists were invited to complete the pre-test surveys, but not all of them did. It is possible that the therapists were too overwhelmed or burned out to complete the measures at the time of pre-test. Therefore, the pre-test measures may have missed those therapists whose scores may have decreased over time, but there was no pre-test measure by which to compare.

Qualitatively, the findings were much different. Although none of the therapists felt as though the website increased their stress or made it more difficult to work with clients, they reported agency related difficulties in trying to use the website. Although the burnout construct was introduced as a method for supporting therapeutic alliance, the qualitative portion exposed how burnout is a much more complicated construct than just stress and fatigue related to providing care to difficult clients. The statements from the focus groups provided additional information to understanding burnout beyond the
personal factors, but rather, they highlighted agency and environmental issues that may contribute to burnout. For example, they shared becoming frustrated when they could not access it due to computer restrictions, couldn’t remember the password or could direct clients to it because they couldn’t remember the web address. It was not the site itself, but the IT issues that frustrated them and increased burnout problems. As mentioned earlier, lack of time was a major consideration in whether or not a therapist used the site. The already existing case loads and other responsibilities prevented some of them from being able to explore the site or use it as a resource.

Finally, the quantitative findings on the burnout scale may have also been somewhat misleading. The burnout scale measures employee burnout, but in this case, the MBI was being used to understand therapeutic alliance. As stated earlier, therapeutic alliance among BPD clients is often not reliable, so in this case, understanding burnout itself was not the primary reason for the Maslach Burnout Inventory. The MBI was implemented as a way to understand the therapist point of view in relation to therapeutic alliance among BPD clients. When the data is viewed as a construct of the therapeutic relationship, not necessarily as burnout in the traditional sense, the findings are somewhat different. The qualitative data indicate that there was an improvement to burnout in relation to BPD clients. Therapists report they felt less stressed and more empathic toward their clients as a result of the website. Despite the quantitative findings, qualitatively, there were several examples within the data about how the website provided an additional resource that alleviated burnout. The therapists shared examples of feeling less stressed about taking time off or not feeling so pressured to respond to
client requests. Therapists report feeling as though they could go on vacation or space out sessions, because they knew the clients had some type of alternative. The therapists noted that the website was an additional tool that allowed them to put distance between themselves and the clients. They shared how it decreased the dependency needs – at least from the therapist’s side of the relationship. Even if the client felt needy, the website allowed the client to have connection without disruption to the relationship, thus preserving the therapist to be more emotionally available when the client actually did need them.

One therapist who was trying to set boundaries with a client finished with treatment reported a huge relief in being able to give the client something else and not having to continue to provide the same level of care when it was not clinically indicated. She stated that when she could spread out the treatments and give her something to do between sessions. As a result, she was more attentive and emotionally available during the session if she did not have to deal with her every day during the week.

This finding is important to social work practice. Using BPD as proof of concept, this study provides a foundation for understanding how working with one of the most difficult therapy populations impacts the therapeutic alliance. Not only did this study address the role of the therapeutic alliance with clients who put high demands on the therapeutic relationship, it offers another possibility for providing care for an oppressed and stigmatized population. One of the ways in which social work can work toward justice for this oppressed and stigmatized group is through education of medical and mental health professionals. Within the past decade, there have been significant
advancements in the treatments of BPD that have demonstrated efficacy in treating what was believed to be an untreatable and intractable condition (Bateman, Ryle, Fonagy, & Kerr, 2007; Gunderson, et. al., 2010; Freeman, Stone & Martin, 2005; Linehan, 2006). Despite the routine use of these treatments with moderate success, those with BPD remain one of the most difficult populations for clinicians. In part, it is because appropriate treatment of the disorder requires a strong therapeutic relationship, one that can survive the challenges, attacks and desperation that those with BPD demand in all of their relationships. Beyond education and empathy, those working in the medical or mental health fields with these clients also need specific tools and techniques to be able to effectively manage the relationship needs of this population.

This project has offered clinicians an alternative when it comes to managing the relationship needs of their BPD clients. By increasing the clinicians’ options for managing their social presence, the clinicians were able to have more control over the intensity of the relationship. When the clinician had control over the level of social presence and the manner in which the clinician and client interact, the clinicians felt less stressed out by this population and were more comfortable in setting boundaries using the website rather than being physically or immediately available for the clients at all time. The website was able to help bear some of the burden of the relationship. As one therapist stated in the focus group, “I consider it to be a member of the team.”

Although these therapists report this website may have provided some relief, this particular group is already committed to working with those who have BPD. The therapists had to request to be part of the DBT team, with the understanding that if they
received the necessary training, they would be expected to see clients diagnosed with BPD. It is unknown whether access to additional resources might allow for those therapists in private practice, who don’t have the same level of team support, might make those who were reluctant to treat BPD clients to want to work with them in the future. To determine this specifically, a different sample of therapists, particularly those in private practice or those who have not received Borderline Specific training, would be needed.

While the website may provide additional support to therapists regarding working with Borderline Personality Disorder clients, the website itself did not address Borderline Personality Disorder at all. The therapists pointed out in the focus group that the client site did not have any information about the diagnosis itself. They shared concerns about how BPD is portrayed in the media and thought it would be helpful to have a place on the site where it could be presented and re-framed for clients, friends, family members or even the general public. While the therapist site has information about diagnosing and explaining BPD to clients, the client site has nothing. This may very well have been a missed opportunity to provide a less stigmatizing and more supportive view of BPD than what is currently found on the Internet. There are plans to add this page to the current site.

Limitations.

Research Design.

While the findings of this study begin to show promise for further research in this area, this study also had several limitations. One of the primary limitations to this study is the design itself. Although the study employed different methods to measure change,
none of these methods is rigorous enough to demonstrate cause and effect related to the intervention (Shadish & Cook, 2005). Several factors impacted the strength of this research design.

Sampling.

All of the participants in this study are from a convenience sample. Both the clients and the therapists were from the same mental health agency. There were no within agency sampling methods used, all clients and therapists at this agency were invited to participate. Because of this, there was no randomization to specific treatments. Rather, the intervention was available to all therapists and clients during the intervention period and the treatment was not withheld from anyone. While this was beneficial to the agency and its clients, it makes it more difficult to tease out the role of the intervention.

Demographics of the clients were largely middle age, white females, all of whom have a BPD diagnosis. While this demographic matches the demographics of those who are diagnosed with borderline personality disorder, it is not necessarily representative of larger mental health populations. Because of this, it is unknown whether the findings in this study could be generalized to other mental health clients, people of different demographics or even clients at a different mental health agency.

The therapist demographics in this study were also predominately white females. However, this is also somewhat representative of social work therapists. One of the differences is that this therapist group was very experienced, with all of them having at least three years experience, but several of them having at least 20 years. Given this level of experience, it is a possibility that the use of the website had no bearing on the
treatment and the clients improved just because the therapists have been doing this work for so long and are already seasoned at navigating the therapeutic alliance. There is some caution that these findings may not apply to less experienced therapists or therapists who are attempting to practice DBT outside an agency setting.

In addition, one of the hypotheses was that this type of intervention may incline therapists toward working with BPD individuals. For this group of therapists, they are already committed to this population, have been trained to deal with many of the related issues and have the necessary support within the agency. It is unknown whether this type of intervention would actually help people who are averse to working with BPD individuals be more likely to take them on as clientele. This would have to be further explored with a group of therapists who do not have training and have not made the same level of commitment to working with clients diagnosed with BPD.

Group assignment.

For the therapists, there were no grouping assignments. This study would have been strengthened by assigning some therapists to use the site and not allowing others to access it until the intervention period was over. Instead, the users and non-user groups divided naturally and it was only in post analysis that attempts were made to determine the differences between those who accessed the site and those who did not. This may have created a sample bias, with those choosing to use the site those who are already comfortable with technology, more open to making changes or those more willing to implement new techniques into their therapy practices. It would have been a stronger
design had the therapists been randomly assigned to the user or non-user group. This would have made it easier to determine the impact of the intervention on the therapists.

The clients were also not subject to group assignment. Rather the records from all clients were collected. The groups were then created based on when the intervention was available and when it was not. While the demographics of the groups were similar, this type of grouping cannot account for other possible factors that occurred during that time frame. For example, there was a new screening procedure for DBT group implemented six months prior to the introduction of the intervention. Based on the way these groups were assigned, it cannot be determined if changes made were the result of the intervention or because of some other factor. In future studies, randomly assigning clients to treatment as usual groups and intervention groups will help to account for this.

One of the most significant limitations is that there was no direct link between actual website use and symptom outcome. The groups were not compared based on users vs. non-users, but only on the potential for use based on when the website was available. This is not a true group comparison as there is no way to determine which clients used the site when it was available. It is unlikely that all of the people included in the data analysis and grouped into the “intervention group” had actually logged on to the site. In addition, how frequently, for how long and at what times the site was used could not be directly linked back to client outcomes. Future studies will be stronger if the client use can be tracked and then linked to client outcomes.

*Measurement and Data Collection.*
Although validated measurement tools were used for most of the quantitative measures, there are ways in which these could have been improved. For example, the Basis 32 measures overall general psychiatric functioning, but is not specific to BPD symptoms. A measure of symptoms related directly to Borderline Personality Disorder would have provided more information on how the website impacted these specific symptoms, rather than psychiatric function as a whole. Axis I diagnoses were not included in the data analysis, which may have also helped to explain changes in some of the symptoms on the Basis 32.

Overall, the data collection process could have been strengthened as well. The client data collection was left up to the therapists, which is why some of the client measures were impacted. Had there been sufficient time and resources, employing more rigorous techniques for recruiting participants and ensuring all the data was gathered would have provided more information and a stronger statistical analysis. The process for collecting therapist data could have also been improved, by offering multiple times to complete the measures rather than trying to collect them during a meeting time where other information was also provided. The use of incentives for the therapists may have also improved upon the number of pre-test measures collected.

While some client data was included in the qualitative analysis, there were no formal focus groups for the clients at the end of the intervention period. This limits the clients’ point of view. This study was aimed at understanding the therapeutic alliance as it relates to the therapists’ ability to work with clients, which is why the clients were the primary focus of the qualitative data collection. Although the information provided by the
therapists answered the research questions, also having client point of view would be beneficial and in line with social work values.

The researcher conducted all the focus groups and gathered all of the qualitative data personally. This could be a limitation in that there may have been some social desirability in the focus group sessions. It is possible that during individual interviews or groups conducted by someone not directly related to the project, the therapists may have felt more comfortable sharing negative experiences with the website or revealing other issues they may not have wanted to bring up with the researcher.

**Agency Limitations.**

Although the agency was cooperative with the research, there were several internal issues that limited the kind of work that could be done. First, there were restrictions put on what kinds of features the agency would allow. Per agency policy, the therapists are not supposed to have direct contact with clients via e-mail or texting. The agency administration reports that this is due to privacy concerns. The ability to do direct communication with clients via these additional methods rather than just the website would have provided more information about social presence through different kinds of communications.

During the course of the study, the agency was attempting to put together a client portal through which clients could gain access to scheduling, medication refills or leave messages for their therapists. At the time of this project, this client portal was not yet available. Because the agency did not have this program running and did not feel confident they could protect client information, they did not want to have any individual
client information gathered and stored through this website. Many planned affordances, such as interactive homework, were not included on the website for this reason. The ability to individualize the webpage activities and share information electronically with their therapist may have enhanced the experience for both therapists and clients. The exact role individual features and functions play in connecting with others is something that will have to be addressed in further studies.

While these issues relate to the limits on the functionality of the Internet based website DBT resources, the larger issue at hand related to the research design. Because individual clients could not be tracked through the website, there was no way to link client use to client outcomes. Having access to this information would have clarified questions relating to improvements in client outcomes significantly.

Although there was no way to individualize the website and guarantee client privacy, the agency still felt as though steps should be taken to keep the website restricted to clients of JCMH. They determined the best way to do this was through use of a universal password. This password was available to all JCMH clients, but was the same for everyone. In addition to limiting the site by password, the links to the DBT site were not prominently located on the main client and therapist home pages. The idea behind this was to provide a way for those who knew about the links to access them, but not to make the link available to anyone. Although these steps were taken to protect the integrity of the site, rather, these steps served primarily to frustrate clients or therapists trying to find the site or log on. Throughout the focus groups, there were complaints about difficulty finding the site, remembering the password or being able to easily log on.
Future Research.

While this study began to offer preliminary information about the role of the therapeutic alliance in computer mediated interactions intended to increase social presence, there is still much more that could be done. Many of the limitations noted in this study could be further explored, even without a new intervention. For example, conducting client focus groups regarding the site could provide further information about from the clients’ perspective. It may also be interesting to do client/therapist pair interviews to really be able to understand how the therapeutic alliance is impacted from people actively engaged in a therapeutic relationship. However, even prior to implementing new techniques, this same study could be replicated, but with more rigorous methodology, such as assigning treatment groups through randomization to create experimental design conditions.

Beyond this one site, there are also several research opportunities, including expanding the intervention into other treatment types or other treatment populations. Sadly, the website is already outdated. Both the clients and the therapists discussed the desire for a mobile phone application, which would be more functional than a website. Many people have access to mobile phones and tend to use applications to take up “down time.” Future plans could include either developing an application or modifying the website to be viewed in a mobile browser so that it is easier to navigate. The differences between the website and an application could be the focus of further research and development.
Beyond the specific interventions, there is also room to enhance and further develop the theories of social presence. Specifically, the overlap between the social presence and therapeutic alliance codes was an interesting find. This one study does not provide enough information to definitively state that the two theoretical constructs are correlated, but this is something that could be explored. Because all communication in society is becoming increasingly mediated, any information that can explain and strengthen theories of social presence will provide a benefit to this field of study.

**Conclusion.**

While there were several limitations to this intervention and study, overall, this project begins to lay the foundation for exploring the role of computer-mediated communication intended to increase social presence in social work practices. Specifically, this study began to challenge many of the beliefs that technology should not be implemented into clinical work because the therapeutic alliance cannot be maintained (Fenichel, et al., 2002.) Rather, the website intervention appeared to not only continue despite the method of communication, but at times, the relationship was supported through various means of communication. When the therapists were able to vary the intensity of the interaction, they were more supportive of their clients. In many cases, the therapists encouraged use of the site as part of the therapy process, as an additional way to increase client learning and connection to the treatment. While much more work still needs to be done to understand exactly how this relationship develops via mediated communications, there appears to be enough information to continue to move forward
and explore both technology as an intervention as well as how social presence helps to facilitate client/provider relationships.
References


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Macfie, J. (2012). Do mothers with borderline personality disorder oscillate in their behavior towards their children? Implications for interventions: Commentary on Stepp, Whalen, Pilkonis, Hipwell, & Levine's article “Children of mothers with borderline personality disorder: Identifying parenting behaviors as potential targets for intervention”. *Personality Disorders: Theory, Research, And Treatment, 3*(1), 98-100.


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Zanarini, M.C., Jacoby, R.J., Frankenburg, F. R., Reich, D.B., & Fitzmaurice, G. (2009). The 10 year course of social security disability income reported by patients with

## Appendix A – Tables and Graphs

### Table 1 – Client Demographics

<table>
<thead>
<tr>
<th>Demographic</th>
<th>Intervention Group</th>
<th>Non-Intervention Group</th>
<th>Group Differences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number (N)</td>
<td>54</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td>Mean Age</td>
<td>37.22 (10.5)</td>
<td>38.43 (10.7)</td>
<td>( t = .677, p = .506 )</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>77%</td>
<td>80%</td>
<td>( X^2 = 2.616, p = .270 )</td>
</tr>
<tr>
<td>Male</td>
<td>23%</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>91%</td>
<td>82%</td>
<td>( X^2 = 2.6, p = .457 )</td>
</tr>
<tr>
<td>Hispanic</td>
<td>3%</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>6%</td>
<td>11%</td>
<td></td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>17%</td>
<td>11%</td>
<td>( X^2 = 4.8, p = .457 )</td>
</tr>
<tr>
<td>Divorced</td>
<td>35%</td>
<td>34%</td>
<td></td>
</tr>
<tr>
<td>Never Married</td>
<td>45%</td>
<td>35%</td>
<td></td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>College Degree</td>
<td>28%</td>
<td>16%</td>
<td>( X^2 = 6.4, p = .435 )</td>
</tr>
<tr>
<td>Some College</td>
<td>42%</td>
<td>46%</td>
<td></td>
</tr>
<tr>
<td>High School</td>
<td>22%</td>
<td>25%</td>
<td></td>
</tr>
<tr>
<td>No HS Diploma</td>
<td>5%</td>
<td>8%</td>
<td></td>
</tr>
<tr>
<td><strong>Employment Status</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unemployed</td>
<td>65%</td>
<td>70%</td>
<td>( X^2 = 1.8, p = .762 )</td>
</tr>
<tr>
<td>Employed or Student</td>
<td>35%</td>
<td>30%</td>
<td></td>
</tr>
</tbody>
</table>
Table 2 – Website Content and Table of Affordances on Client Site

<table>
<thead>
<tr>
<th>Affordance</th>
<th>Description</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Welcome Video</td>
<td>Animated video welcoming the user to the site and explaining how to navigate through each of the different areas of the site</td>
<td>To introduce the user to the site, explains navigation of the site and provides a welcoming tone. The use of a video rather than text alone varies the social cues so clients can see and hear rather than just read.</td>
</tr>
<tr>
<td>Quiz “Is DBT for me?”</td>
<td>Interactive quiz in which clients can answer yes or no to a series of questions about symptoms DBT is intended to treat to determine if DBT is the appropriate therapy for them.</td>
<td>The quiz is interactive and engaging; encourages the client to take part in the website through activity. Example of Persuasive Systems Design feature of Tunneling. Tunneling forces the user to walk through certain pages in a logical or linear process. In this case, the quiz covers questions specific to Borderline Personality Disorder Symptoms. Based on the answers given, a recommendation for treatment is offered.</td>
</tr>
<tr>
<td>Individual and Group session videos</td>
<td>Videos of therapists role playing group and individual DBT sessions.</td>
<td>Provides pictures, sound, video to vary cues, Seeing and hearing voices in an example provides a connection to those providing the treatment and the treatment itself.</td>
</tr>
<tr>
<td>“Skills finder”</td>
<td>Interactive tool in which the client chooses from a list of problems they may be struggling with and the website offers suggestions about skills that may be useful to try.</td>
<td>Example of the Persuasive Systems Design feature of Tailoring and Suggestion. Tailoring allows clients to access information specific to the situation, making the experience more relevant to the individual user needs. Suggestion provides ideas about changing behavior at the time when it is most needed.</td>
</tr>
<tr>
<td>Section</td>
<td>Description</td>
<td>Example</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Learn the skills</td>
<td>A comprehensive list of all the available skills in one place. The user can click a link on any of the skills which will take them to a page with descriptions and examples of each skill.</td>
<td>Example of the Persuasive Systems Design feature of Reduction. Reduction is taking complex behaviors and reducing them into simpler tasks, in this case, providing all the skills in one place.</td>
</tr>
<tr>
<td>“Try some practice”</td>
<td>Links provided at the end of each lesson, providing examples of the skills and a chance for the clients to practice the skills learned.</td>
<td>Example of the Persuasive Systems Design feature of Suggestion and Conditioning. The website makes suggestions about practice to reinforce learning.</td>
</tr>
<tr>
<td>Cheerleading statements</td>
<td>Statements, poems, or stories from the therapists providing the DBT treatment.</td>
<td>The words can provide encouragement to the clients during a time when they may need extra support. The clients can find the words of their therapist and feel connected to the therapist or the treatment by viewing this page.</td>
</tr>
<tr>
<td>Good work and Great job!</td>
<td>Statements and pop-up animations that appear when clients complete an activity or lesson.</td>
<td>The statements provide encouragement, and act as a social actor, taking on the role of cheerleader and supporter.</td>
</tr>
<tr>
<td>Downloadable forms used in face to face treatment and group</td>
<td>The clients could download forms that they are used in group and individual treatment.</td>
<td>Example of reduction, provides all necessary group information in one place. Provides a connection to treatment. Clients can access the same forms both places, creating a psychological link between the group and the site.</td>
</tr>
<tr>
<td>MP3 Mindfulness skills</td>
<td>Therapists recordings, walking clients through specific mindfulness activities.</td>
<td>Clients can practice the skills outside of class with step by step instructions. Hearing the therapists’ voices provides additional cues and enhanced feelings of connection.</td>
</tr>
<tr>
<td>Announcements Page</td>
<td>Page where therapists can post information about groups, times, start dates, cancellations, etc.</td>
<td>Provides a direct connection between the group (face to face) activity and the website.</td>
</tr>
</tbody>
</table>
### Table 3 – Site Use

<table>
<thead>
<tr>
<th></th>
<th>Analytic</th>
<th>Client Site</th>
<th>Therapist Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of visits</td>
<td>176</td>
<td>108</td>
<td></td>
</tr>
<tr>
<td>Number of visitors</td>
<td>70</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Page Views</td>
<td>1396</td>
<td>816</td>
<td></td>
</tr>
<tr>
<td>Average # of pages seen per visit</td>
<td>7.93</td>
<td>7.56</td>
<td></td>
</tr>
<tr>
<td>Length of time on site</td>
<td>6.39 minutes</td>
<td>5.5 minutes</td>
<td></td>
</tr>
</tbody>
</table>
### Table 4 – Therapist Scale Descriptives

<table>
<thead>
<tr>
<th>Scale</th>
<th>Mean (Standard Deviation)</th>
<th>Skew</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Communication Methods Scale</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test telephone</td>
<td>7.8 (1.9)</td>
<td>.799</td>
<td>2.25</td>
</tr>
<tr>
<td>Post-test telephone</td>
<td>9 (2)</td>
<td>1.4</td>
<td>3.1</td>
</tr>
<tr>
<td>Pre-test face to face</td>
<td>10.25 (2.1)</td>
<td>-.006</td>
<td>-.116</td>
</tr>
<tr>
<td>Post-test face to face</td>
<td>10.4 (2.2)</td>
<td>873</td>
<td>1.30</td>
</tr>
<tr>
<td>Pre-test other</td>
<td>11.6 (2.8)</td>
<td>.778</td>
<td>-.089</td>
</tr>
<tr>
<td>Post-test other</td>
<td>13.2 (1.8)</td>
<td>-.034</td>
<td>1.03</td>
</tr>
<tr>
<td><strong>Maslach Burnout Inventory</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total pre-test</td>
<td>48 (9.1)</td>
<td>.693</td>
<td>.552</td>
</tr>
<tr>
<td>Total post-test</td>
<td>50.1 (8.2)</td>
<td>.604</td>
<td>-.869</td>
</tr>
<tr>
<td>Emotional Exhaustion pre-test</td>
<td>21.8 (4.8)</td>
<td>.335</td>
<td>.384</td>
</tr>
<tr>
<td>Emotional Exhaustion post-test</td>
<td>21.2 (3.5)</td>
<td>.111</td>
<td>1.1</td>
</tr>
<tr>
<td>Depersonalization pre-test</td>
<td>10.2 (2.9)</td>
<td>.053</td>
<td>-2.1</td>
</tr>
<tr>
<td>Depersonalization post-test</td>
<td>10.7 (1.9)</td>
<td>-.185</td>
<td>-1.5</td>
</tr>
<tr>
<td>Personal Accomplishment pre-test</td>
<td>15.8 (2.7)</td>
<td>1.4</td>
<td>3.03</td>
</tr>
<tr>
<td>Personal Accomplishment post-test</td>
<td>18.2 (5.1)</td>
<td>1.4</td>
<td>2.2</td>
</tr>
</tbody>
</table>

### Table 5 – Therapist pre-post findings & analysis of statistical significance

<table>
<thead>
<tr>
<th>Scale</th>
<th>t-test</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Communication Methods Scale</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Telephone</td>
<td>t=-1.5</td>
<td>p=.160</td>
</tr>
<tr>
<td>Face to Face</td>
<td>t=1.16</td>
<td>p=.305</td>
</tr>
<tr>
<td>Other</td>
<td>t=-3.24</td>
<td>p=.018*</td>
</tr>
<tr>
<td><strong>Maslach Burnout Inventory</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>t=-.724</td>
<td>p=.493</td>
</tr>
<tr>
<td>Emotional Exhaustion</td>
<td>t=.410</td>
<td>p=.694</td>
</tr>
<tr>
<td>Depersonalization</td>
<td>t=-.154</td>
<td>p=.882</td>
</tr>
<tr>
<td>Personal Accomplishment</td>
<td>t=-1.49</td>
<td>p=.180</td>
</tr>
</tbody>
</table>

*indicates a statistically significant difference
### Table 6 – Basis 32 Scale Descriptives

<table>
<thead>
<tr>
<th>Scale</th>
<th>Mean (Standard Deviation)</th>
<th>Skew</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total time point 1</td>
<td>55.1 (25.3)</td>
<td>.070</td>
<td>-.673</td>
</tr>
<tr>
<td>Total time point 2</td>
<td>45.1 (21.1)</td>
<td>.168</td>
<td>-.307</td>
</tr>
<tr>
<td>Total time point 3</td>
<td>36.6 (20.7)</td>
<td>.389</td>
<td>-.559</td>
</tr>
<tr>
<td>Relationships tp 1</td>
<td>15 (6.9)</td>
<td>-.081</td>
<td>.805</td>
</tr>
<tr>
<td>Relationships tp 2</td>
<td>13.3 (6)</td>
<td>.041</td>
<td>-.427</td>
</tr>
<tr>
<td>Relationships tp 3</td>
<td>10.9 (6.8)</td>
<td>-.025</td>
<td>-1.3</td>
</tr>
<tr>
<td>Depression tp 1</td>
<td>15.5 (6.7)</td>
<td>-.222</td>
<td>-.628</td>
</tr>
<tr>
<td>Depression tp 2</td>
<td>13.2 (6.1)</td>
<td>.089</td>
<td>-.691</td>
</tr>
<tr>
<td>Depression tp 3</td>
<td>10.8 (5.8)</td>
<td>.195</td>
<td>-.715</td>
</tr>
<tr>
<td>Daily Living Problems tp 1</td>
<td>12.5 (6.25)</td>
<td>.223</td>
<td>-.503</td>
</tr>
<tr>
<td>Daily Living Problems tp 2</td>
<td>11.1 (5.1)</td>
<td>.146</td>
<td>-.313</td>
</tr>
<tr>
<td>Daily Living Problems tp 3</td>
<td>8.9 (5.5)</td>
<td>.652</td>
<td>-.384</td>
</tr>
<tr>
<td>Impulse Control tp 1</td>
<td>6.2 (5.5)</td>
<td>.830</td>
<td>.068</td>
</tr>
<tr>
<td>Impulse Control tp 2</td>
<td>4.4 (4.3)</td>
<td>1.8</td>
<td>4.3</td>
</tr>
<tr>
<td>Impulse Control tp 3</td>
<td>3.1 (3.4)</td>
<td>1.4</td>
<td>2.1</td>
</tr>
<tr>
<td>Psychosis tp 1</td>
<td>5.5 (4.3)</td>
<td>.857</td>
<td>.045</td>
</tr>
<tr>
<td>Psychosis tp 2</td>
<td>4.6 (4.2)</td>
<td>1.5</td>
<td>2.6</td>
</tr>
<tr>
<td>Psychosis tp 3</td>
<td>4.2 (4.2)</td>
<td>1.5</td>
<td>2</td>
</tr>
</tbody>
</table>
Table 7 – Repeated Measures ANOVA Findings– Client Basis 32 Measure

<table>
<thead>
<tr>
<th>Scale</th>
<th>Change over time</th>
<th>Differences by Group</th>
<th>Interaction Effects</th>
</tr>
</thead>
</table>
| Basis 32 Total Score       | \( F(2,48)=8.9, \)
p<.001*            | \( F(1,24)=.113, \) p=.740 | \( F(1,24)=.009, \) p=.925 |
| Relationships              | \( F(2,50)=.465, \)
p=.631               | \( F(1,25)=.108, \) p=.746 | \( F(1,25)=5.24, \)
p=.031*                        |
| Depression                 | \( F(2,50)=5.5, \)
p=.007*            | \( F(1,25)=.01, \) p=.979 | \( F(1,24)=.228, \) p=.637 |
| Problems in Daily Living   | \( F(2,50)=2.37, \)
p=.104               | \( F(1,25)=.073, \) p=.789 | \( F(1,24)=.738, \) p=.399 |
| Impulse Control            | \( F(2,54)=3.62, \)
p=.033*            | \( F(1,27)=6.12, \)
p=.019*            | \( F(1,27)=.279, \) p=.602 |
| Psychosis                  | \( F(2,52)=.609, \)
p=.548               | \( F(1,25)=.02, \) p=.888 | \( F(1,25)=.304, \) p=.586 |

*indicates a statistically significant difference
Table 8 – Hierarchical Linear Modeling Findings – Client Basis 32

<table>
<thead>
<tr>
<th>Scale Name</th>
<th>Growth over time</th>
<th>p value</th>
<th>$R^2$</th>
<th>Group assignment</th>
<th>p value</th>
<th>$R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>$\beta = -3.01 (1.05)$</td>
<td>.004*</td>
<td>.03</td>
<td>$\beta = 4.1 (3.2)$</td>
<td>.19</td>
<td>.03</td>
</tr>
<tr>
<td>Relationships</td>
<td>$\beta = -.6 (.31)$</td>
<td>.04*</td>
<td>.005</td>
<td>$\beta = 1.41 (.89)$</td>
<td>.11</td>
<td>.03</td>
</tr>
<tr>
<td>Depression</td>
<td>$\beta = -.99 (.29)$</td>
<td>.001*</td>
<td>.04</td>
<td>$\beta = 1.17 (.86)$</td>
<td>.17</td>
<td>.04</td>
</tr>
<tr>
<td>Daily problems</td>
<td>$\beta = -.59 (.25)$</td>
<td>.02*</td>
<td>.01</td>
<td>$\beta = 1.7 (.77)$</td>
<td>.02*</td>
<td>.04</td>
</tr>
<tr>
<td>Impulse control</td>
<td>$\beta = -.55 (.2)$</td>
<td>.005*</td>
<td>.04</td>
<td>$\beta = -.29 (.61)$</td>
<td>.63</td>
<td>.02</td>
</tr>
<tr>
<td>psychosis</td>
<td>$\beta = -.25 (.18)$</td>
<td>.17</td>
<td>.009</td>
<td>$\beta = .36 (.55)$</td>
<td>.51</td>
<td>.005</td>
</tr>
</tbody>
</table>

* indicates a statistically significant difference
Graph 1 – Linearity of Basis 32

- **Relationship**
- **Depression**
- **Daily Living**
- **Impulse**
- **Psychosis**

Axes:
- **Y-axis**: Values from 0 to 16
- **X-axis**: Timepoints 1, 2, 3

Legend:
- Blue line for **Relationship**
- Red line for **Depression**
- Green line for **Daily Living**
- Purple line for **Impulse**
- Cyan line for **Psychosis**
Appendix B – Website Images

Image 1 – Client Welcome Page:

Welcome to DBT!

What is DBT?

Dialectical Behavior Therapy (DBT) is an evidence-based therapy (evidence-based practice means that this type of therapy has been researched in clinical trials to determine whether or not it works better than regular treatment) for individuals who struggle with:

- strong emotions
- impulsive behaviors
- difficult relationships and
- inner conflict.

Many times, these strong emotions result in negative consequences, such as:

- self-harm
- lost relationships or
- anger and guilt.

Through individual therapy sessions and skills group training, DBT helps participants learn new ways of managing emotions and expressing themselves through healthier behaviors. Although originally created for treatment of chronic suicidal behaviors, DBT skills can be applied to almost any situation.
Therapist Cheerleading Statements

Need some extra encouragement? Check out what the therapists have to say about using your skills and getting through difficult situations.

As your DBT therapists, we know you can do it. We know you can get through the difficult situations using your skills. We believe in you and want you to know we support your efforts.
While each group is different and each facilitator has his or her own style, these activities may offer some ideas on how to match the opening mindfulness practice to the lesson for that week.

<table>
<thead>
<tr>
<th>Lesson for the Week</th>
<th>Type of Mindfulness</th>
<th>Specific Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wise Mind</td>
<td>calming mindfulness</td>
<td>breathing or leaves in a stream</td>
</tr>
<tr>
<td>What and How Skills</td>
<td>active mindfulness or collaborative activity</td>
<td></td>
</tr>
<tr>
<td>Interpersonal Effectiveness</td>
<td>collaborative activity</td>
<td></td>
</tr>
<tr>
<td><strong>DEAR MAN</strong></td>
<td>collaborative activity</td>
<td>minor exercise</td>
</tr>
<tr>
<td><strong>GIVE</strong></td>
<td>awareness activity</td>
<td>Hello Cards</td>
</tr>
</tbody>
</table>
Appendix C – Communication Methods Scale

On a scale of 1-5, where 1 is never and 5 is several times in a day, please circle the number that corresponds with how frequently you use each type of communication with your clients:

1. Telephone calls
   1 – never
   2 – once a month
   3 – once week
   4 – once a day
   5 – several times each day

2. E-Mail
   1 – never
   2 – once a month
   3 – once week
   4 – once a day
   5 – several times each day

3. Text messaging
   1 – never
   2 – once a month
   3 – once week
   4 – once a day
   5 – several times each day

4. Written communication (letters to or from client)
   1 – never
   2 – once a month
   3 – once week
   4 – once a day
   5 – several times each day

5. Give clients videos or CD’s to view
   1 – never
   2 – once a month
   3 – once week
   4 – once a day
   5 – several times each day
6. Recommend they visit a website for skills coaching or for emotional support
    1 – never
    2 – once a month
    3 – once week
    4 – once a day
    5 – several times each day

7. Instant messaging or synchronous chat
    1 – never
    2 – once a month
    3 – once week
    4 – once a day
    5 – several times each day

8. Through social networking sites (Facebook, Twitter, LinkedIn, and Myspace)
    1 – never
    2 – once a month
    3 – once week
    4 – once a day
    5 – several times each day

9. Increase visits so you can see a client more frequently
    1 – never
    2 – once a month
    3 – once week
    4 – once a day
    5 – several times each day

10. Decrease visits so you won’t have to see a client so frequently (i.e. boundaries/burnout)
    1 – never
    2 – once a month
    3 – once week
    4 – once a day
    5 – several times each day

11. Provide emergency face to face sessions
    1 – never
    2 – once a month
    3 – once week
    4 – once a day
    5 – several times each day

12. Provide emergency sessions over the telephone
1 – never
2 – once a month
3 – once week
4 – once a day
5 – several times each day

13. Provide routine therapy sessions via telephone
   1 – never
   2 – once a month
   3 – once week
   4 – once a day
   5 – several times each day

14. Provide routine therapy sessions via video chat or synchronous text chat
   1 – never
   2 – once a month
   3 – once week
   4 – once a day
   5 – several times each day

15. Provide skills coaching over the telephone
   1 – never
   2 – once a month
   3 – once week
   4 – once a day
   5 – several times each day

16. Provide skills coaching in person outside the regular appointment times
   1 – never
   2 – once a month
   3 – once week
   4 – once a day
   5 – several times each day

17. Provide skills coaching in some other form (e-mail, chat, text message, website)
   1 – never
   2 – once a month
   3 – once week
   4 – once a day
   5 – several times each day
Appendix D – Qualitative Code Book

1. Social Presence:
The emotional experience that arises from the communication process including a feeling of closeness or a sense of belonging to a relationship, a community or group. (Rettie, 2003).

<table>
<thead>
<tr>
<th>Concept</th>
<th>Source</th>
<th>Definition</th>
<th>Description</th>
<th>Quotes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication Process</td>
<td>Mutual Activity</td>
<td>Site use enables therapist and client to engage in mutual activity</td>
<td>Technology enables mutual work on activity (DBT)</td>
<td>“I feel more comfortable knowing... it's part of the process”</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Varying level of interaction Features allow levels of interaction to vary</td>
<td>“Everyone learns in different ways. It's all in one spot, it's easier to find...”</td>
</tr>
<tr>
<td>Emotional Experience</td>
<td>Emotional response to communication</td>
<td>The features create an emotional response</td>
<td>Different features produce different emotional responses</td>
<td>“It’s easier of course to read than that (points at Linehan’s book – others laugh)...”</td>
</tr>
<tr>
<td></td>
<td>Psychological Involvement</td>
<td>Engaging to connect with others for emotional interaction.</td>
<td>Emotional statements.</td>
<td>“I am so happy to be able to use it with people...”</td>
</tr>
<tr>
<td>Feeling of closeness</td>
<td>Connected presence</td>
<td>The other is seen as available and supportive.</td>
<td>Perceived ability to contact the other</td>
<td>“If I am out of town or on vacation, it's a good resource”</td>
</tr>
<tr>
<td></td>
<td>Phatic Communication</td>
<td>Communicating for the sole purpose of</td>
<td>The use of the technology</td>
<td>“…It’s like you're right in my pocket”</td>
</tr>
<tr>
<td>Concept</td>
<td>Source</td>
<td>Definition</td>
<td>Description</td>
<td>Quotes</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-----------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Caring                  | Bond subscale in ARM        | The emotional relationship between therapist and client; client views therapist as warm, friendly and supportive | Statements about therapist being supportive, caring, understanding Statements by therapist about caring for their client/caring about their problems | “…Having this site takes us to the next level… so much better at being able to be there for the client.”  
“This {the website} is just another tool… Just shows we are supporting”                                                                 |

2. **Therapeutic alliance**: quality of the working relationship between client and therapist to achieve mutually agreed upon positive therapy outcomes, based on a relationship of caring, respect and acceptance (Agnew et al, 1998)
<table>
<thead>
<tr>
<th>Working relationship</th>
<th>Partnership subscale in ARM</th>
<th>Client and therapist working together on mutually agreed upon therapeutic tasks and goals</th>
<th>Statements about agreements on goals, treatment outcomes</th>
<th>“I think it's going to be a great tool, really nice tool, for the client and for me to be able to work back and forth, learn myself and help them learn”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respect</td>
<td>Confidence subscale in ARM</td>
<td>Competence, skills and therapeutic abilities of the therapist.</td>
<td>Statements about therapist’s techniques/skills or confidence in own skills</td>
<td>“I can use it to refresh my own skills before I have to teach again”</td>
</tr>
<tr>
<td>Acceptance</td>
<td>Openness subscale in ARM</td>
<td>The client’s ability to share without embarrassment or fear of judgment</td>
<td>Disinhibition effect and reduction of cues to decrease embarrassment</td>
<td>“No one knows what I'm doing. They think I'm just working or playing a game or something.” – client</td>
</tr>
</tbody>
</table>

3. **Burnout:** Physical and mental exhaustion combined with a lack of personal and physical resources to manage stress, and emotional distancing as an attempt to avoid fatigue. (Maslach & Jackson, 1981)

<table>
<thead>
<tr>
<th>Concept</th>
<th>Source</th>
<th>Definition</th>
<th>Description</th>
<th>Quotes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhaustion</td>
<td>EE subscale in MBI</td>
<td>Feeling over extended by work, feeling over involved in clients’ lives/situations</td>
<td>Statements about levels of exhaustion related to client interaction</td>
<td>“None of us wants to be on call 24/7…”</td>
</tr>
<tr>
<td>Distancing</td>
<td>DP subscale in MBI</td>
<td>Inability to view clients as people; wanting</td>
<td>Attempts to distance self from job or clients;</td>
<td>“I can’t wait to use it with one client – maybe then she’ll stop</td>
</tr>
<tr>
<td>Work Environment</td>
<td>Characteristic of the work environment that can alleviate stress</td>
<td>Statements about work environment as a resource</td>
<td>“It’s a nice option to have – like not just get back to group or nothing”</td>
<td></td>
</tr>
<tr>
<td>Work Environment</td>
<td>Characteristic of the work environment that can create stress</td>
<td>Statements about work environment as a problem</td>
<td>“I thought it was accessible from the main portal. I couldn’t figure out how to find it.”</td>
<td></td>
</tr>
</tbody>
</table>

4. **Symptoms**: Psychiatric or other mental health symptoms for which someone may seek treatment from a therapist or mental health center.

<table>
<thead>
<tr>
<th>Concept</th>
<th>Source</th>
<th>Definition</th>
<th>Description</th>
<th>Quotes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symptoms</td>
<td>Basis 32 subscales</td>
<td>Conditions or problems for which someone would seek mental health treatment</td>
<td>Improvements or declines in clients’ mood, or behaviors related to diagnosis</td>
<td>“I haven't seen any changes. I don't see any difference in those who use it and those who don’t”</td>
</tr>
</tbody>
</table>
### Emergent Codes:

<table>
<thead>
<tr>
<th>Concept</th>
<th>Source</th>
<th>Definition</th>
<th>Description</th>
<th>Quotes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Supported Learning</strong></td>
<td>emergent</td>
<td>Use of the technology for the sole purpose of learning DBT skills and techniques; for the purpose of sharing information only for purposes of learning, not to foster a connection</td>
<td>Statements about learning or conveying information Statements about supporting multiple methods of learning through various affordances</td>
<td>“Since everyone learns in different ways, I think it's really valuable to have the visual or audio.”</td>
</tr>
<tr>
<td><strong>BPD Stigma</strong></td>
<td>emergent</td>
<td>Negative connotations of BPD, treatment for BPD or how BPD is viewed within the general public</td>
<td>Statements about clients struggling with stigma; how negative statements made by clients about their diagnosis</td>
<td>“The diagnosis has such a negative connotation.”</td>
</tr>
<tr>
<td><strong>Digital Divide</strong></td>
<td>emergent</td>
<td>Inability to access a computer or internet services due to either lack of resources or lack of ability/know how</td>
<td>Statements about clients inability to access computers due to financial resources Statements about clients inability to access the website due to lack of knowledge/skill</td>
<td>“many clients still do not have internet access” “For me, it’s getting over my own anxiety about technology.”</td>
</tr>
</tbody>
</table>
Appendix E – Consents to Participate in Research

Consent #1 – Therapist Consent Form

Introduction:
Jefferson Center for Mental Health is collaborating with the University of Denver Graduate School of Social work to create Internet resources intended to support improved mental health treatment for people who access and use them. We plan to make the resources available on a website created specifically for that purpose.

Purpose:
We are conducting research into how use of this website impacts a therapists’ clinical work. To better understand how the website design and features affect clinical work, we will be asking people to use the website. Prior to using the website, we will be collecting some information about how you do your work currently. You will then have a chance to use the website. After using the website, we will ask people to share their experience with us. The purpose of your feedback is to let us know how you used the website with clients, how it impacted the work you do and to make suggestions about changes or additions that will improve the website and the resources it presents. You will then be asked again about how the website impacted your work.

What you will be asked to do:
You will be asked to complete two short scales that measure how you communicate with clients and how you feel about your day to day work. You will be asked to view the website and integrate it into your work if you choose. The website is content directly related to the DBT therapy in which you are involved. The website will include online lessons and activities to reinforce the skills you are currently learning in the DBT therapy group. After six months, we will then convene groups that will offer the opportunity for you to share your opinions about your experiences and offer ideas for changes or additions.

Risks and Benefits of Participation:
The risks to participating in this project are minimal. Because the Website relates to learning to handle emotions, there will be questions asking you about emotional experiences. One possible risk is that viewing the website and completing the online activities or talking about them in a group format may cause you to become upset. The benefits to participating include helping to create a program that other people can use to learn and practice different kinds of therapeutic techniques.

Confidentiality:
All information gained in the study will remain confidential. ID numbers rather than names will be assigned to participants. The sessions will be tape recorded, but only the
research team will have access to these tapes. The audio recordings will be destroyed upon completion of the study. Results will be provided to the JCMH upon completion of the study, but only as group results, no individual information will be provided. There are exceptions to the confidentiality. First, if there are concerns about suicide or self harm or reports of child abuse and neglect, this information must be reported. Secondly, because it is a group discussion, although the researchers can promise confidentiality, there is a small risk that other members of the group may reveal information shared in the group session. Although steps will be taken to protect privacy, however, should any information contained in this study be the subject of a court order or lawful subpoena, the University of Denver might not be able to avoid compliance with the order or subpoena.

Questions or Concerns:
The project will be conducted by Amy Lopez, LCSW and can be reached at 303-***-**** or via e-mail at amy.m.lopez@du.edu or amyl@jcmh.org. The faculty sponsor for this project is Walter LaMendola, PhD. If you have any questions or concerns, you can contact him directly at 303-871-**** or walter.lamendola@du.edu. If you have any concerns or complaints about how you were treated during the interview, please contact Paul Olk, Chair, Institutional Review Board for the Protection of Human Subjects, at 303-871-4531, or Sylk Sotto-Santiago, Office of Research and Sponsored Programs at 303-871-4052 or write to either at the University of Denver, Office of Research and Sponsored Programs, 2199 S. University Blvd., Denver, CO 80208-4820.

Consent to Participate:
I have read and understand the information about the research study. I understand that I will participate in a group interview to share information about my experience with the therapy website. I am aware that participation is voluntary and I may choose to withdraw from the study at any time. I have received a copy of this form for my own records.

____________________________
Participants Signature
Date

____________________________
Participants Printed Name
Date

Consent to have group audio taping:
My signature below indicates I give permission to have the focus group sessions audiotaped.

____________________________
Participants Signature
Date

____________________________
Participants Printed Name
Date
Consent #2 – Client Consent

Informed Consent to Participate in Research

Introduction:
Jefferson Center for Mental Health is collaborating with the University of Denver Graduate School of Social work to create Internet resources intended to support improved mental health treatment for people who access and use them. We plan to make the resources available on a website created specifically for that purpose.

Purpose:
We are conducting research into the design, content, and ease of use of the website. To better understand how the website needs to be designed, we are asking people to use it. After using the website, we will ask people to share their experience with us. The purpose of your feedback is to make suggestions about changes or additions that will improve the website and the resources it presents.

What you will be asked to do:
You will be asked to view the website. The website is content directly related to the DBT therapy in which you are involved. The website will include online lessons and activities to reinforce the skills you are currently learning in the DBT therapy group. There will be people available to help you with the use of the computer as well as how to navigate the site. As you are viewing the site, there will be a discussion in which you will be asked questions about whether the content is similar to what you have learned and whether the activities help reinforce the skills you are learning in group. You will also be asked questions about how difficult the site is to use and navigate. You will also be offered the opportunity to share your opinions about your experiences and offer ideas for changes or additions.

Risks and Benefits of Participation:
The risks to participating in this project are minimal. Because the Website relates to learning to handle emotions, there will be questions asking you about emotional experiences. One possible risk is that viewing the website and completing the online activities or talking about them in a group format may cause you to become upset. Should you become upset during the course of the research study, there will be mental health staff available to talk with you immediately. In addition, your individual clinician at JCMH is aware of this study and can talk with you further if any problems arise. The benefits to participating include helping to create a program that other people can use to learn and practice different kinds of therapeutic techniques. Participation in this study is completely voluntary. Your decision to participate or not participate will not impact the services you receive through Jefferson Center for Mental Health. During the course of viewing the Website or discussing your experiences, you may choose not to answer certain questions and you may quit the process at any time.

Confidentiality:
All information gained in the study will remain confidential. ID numbers rather than names will be assigned to participants. The sessions will be tape recorded, but only the research team will have access to these tapes. The tapes will be destroyed upon completion of the study. Results will be provided to the JCMH upon completion of the study, but only as group results, no individual information will be provided. There are exceptions to the confidentiality. First, if there are concerns about suicide or self harm or reports of child abuse and neglect, this information must be reported. Secondly, because it is a group discussion, although the researchers can promise confidentiality, there is a small risk that other members of the group may reveal information shared in the group session. Although steps will be taken to protect privacy, however, should any information contained in this study be the subject of a court order or lawful subpoena, the University of Denver might not be able to avoid compliance with the order or subpoena.

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___________________________________________
Participants Signature

___________________________________________
Participants Printed Name

___________________________________________
Date

___________________________________________
Date