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Examining the Inner Experience of Four Individuals with Bipolar Disorder Using Descriptive Experience Sampling

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EXAMINING THE INNER EXPERIENCE OF FOUR INDIVIDUALS WITH BIPOLAR DISORDER USING DESCRIPTIVE EXPERIENCE SAMPLING

by

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ABSTRACT

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Bipolar disorder is a lifelong mood disorder with diagnostic criteria that provide a description of expected experiences of individuals diagnosed with BD (e.g., elevated mood, sadness, difficulty concentrating). Despite these criteria, the inner experience of these individuals is largely unknown. Understanding the inner experience of individuals diagnosed with BD may prove essential in understanding and treating BD. The present study examined the inner experience of four individuals diagnosed with BD using the Descriptive Experience Sampling (DES) method (Hurlburt 1990, 1993, 2011). Results revealed all our participants had clear and prevalent experiences of sensory awareness. They also had difficulties apprehending and conveying clear inner experience; they all seemed to have a deficit of clear experience. Lastly, they all lacked coherent experience of feelings.

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TABLE OF CONTENTS

CHAPTER 1

INTRODUCTION

Bipolar disorder (BD) is a lifelong mood disorder characterized by intense emotional states that fluctuate between mania, depression, mixed episodes, and normal affect (Baldassano, 2005). Bipolar disorder affects about 2.6% of the national population with about 83% of these cases being serious and the remaining 17% being moderately severe (Kessler et al., 2005).

Bipolar disorder has captured public interest because an individual swings between manic euphoria and exceptional energy vs. depressive melancholy and dire lethargy. Although BD has been associated with artistic creativity and high achievement, individuals with BD also experience emotional dysregulation, socioemotional dysfunction, and impairments in executive functions, memory, and attention (Andreasen, 1987; Henin et al., 2009; McClure-Tone, 2009). According to the World Health Organization's global burden of disease study, BD has been consistently ranked in the top ten causes of disability worldwide since 1990 (Murray & Lopez, 1996; WHO, 2000; Kessler et al., 2009). In addition, the suicide rate is the highest for individuals with BD among all psychiatric conditions; rates of completed suicide are 12 to 15 times greater than the general population (Mitchell, Slade & Andrews, 2004; Angst et al., 2002). An estimated 60% of individuals with BD attempt suicide and 4 to 19% of those individuals complete suicide (Goodwin & Jamison, 1990; Novick, Swartz, & Frank, 2010).

A genetic marker for BD has not been identified, but heritability is well established as the key vulnerability to this disorder (Johnson & Meyer, 2004). Heritability rates have been estimated as high as 80% (Vehmanen, Kaprio & Loennqvist, 1995).

However, biological variables do not entirely explain individual differences in the presentation of the disorder over time. Environmental factors may influence the expression of vulnerability to BD.

Bipolar disorder is assessed clinically by reviewing symptomatology. The two most common semi-structured interviews, the Structured Clinical Interview for DSM-IV (SCID; Spitzer et al., 1992) and the Schedule for Affective Disorders and Schizophrenia (SADS; Spitzer & Endicott, 1978), assess diagnoses according to the DSM-IV (APA, 2000) and Research Diagnostic Criteria (RDC; Spitzer, Endicott, & Robins, 1979), respectively (Miller, Johnson, & Eisner, 2009). The General Behavior Inventory (GBI; Depue et al., 1981; Depue & Klein, 1988) and Mood Disorder Questionnaire (MDQ; Hirschfeld et al., 2000) are widely used self-report measures to screen for symptoms of BD. Despite these assessment tools, studying individuals with BD is difficult because of the heterogeneity of illness including its subtypes and its unpredictable variation of presentation across populations and within individuals (APA, 1994; Suppes et al, 2001).

To date, research on BD has neglected the subjective experience of BD. The few studies conducted thus far that have tried to aim at understanding the lived experience of BD have suffered from methodological limitations. Asking individuals to report on their internal experiences including emotions, cognitions, and sensations has intrinsic challenges; therefore, standard assessment tools, such as the SCID, SADS, GBI, and MDQ, and modern sampling methods like the Experience Sampling Method (ESM) and Ecological Momentary Assesment (EMA) may present an incomplete depiction of the inner experience of individuals with BD. This study utilized the Descriptive Experience Sampling method (DES) developed by Hurlburt (1990, 1993) to explore the inner

experience of individuals with BD. DES is an ecologically valid and reliable method for studying inner experience. It is centrally concerned with obtaining high-fidelity accounts of pristine inner experience. The current study employed DES to explore the inner experience of individuals with BD in their daily lives. Participants with BD were given a beeper that randomly cued them to take notice of their inner experience in the last undisturbed moment before the beep sounded. Participants collected these samples of inner experience as they engaged in their usual daily activities. Then they were interviewed about their randomly selected samples of inner experience using the guidelines of DES (Hurlburt & Akhter, 2006; Hurlburt & Heavey, 2006).

CHAPTER 2

DEFINITIONS OF BIPOLAR DISORDER

History of Bipolar Disorder

Bipolar Disorder has been mentioned as far back as the pre-classical period, but the roots of our conception of BD are in the classical period where Greek physicians described two human ailments, "mania" and "melancholia" (Berrios 1996; Marneros & Angst, 2000). Hippocrates was the first to scientifically and systematically describe mania and melancholia through careful observations and longitudinal studies (Marneros & Angst, 2000). According to Hippocrates, melancholia resulted from prolonged episodes of anxiety and moodiness. Hippocrates also differentiated between "nosos melancholicé," the mental disorder and "typos melancholicós," the personality type. Caelius Aurelianus, the Roman physician, discussed two types of mania: one caused by mental strain and the other from divine inspiration (Marneros & Angst, 2000).

Later Aretaeus of Cappadocia was influenced by Hippocrates' work and described the symptoms of melancholia and mania with melancholics being quiet, dysphoric, sad or apathetic and manics being cheerful, laughing, playing and sometimes dancing or flying into a rage, often without sleeping for long periods (Marneros, 1999). Aretaeus of Cappadocia made a distinction between melancholia and reactive depression with the former being biologically caused and the latter being psychologically caused. Most notably, Aretaeus of Cappadocia described melancholia and mania as two discrete spectrums of the same disease and thereby became the originator of the idea of BD. These classical conceptualizations of mania and melancholia were the first to describe these emotional dysfunctions, but the definitions also included other modern concepts

such as mixed states, some schizophrenia spectrum disorders, and certain types of psychoses (Marneros, 1999).

European physicians and psychiatrists throughout the 17th and 18th centuries observed states of alternation between mania and depression and arrived at the same conclusion as Aretaeus of Cappadocia – that these states were different facets of the same disorder (Marneros & Angst, 2000). In 1851 the French physician Jean-Pierre Falret concluded BD is a discrete disease, which he labeled, "folie circulaire." Folie circulaire referred to the distinct interval between the sequential shifts between mania and melancholia. Three years later, Falret's rival, Jules Baillarger (1854) introduced his concept of "folie à double forme" while arguing that mania and melancholia change into one another and the interval is meaningless. Ultimately, Falret's concept of folie circulaire garnered widespread acceptance by other European physicians as evidence by the German psychiatrist, Karl Kahlbaum's (1882) introduction of "circulares irresein," (circular insanity).

Emil Kraepelin, known as the father of modern psychiatry, dichotomized psychoses into "dementia praecox" and "manic-depressive insanity" (Kraepelin, 1893, 1896). Although his unitary concept of manic-depressive insanity included all types of affective disorders and was a regression in understanding BD, opposition to Kraepelin's work led to great advances in defining BD (Marneros & Angst, 2000). Carl Wernicke opposed Kraepelin's ideas, viewing them as too simplistic and encompassing. Wernicke (1900, 1906) differentiated between five types of melancholia and supported Falret's and Baillarger's concepts of folie circulaire and folie à double forme. Later, Karl Kleist (1953) and Karl Leonhard (1957) distinguished between unipolar and bipolar affective

disorders, a distinction that went unrecognized by international psychiatry until the rebirth of BD in 1966.

One hundred and fifty-seven years after Falret's and Baillarger's statements, and sixty-seven years after Kraepelin first created manic-depressive insanity, two independent publications by Jules Angst (1966) and Carlo Perris (1966) caused a rebirth of the concept of BD. Both studies supported a differentiation between unipolar and bipolar disorders. Angst and Perris's studies also showed the strong impact genetic factors play in both mania and depression, and that key differences exist between unipolar depression and BD. These two studies solidified the modern concept of BD and stimulated interest in the disorder in psychology today (Pichot, 1995).

American conceptualizations of BD mirrored the historical changes in the way BD was thought of. Both the DSM-I and II (APA, 1952, 1968) reflected the predominant psychodynamic view of mental illness. Affective and manic-depressive reactions were categorized as disorders of psychogenic origin or without a clearly defined physical cause of structural change in the brain. This classification maintained Kraepelin's distinction of psychoses into "dementia praecox" and "manic-depressive insanity" (Kraepelin, 1893, 1896). The DSM-III (APA, 1980) came during a time when the profession moved toward a more symptomatological system with the emergence of behavior therapy and a push toward more scientific research (Mayes & Horwitz, 2005). The DSM-III (APA, 1980) replaced the term 'manic-depressive reactions' with 'bipolar disorder' to emphasize the nature of mood polarity. The DSM-III-R, DSM-IV, and current DSM-IV-TR (APA, 1987, 1994, 2000) have refined BD's definition with the development of nuanced subtypes. In 2012, the proposed changes in the DSM-V will include dimensional

assessments for depression, anxiety, cognitive impairment and reality distortion that may affect the way BD is diagnosed (APA, 2010).

Current Definition of Bipolar Disorder

The DSM-IV-TR and International Classification of Diseases (ICD-10; World Health Organization, 1993) are the dominant current nosologies for mental illnesses. Both systems use identical symptoms and categories for diagnoses of BD, but differ in the number of episodes necessary for diagnosis. The ICD-10 requires multiple mood episodes, but a single manic episode is enough to meet criteria under the DSM-IV-TR. Bipolar disorder is characterized by the diagnosis of lifetime mood episode(s) (APA, 2000). Furthermore, schizophrenia spectrum disorders, substance use, or general medical conditions cannot account for the mood episodes. A manic episode, as defined by the DSM-IV-TR, is a period of elevated or irritable mood lasting a minimum of one week (or requires hospitalization) with symptoms including increased self-esteem or grandiosity, decreased need for sleep, excessive or pressured speech, racing ideas, distractibility, increased goal-directed activity or psychomotor agitation, and excessive involvement in pleasurable activities. These symptoms must cause a marked impairment in an individual's social, occupational, or interpersonal functioning. A hypomanic episode is less severe than a manic episode but is still a change from normal mood functioning. Therefore, a hypomanic episode requires similar symptoms exhibited in a manic episode, but these symptoms only need to be present for four days, have no psychotic features, and not cause marked impairment in social or occupational functioning, or require hospitalization.

Major depressive episodes are a period of at least two weeks of depressed mood or loss of interest or pleasure in normal activities. In addition to either of these symptoms, depressive episodes are also accompanied by significant weight loss or gain, fatigue, feelings of worthlessness, diminished ability to think, and suicidal thoughts or attempts. A mixed episode is characterized by a rapid cycling between major depressive and manic episodes within one week. The mixed episode must also cause marked functional impairment in occupational, social, and interpersonal activities, require hospitalization, or include psychotic features.

The current DSM includes four BD subtypes. A diagnosis of bipolar I disorder only requires one manic or mixed episode. Episodes of depression may also frequently occur, but are not required for diagnosis (APA, 2000). Bipolar II disorder requires both a hypomanic and major depressive episode to distinguish it from bipolar I disorder and unipolar depression. Cyclothymic disorder requires the presence of hypomanic and depressive symptoms that do not meet full criteria for hypomanic or major depressive episode. The hypomanic and depressive symptoms must be present for at least two years with no longer than a than a two month period without symptoms. Bipolar disorder not otherwise specified (NOS) was created to include clinical presentations that have bipolar features yet fail to meet the strict diagnostic criteria for the other BD subtypes.

Despite these accepted classifications, the current literature seems to be divided on the issue of defining BD as discrete subtypes or along a continuum (Angst, 2004, 2009; Angst & Cassano, 2005; Youngstrom, 2009). Proponents of a broad and exhaustive concept of bipolar spectrum disorders argue that a spectrum concept reflects the trademark heterogeneity of BD. Proponents of a BD spectrum criticize the current

subtype nosologies for not including all types of mood episodes (Youngstrom, 2009). The DSM-IV-TR recognizes six mood states including: major depression, dysthymia, mania, mixed state, hypomania, and euthymia. Other mood states such as mixed dysphoria are not mentioned. Another criticism of the current definition of BD is that there are incongruencies within the criteria (Youngstrom, 2009). Hypomania is a mild mania, but there is no equivalent mood state on the depression side. Similarly, dysthymia is a mild and longer-term depression, but the mania side lacks an equivalent disorder. Other criticisms have argued that the current criteria emphasize mania, but hypomania is relatively understudied and often misdiagnosed (Angst, 2004, 2009; Angst & Gamma, 2002).

Assessment

Diagnosis of BD is made solely through clinical data regarding the presence of symptoms and potential organic explanations for those symptoms as there are currently no genetic tests, imaging procedures, or laboratory methods for diagnosing BD (Johnson, Miller & Eisner, 2008). All the measures used historically will not be reviewed as many have yet to demonstrate strong psychometric properties or have demonstrated weak psychometric properties.

In clinical practice, an informal review of symptoms is common; however, practitioners who use unstructured diagnostic interviews miss up to half of all comorbid conditions (Zimmerman & Mattia, 1999). Moreover, most practitioners do not routinely screen for BD among people with a history of major depression despite the reality that many of these individuals will meet diagnostic criteria for BD (Brickman, LoPiccolo & Johnson, 2002). These issues involved in assessment may consequently contribute to the

lapse of 8 years between onset of symptoms and receiving a formal diagnosis (Miller, Johnson, & Eisner, 2009).

Structured interviews and self-report strategies have been commonly used to diagnose and measure BD. Structured interviews used to assess for a diagnosis of BD include the Structured Clinical Interview for DSM-IV (SCID; Spitzer, Williams, Gibbon, & First, 1992) and the Schedule for Affective Disorders and Schizophrenia (SADS; Endicott & Spitzer, 1978). Self-report measures have been developed as screeners to aid in identifying individuals with a potential diagnosis of BD. The General Behavior Inventory (GBI; Depue et al., 1981; Depue & Klein, 1988) and the Mood Disorder Questionnaire (MDQ; Hirschfeld et al., 2000) have been shown to be helpful screening tools to identify individuals who would most likely meet criteria for BD and therefore warrant further assessment.

CHAPTER 3

NATURE OF BIPOLAR DISORDER

Epidemiology

Lifetime prevalence rates for BD ranges from .3 to 1.5 percent worldwide and is about 2.6 percent in the United States (Robins & Regier, 1991; Kessler et al., 2005). Prevalence rates are increasing as the number of individuals, especially children and adolescents, diagnosed with BD is skyrocketing. Bipolar I disorder occurs at slightly higher lifetime prevalence in the adult population than bipolar II disorder and lifetime prevalence rates vary slightly by race and ethnicity (Weissman et al., 1991). Bipolar I disorder affects males and females equally; however, bipolar II disorder is more common among women with a predominance of depressive symptoms (Lish et al., 1994). A study by Perry and colleagues (1999) suggests that this gender ratio is as high as 2:1.

The mean age of onset of BD varies among studies due to the criteria used; furthermore, determining the age of onset is plagued with mostly unreliable retrospective recall. Goodwin and Jamison (1990) identified the most common age of onset period for BD between 15 and 19 years of age; however, the Epidemiologic Catchment Area study found a slightly later mean age of onset of BD at 21 years (Wiessman et al., 1991). Early onset BD is often indicative of a poorer outcome (Yatham et al., 2009). Specifically, early onset is associated with several factors indicative of more severe BD including: family history of BD, more than twenty mood episodes, ultradian (ultra rapid) cycling, history of worsening course of illness, learning disability, a history of abuse, and multiple comorbidities (Suppes et al., 2001; Yatham et al., 2009). Early onset is also associated

with depressive or mixed initial episodes more frequently than first episodes of mania (Lish et al, 1994; Patel et al, 2006).

Long delays between symptom onset, treatment seeking, and receipt of a diagnosis of BD are common and therefore problematic to efficient treatment (Lish et al., 1994). Two surveys, conducted by the National Depressive and Manic-depressive Association, of members with BD (1993, 1994) found that over fifty percent of the patients sought treatment five years after first experiencing symptoms and thirty-six percent sought treatment after ten years. Furthermore, patients received a correct diagnosis an average of eight years after first seeking treatment.

Mortality is a significant consequence of BD. Fluctuating mood episodes, comorbid medical conditions and psychiatric disorders and elevated suicide rates contribute to the high risk of mortality (Hilty, 1999). Individuals with BD are at an increased risk of dying from general medical conditions, such as coronary heart disease (Sharma & Markar, 1994), respiratory infections (Sharma & Markar, 1994), cerebrovascular disorders (Zheng et al., 1997), endocrine disorders (Roshanaei-Moghaddam & Katon, 2009), and diabetes (De Hert et al., 2009).

Roshanaei-Moghaddam and Katon (2009) found individuals with BD were up to twice as likely to die from natural causes as a comparison group without any psychiatric diagnoses. The higher mortality was heavily attributed to cardiovascular disease, which individuals with BD were found to have over a twofold higher risk of contracting than a non-affective disordered comparison group. Roshanaei-Moghaddam and Katon (2009) also found that individuals with BD were more likely to experience chronic stress due to their fluctuating mood episodes (Cassidy, Ritchie & Carroll, 1998) and engage in

unhealthy behaviors such as, smoking (Grant et al., 2004), substance abuse (Levin & Hennessy, 2004), alcohol abuse (Levin & Hennessy, 2004), poor diet (Elmslie et al., 2000), and a sedentary lifestyle (Elmslie et al., 2000). High mortality rates among individuals with BD can also be due to death by accidents (Tsuang & Woolson 1978) and homicide (Hoyer et al., 2000).

Suicide is another critical concern in BD because up to 60% of individuals with BD will attempt suicide and as many as 19% will be successful in their attempts (Novick, Swartz & Frank, 2010). Angst and colleagues (2002) conduced a study of hospitalized patients, with affective disorder, whose psychopathology was assessed between 1959 and 1963 were contacted by telephone for follow-up by the researches in 1963, 1965, 1970, 1975, 1980, 1985, 1991, and 1997. This follow-up study conducted over 34 to 38 years found high rates of general mortality mostly due to elevated rates of suicide. Suicidal behavior is common in the early stages of BD and is often associated with depressive episodes (Tondo, Isacsson & Baldessarini, 2003; APA, 2010). Angst and colleagues (2002) speculate that the true suicide mortality rate is difficult to determine because suicidal acts occur in such early stages of BD, even before a correct diagnosis is given.

Natural History and Course

Bipolar disorder may begin with a manic, hypomanic, mixed or depressive first episode (Hilty, Brady & Hales, 1999). Although men and women are more likely to experience a first episode of depression, men are more likely than women to have a first episode of mania (APA, 2010). Data from a sample of fifty-three individuals from the Systematic Treatment Optimization Program for Early Mania (STOP-EM; Yatham et al., 2009) revealed that 52.9% of patients experienced an initial depressive episode, 35.3%

experienced an initial manic episode, and 11% experienced an initial hypomanic episode. The polarity of the first episode is significant because depressive onset is associated with greater morbidity than manic onset. Forty and colleagues (2009) found individuals who experienced initial depressive episodes experienced more depressive episodes throughout the disorder, higher suicidality, and more rapid cycling between episodes than individuals with manic onset. Initial episodes of depression were also associated with an earlier age at onset (Forty et al., 2009; Kassem et al., 2006). Conversely, participants who experienced an initial manic episode experienced shorter hospitalizations and less frequent recurrence during treatment than individuals with depressive onset (Prien, Klett & Caffey, 1974; Hilty, Brady & Hales, 1999).

Martinez-Aran and colleagues (2008) defined relapse as periods in which symptoms intensify after brief asymptomatic periods. Recurrence is defined as periods of symptom intensification following longer asymptomatic periods. The course of BD can be characterized as enduring with rates of relapse and recurrence as high as 80% and 90%, respectively (Goodwin & Jamison, 1990; Tohen, Waternaux & Tsuang, 1990). Bipolar disorder has a high likelihood of irregular recurrence over the lifespan. Individuals with BD remain at risk for recurrence for ten to forty years after symptoms remit (Lavori, 1996). Angst and Sellarno (2000) found a median cycle length of 18 months or a recurrent rate of 0.66 episodes per year. A higher rate of recurrence has been associated with comorbid substance abuse, family history of mania, and the presence of psychosis (Hilty, Brady & Hales, 1999).

Studies conducted prior to the development of effective treatments were able to observe the natural length of episodes. Mendel (1881) reported a median duration of

manic episodes of 5-6 months. Similarly, Kraepelin (1913) suggested a mean episode length of 6-8 months. Subsequent studies of episodic length found systematic lengthening of manic episodes, and no similar pattern in depressive episodes (Rennie, 1942; Kinkelin, 1954). Moreover, the first cycle (i.e., depressive to manic or hypomanic episodes or vice-versa) is longer than subsequent cycles (Angst & Sellarno, 2000). Recent studies have found a substantially shorter episode length of 13 weeks. This shortening cycle length is attributed to psychopharmacological treatments (Soloman et al., 2010).

The outcome of BD is poor due to high rates of recurrence, chronicity of symptoms, and increased morbidity from suicide and other medical disorders (Angst & Sellarno, 2000). This conclusion has been consistently supported since the conceptualization of BD (Kraepelin, 1913; Stephens & McHugh, 1991). Before the introduction of psychopharmacological interventions for BD, Kraepelin (1913) coined the term, "debility states" indicating a lifetime involving residual symptomatology. Additionally, individuals with BD had the poorest outcome in a study of bipolar and unipolar patients in the Phipps Clinic (Stephens & McHugh, 1991). A mere 7% of individuals with BD were recovered compared to 19% and 25 % for individuals with pure mania and pure depression, respectively. Modern studies, in the current drug era, show a slightly better prognosis; however, the numbers still depict poor outcomes given the advances in diagnosis and treatment. Angst and Preisig (1995) followed 219 patients with BD throughout their lifetime and only 16% of patients recovered. The majority of patients (52%) experienced recurrent episodes and 32% committed suicide or became chronically ill.

Etiology

Understanding etiology is dependent on having a valid, reliable, and accurate system of defining, assessing, and diagnosing BD (Hankin, 2009). Although the definitive etiology of BD remains unknown, the disorder seems to be heavily attributed to genetic factors (Potash, & DePaulo 2000; Presig, 2006; Tsuang & Faraone, 2000). An understanding of etiology has the potential to deepen our knowledge regarding the assessment, phenomenology, and treatment of BD. This section will discuss the evidence for the current working hypotheses for both genetic and environmental factors that may contribute to the etiology of BD.

Heritability of BD is higher than other psychiatric disorders and has been estimated to be as high as 80% (Daly, 1997; Vehmanen, Kaprio & Loennqvist, 1995). Family studies have typically found that first-degree relatives of bipolar participants are at a substantially increased risk than control participants to suffer from BD (Craddock, 1995; Gershon et. al., 1982; Weissman et. al., 1984; Sadovnick et al., 1994). In a study conducted by Tsuang and Faraone (1999), the estimated relative risk for bipolar I disorder in first-degree relatives was seven times greater than the population. Similar conclusions have consistently been reached for bipolar II disorder (Craddock, 1995; Gershon et. al., 1982). Collectively, these studies present strong evidence for a familial link for BD.

Twin and adoption studies have attempted to elucidate the relative contributions of genetic and environmental factors to the etiology of BD. In studies examining BD among twins, a monozygotic twin of a bipolar I proband was sixty times more likely than the population to have the disorder also (Craddock, 1995). Results of twin studies have corroborated this finding and provide more evidence for the elevated heritability of BD

(Vehmanen, Kaprio & Loennqvist, 1995; Kieseppa et. al., 2004). Adoption studies have found BD is more prevalent among biological parents than adoptive parents of bipolar adoptees, illustrating that genetic factors played a role in the familial prevalence of BD rather than adoptive factors playing a role (Mendlewicz & Rainer, 1977; Wender et al., 1986).

Although the studies of the genetics of BD have provided strong evidence for the high heritability of the disorder, the concordance rates among family members and twins are not 100%, suggesting that environmental factors may also play a role in the transmission or development of BD. The results from studies investigating environmental risk factors of BD are not considered conclusive due to the lack of studies and methodological flaws, but the results have suggested potential environmental risk factors for future research. In a review of risk factors for BD conducted by Tsuchiya and colleagues (2003), an individual's socioeconomic status – specifically, low income, unemployment, single marital status, and urban residence – and recent childbirth (within three months after childbirth) are likely positively related to the etiology of BD. Complications during pregnancy and delivery, being born in Winter and Spring seasons, recent stressful life events, and having an antecedent history of traumatic brain injury or multiple sclerosis also seem to be positive risk factors for BD.

Comorbidity

Comorbidity is extremely common in BD with more than sixty-six percent of individuals with BD having at least one additional Axis I diagnosis and more than half of individuals with BD having two or more (Goldberg, 2009; McElroy et al., 2001). The high rate of comorbidity has been suggested to complicate the diagnostic process;

specifically, comorbid psychopathology complicates the presentations of BD and confounds the distinction between "primary" and "secondary" diagnoses (Goldberg, 2009). Thus, comorbidity may also contribute to the 8 year delay between onset and accurate diagnosis among individuals with BD (Hirschfeld et al., 2003).

Comorbidity creates clinical challenges including poor response to treatment and long-term chronicity (Black et al., 1998; Judd et al., 2002). Furthermore, comorbid psychopathology has been found to be related with a poorer course over time with shorter time to relapse, longer time to recovery, poor adherence to pharmacological treatment, and increased suicidality (Dunayevich et al., 2000; Frangou, 2002; Vieta et al., 2001).

Substance abuse, anxiety, and personality disorders are commonly comorbid with BD with lifetime estimates as high as 50, 60, and 50 percent, respectively (Brown et al., 2001; Goodwin & Hoven, 2002; Uecok et al., 1998). Obsessive-compulsive disorder, simple phobia, social phobia, and panic disorder are the most commonly comorbid anxiety disorders with BD (Tamam & Ozpoyraz, 2002). Cluster B (antisocial, borderline, histrionic, and narcissistic personality disorders) and Cluster C (avoidant, dependent, and obsessive-compulsive personality disorders) are the most commonly comorbid personality disorders with BD (Breiger, Ehrt & Marneros, 2003).

CHAPTER 4

CONSEQUENCES OF BIPOLAR DISORDER

Quality of life is dramatically and negatively impacted as BD is associated with significant impairments in social relationships, occupational stability, cognitive deficits, lack of insight, and sleep (Hammen & Cohen, 2004; Johnson & Meyer, 2004). These difficulties often persist in the absence of major affective episodes and contribute to creating a stressful personal environment that may place the individual at risk for symptom exacerbation or relapse (Harrow et al., 1990; Hammen & Cohen, 2004).

Impairments in Social Relationships

Bipolar disorder is associated with difficulties across social relationships including marriage, parenting, and friendships because the consequences experienced by individuals with BD also affect family members and society (Hammen & Cohen, 2004). Affected individuals also experience less social support than individuals without mental disorders (Romans & McPherson, 1992). Marital conflict has been strongly linked to current depressive disorders (Zlotnick, et al., 2000), but relatively few studies have looked at marital conflict among individuals with BD. Individuals with BD have a high risk of divorce. A 5-year follow-up study conducted by Coryell and colleagues found that 45 % of patients with bipolar I disorder divorced compared to 18% among controls. The Stanley Foundation Bipolar Treatment Outcome Network (Suppes et al., 2001) also reported similar rates of divorce. In addition to high divorce rates, the quality of marriage for individuals with BD may be substandard. Individuals with BD may experience difficulty adjusting to marriage (Radke-Yarrow, 1998), and their spouses likely experience lower marital satisfaction (Levokovitz et al., 2000). An interesting finding in

marital functioning is that although patients' spouses tended to report more negative characteristics of their marriage, more negative characteristics of their partner, and fewer positive characteristics of their partner compared to nonpatient controls' spouses, most spouses felt their relationship was good when the patient was in remission (Hammen & Cohen, 2004).

Although research on parental functioning by individuals with BD is limited, there is some data to suggest that impairments in parental functioning are associated with depression (Beardslee, Versage & Gladstone, 1998). Depressive symptoms specifically affect a parent's ability to remain calm, patient, and positive with a child (Hammen & Cohen, 2004). It is debated whether impairments in parental functioning associated with depression are caused by 1) the depressive symptoms themselves; 2) the stressful conditions that are the background of most depressive experiences; or 3) preexisting vulnerability to interpersonal deficiencies that are triggered during depressive episodes (Hammen, Shih & Brennan, 2004). A study of mothers with BD found the majority of mothers (61-69%) demonstrated boundary issues, impulsivity, and unpredictable enthusiasm in interactions with their children (Radke-Yarrow, 1998). Parental functioning is an important psychosocial issue for individuals with BD because a parent's disturbances between episodes are a strong predictor of the child's adjustment. Children who experienced more disturbances in interactions with their mother tend to be less well adjusted across a variety of roles (Hammen, 1991; Hammen & Cohen, 2004).

Individuals with BD consistently indicate having a limited number of friendships, confiding relationships, and social contact (Hammen & Cohen, 2004). A longitudinal study of social functioning in outpatients with BD found 60% of outpatients had fair to

poor social functioning with only occasional engagement in social activities or not socializing at all (Gitlin et al., 1995). This lack of social relationships is influenced by several variables. Lower quality of friendships (Romans & Mc Pherson, 1992), avoidance of social contact by the affected individual (Hammen & Cohen, 2004), and the affected individual's dissatisfaction of their relationships (Johnson et al., 2000) seem to contribute to their social dysfunction. Additionally, these social difficulties have been shown to persist across affective changes. The Chicago Longitudinal Follow-Up Study looked at global and social functioning of outpatients at two points over a 3-year period. Outpatients' global functioning improved, but their social impairments worsened (Goldberg, Harrow & Grossman, 1995). These findings support the conclusion that social difficulties are not directly related to specific symptoms of mood episodes.

Family members of affected individuals most often become primary sources of social support (Johnson & Meyer, 2004). However; the onus of caring for their relatives often creates a feeling of burden among family members. This burden is influenced by their beliefs about the illness including awareness of BD and how much control over the disorder they perceive themselves and the affected individual to have (Perlick et al., 1999). Many individuals with BD are estranged from their family and rely on other individuals for support. Overall, social support for BD varies throughout the course of the disorder. Support is lower for people with a history of more manic episodes, but hypomanic symptoms encourage increased social and sexual activity (Romans & McPherson, 1992; Greenhouse, 2002). Lack of social support has been related to poorer course of the disorder with more frequent relapse (Johnson et al., 2000).

Occupational Impairment

Studies of occupational functioning of individuals with BD have shown impairment in obtaining employment, sustaining employment, and working in a position that utilizes their qualifications (Suppes et al., 2001). The Stanley Foundation Bipolar Treatment Outcome Network data on outpatients with BD found only 33% worked full-time, 9% worked part-time, 21% reported they were unable to work, and 36% reported they did volunteer work, were unemployed or worked in rehabilitation settings (Suppes et al., 2001). Additionally, a quarter of outpatients working full-time reported to be working below their qualifications. Occupational impairment does not seem to improve with remission either (Hammen & Cohen, 2004).

Cognitive Impairment

Cognitive deficits are present across all phases of BD. It is difficult for researchers and clinicians to discriminate between subjective cognitive complaints as: a) intrinsic aspects of BD; b) symptoms of comorbid conditions (e.g., ADHD); c) proxies for undertreated psychopathology (e.g., anxiety); or d) adverse effects of pharmacological treatment (Goldberg & Chengappa, 2009). However, research suggests that intrinsic cognitive deficits of BD seem to involve, attention, verbal memory, executive function, and working memory (Ferrier, et al., 2004; Clark, Sarna, & Goodwin, 2005; Allen et al., 2010). Attentional impairments involve selective attention, sustaining attention, and attentional shifting; verbal impairments affect verbal planning, verbal memory, and preservation (Clark, Iversen & Goodwin, 2002). Executive function impairments include slower processing speed, lack of inhibitory control, deficient response inhibition, and poor strategic thinking, and visual working memory deficits may also serve as general marker for BD (Dixon et al, 2004; Allen et al., 2010). Because these deficits persist

during euthymia and are transmitted across generations of family members, they are considered to be manifestations of BD (Martinez-Aran et al., 2004).

Lack of Insight

Bipolar disorder impacts the affected individual's ability for insight, self-restraint, and self-esteem. Individuals with BD have poor insight into their illness (Dell'Osso et al., 2002). Insight is the ability of patients to make judgments of some of their perceptual experiences in different aspects of their illness to be pathological that are congruent with judgments of the treating clinician (Amador et al., 1994). In a study of patients with mood disorders conducted by Dell'Osso and colleagues (2002), patients with unipolar depression had the best insight and were followed by patients with bipolar depression and mixed mania, respectively. Patients with mania had the poorest insight into aspects of their illness. Furthermore, low levels of insight are associated with poor clinical outcome with longer course of illness, non-adherence to treatment, and greater impairment of executive functions.

Impulsivity

Anecdotal accounts of individuals experiencing mania squandering their life savings on gambling or useless items illustrate impulsivity as a hallmark of BD. Barrat (1993) posits that impulsivity consists of three independent behavioral factors including nonplanning, motor, and attentional impulsiveness and leads to inabilities to delay gratification, inhibit dominant (but detrimental) responses, and maintain attention. A study conducted by Strakowski and colleagues (2010) measured impulsivity using laboratory tests of various aspects of impulsivity and the Barratt Impulsiveness Scale (BIS-II). The results demonstrated deficits in impulsivity measured by laboratory tasks

when mania normalized with recovery. However, impulsivity measured by the BIS-II remained constant throughout affective changes. These findings suggest that impulsivity is a multifaceted trait that is both affective-state dependent and an enduring characteristic of BD.

Sleep Disturbance

Disturbance in the sleep-wake cycle is a core symptom of BD that has dramatic effects on the course of the disorder. According to diagnostic criteria, there is a reduced need for sleep during manic episodes (APA, 2000). In a sleep study of bipolar patients in a manic episode, 99% of patients reported both a reduced need for sleep and longer periods of sleep onset latency (Serretti & Olgiatti, 2005). During depressive episodes, patients experience either insomnia or hypersomnia. One study found 100% of depressed patients experienced insomnia, and another study found 78% of patients experienced hypersomnia (Winokur, Clayton & Reich, 1969; Detre et al., 1972). However, regardless of insomnia or hypersomnia, patients in a depressive episode experienced longer periods of sleep onset latency and REM disturbances.

Sleep disturbance in BD is important because poor sleep negatively impacts quality of life (Ancoli-Israel & Roth, 1999). Good sleep is necessary for regulating affect and health (Pilcher & Huffcutt, 1996; Drake et. al., 2001; Yoo et. al., 2007; Spiegel et al., 2004). Sleep also plays a critical role in cognitive functioning; specifically, during encoding and consolidating memories (Harvey, Talbot & Gershon, 2009). Additionally, sleep disturbance can contribute to impulsivity and relapse in BD (Harvey, Talbot & Gershon, 2009; Killgore, Balkin & Wesenten, 2006).

CHAPTER 5

METHODS OF STUDYING THE EXPERIENCE OF BIPOLAR DISORDER

Research and personal accounts focused on the experience of BD have provided some insights into the lived experience of individuals with BD. Various approaches have been used ranging from personal accounts to systematic exploration of specific moments of experience. These accounts studies typically were aimed at studying specific aspects of the experience of BD.

First-Person Accounts

Many personal accounts about struggles with BD have been written. These memoirs provide vivid descriptions of living with BD. They include *An Unquiet Mind: A Memoir of Moods and Madness* (Jamison, 2005), *Burn: A Bipolar Memoir* (Feldman, 2004), *Detour: My Bipolar Road Trip in 4-D* (Simon, 2002), *Electroboy: A Memoir of Mania* (Berman, 2002), *Madness: A Bipolar Life* (Hornbacher, 2008), *Manic: A Memoir* (Cheney, 2008), *My Kind of Crazy: Living in a Bipolar World* (Haynes, 2008), *Soaring and Crashing: My Bipolar Adventures (*Hollan, 2007*),* and *Sugar and Salt: My Life with Bipolar Disorder* (Thompson, 2006). Along similar lines, a successful mental health professional, who did not disclose her name to maintain her anonymity, wrote about her personal perspective of the experience of BD (Licinio, 2005). The writer described a personal history of feeling overstimulated, self-medicating with drugs and alcohol, becoming bulimic, multiple hospitalizations, and suicidality. The author also wrote about feeling so slow that even the most mundane tasks required too much effort and crying intensely for days during her depressions to feeling reckless and impulsive during hypomania to feeling desperately confined and agitated during mixed episodes. Lastly,

the author described feeling stable after finding a treatment that worked for her and creating a new self-image without BD. These memoirs provide personal insights into the individual's lived experience of BD. Although these stories are inspirational and entertaining, they describe decades of experience. In addition to being very broad, memoirs are subject to the writer's, editor's and publisher's bias and the very serious difficulties related to unstructured retrospective recall of events and experiences often in the person's distant past. Ultimately the final product may overemphasize certain experiences, involve distortions or confabulations and some experiences may not be mentioned at all.

Interviews

Interview studies have been conducted to qualitatively examine the experience of BD. Semi-structured interviews were conducted through email (Proudfoot et al., 2009), in person (Rusner et al., 2004; Lim et al., 2004), and in focus groups (Lim et al., 2004). Open-ended interviews during therapy sessions (Inder et al., 2008) were also conducted. Each study focused on a specific aspect of the experience of life with BD. The transcripts of these interviews were analyzed using different qualitative approaches including phenomenology and lived experience framework (Proudfoot et al., 2009), whole-parts-whole (Rusner et al., 2004), thematic analysis (Inder et al., 2008), and horizontalization (Lim et al., 2004).

Proudfoot and colleagues (2009) investigated the subjective experiences of twenty-six participants recently diagnosed with BD. The newly diagnosed participants were asked to send emails about their subjective experiences, difficulties with BD, and any issues of concern about BD to trained supporters who had effectively managed their

condition for at least two years. The supporters emailed participants a minimum of one email per week over 8 weeks providing responses, advice, and personal experiences on how they had dealt with the issues raised by participants. The researchers concluded that the participants' emails discussed seven major themes. First, participants expressed ambivalence about taking medication. Participants were troubled by the negative side effects of medication such as weight-gain, reduction in energy levels, and dulling their creativity. Some participants reported feeling frustrated by trying several different medications and experiencing side effects of those medications before finding the right fit of medications for their illness. Second, concern for managing highs and lows was constant. Third, participants articulated positive and negative reactions to their recent diagnosis. Participants expressed relief at finally having a diagnosis for their symptoms. Negative feelings of disbelief, shock, and anger at their diagnosis were also reported. Fourth, participants voiced their struggles with trying to identify triggers and signs, and frustrations at trying to decide what the triggers implied. Fifth, questions of identity were prevalent. Participants reported feeling a loss of identity linked to medication. Sixth, participants discussed concerns about the uncertainty of their future regarding employment, family, relationships, and whether it was possible to ever lead a normal life. Last, participants stated feeling fear, stress, and frustration regarding stigma associated with the bipolar label.

A study conducted by Rusner and colleagues (2009) sought to understand how life with BD is experienced. The researchers carried out 5 unstructured interviews with each of their 10 participants. The only question asked was the initial question, "Would you like to tell me about your experience of living with bipolar disorder?" The

researchers concluded that life with BD involves experiencing extra dimensions of magnitude and complexity in all aspects of life. Magnitude describes the tension and simultaneousness when living with BD. For example, life encompasses predictable and unpredictable, rather than discriminating between one or the other. Complexity describes the always-present struggle to keep contact with oneself because the illness is always present. They also concluded that participants had difficulty communicating the intricacies of their lived experiences because the available language was insufficient in describing the nature of the magnitude and complexity in their lives.

Additionally, Rusner and colleagues (2009) concluded that the lived experience of BD included: 1) experiences characterized by specific intensity; 2) a constant thinking about understanding themselves, others, situations, and what is real and not real; and 3) the pervasiveness of the illness within the individual. First, participants described all of their experiences having a specific intensity, meaning, at times they may experience life as infinite and without limits, and at other time experience everything as being onerous. Participants also reported fluctuating between great self-confidence and feelings of worthlessness. Specific intensity caused sensory experiences to be more intense and have more nuances. Secondly, the lived experience of BD included a constant thinking and struggling with the fact that there is always more to consider in life. Participants reported not being able to trust their own judgment of what is real and is not real. Their thinking also involved constantly examining their experiences for signs of relapse. Thirdly, the participants' illnesses became indivisible from their identity. Participants reported unrelenting feelings of shame and guilt concerning their lack of self-control and anxiety about their future.

Another study conducted by Iner and colleagues (2008) explored the impact of BD on the affected individual's development of self. This study used discussions in actual therapy sessions that focused on the impact of BD. The therapist asked questions regarding how the affected individual constructed their sense of self, how they conceptualized BD, how they described their experiences of BD, and how BD impacted the development of their sense of self. Four themes reflected the image of BD on their psychosocial development. First, BD affected the participants' relationships. Family, peer, and romantic relationships were negatively impacted due to non-acceptance and scaring off others with their disorder. Participants also reported a conscious unwillingness to establish connections. Second, BD changed others' perceptions of themselves. Specifically, participants reported being aware of others being ashamed of them and feeling judged because they felt they were seen in terms of BD than as themselves as an individual. Third, participants reported experiencing a disruption in their life direction regarding education, employment, and career development. Participants described not having control over the direction of their future. Lastly, participants stated they felt confused and doubtful about differentiating themselves and their experiences from their illness. Participants also reported being able to integrate these different aspects of themselves during extended periods of mood stability.

Lim and colleagues (2004) designed a qualitative study to identify the psychosocial issues faced by individuals with BD. The researchers conducted focus group discussions and individual interviews with 18 affected individuals. Focus group discussion questions asked participants to describe what having BD is like for them, what problems and issues they face in their daily lives, and how they deal with these problems.

With regard to views of themselves, participants perceived themselves as being unstable because their affect, thoughts, feelings, and behaviors have proven to be unstable. Participants described the onset of an episode as a major disruption in their lives that often have consequences that remain after the episode is gone. Participants also perceived themselves as being helpless and having no control over their episodes or their behavior during these episodes. With regard to views of their community, participants perceived their community as rejecting them because of their illness and reported feeling isolated. The authors highlighted the fact that participants' low self-efficacy concerning their ability to manage their illness may contribute to their psychosocial difficulties because they don't believe they can influence their circumstances.

These studies provide powerful and vivid accounts of personal experience and interpretations of BD. However, the primary aim of these studies was to identify themes in the experience of BD and consequently they do not provide an in-depth, detailed account of the inner experience of BD. Each study examined the impact of BD on different parts of participants' lives by asking general questions about their overall experience of BD. These studies, like the personal accounts reviewed above, also potentially suffer from the potentially major limitations of unstructured retrospective recall.

Momentary Sampling

The Experience Sampling Method (ESM), developed by Csikszentmihalyi and Larson (1987), was designed to systematically study the daily experiences of individuals in their natural settings. The method uses a signaling device such as a wristwatch alarm to alert participants at quasi-random periods throughout the day. The signal cues the

participants to report on his/her experience at that moment by completing a questionnaire called an experience sampling form (ESF). The ESF inquires about aspects of their experience (affect, cognitions, current context, perceptions of that context, etc.) and takes approximately 2 minutes to complete.

The ESF attempts to obtain a broad reporting of the participant's internal state and external context at each cued moment. Although the specific content of the questionnaire can be varied based on the researcher's interests, the questionnaire generally includes open-ended questions and Likert scales about the participant's cognitions, location, and time that the measure was completed, social context, affect, and level of activation. The ESF has the potential to provide unique and complex data about participants' experiences that standard psychological measures may not provide (Klinger & Kroll-Mensing, 1995). ESM has several advantages over traditional methods of studying experience. ESM allows for ecological validity and the immediate reporting of experience upon being alerted and reduces the risk of errors due to retrospective recall (Husky et al., 2010).

Myin-Germeys and colleagues (2003) conducted an ESM study on the emotional reactivity to daily life stress in patients with non-affective psychosis, BD, or major depressive disorder. The bipolar group included 31 individuals with a primary diagnosis of bipolar I disorder and 7 individuals with bipolar II disorder. A digital wristwatch cued participants ten times a day at unpredictable moments between 7:30 am and 10:30 pm on six consecutive days. When cued, participants filled out an ESF that assessed mood and stress. This study found that bipolar participants experienced significantly more activity-related stress than all other groups. In addition, the bipolar group reported significantly

lower positive affect than the controls in association with subjectively stressful situations, but they did not differ significantly from the controls on mean negative affect level.

Havermans, Nicolson and deVries (2007) also used ESM with patients with remitted BD and controls to explore their daily experiences regarding hassles, uplifts, and time use. Thirty-eight participants with a primary diagnosis of bipolar I or bipolar II disorder without rapid cycling were cued using the same procedure as the study discussed previously. At each beep, participants described what they were doing, which other individuals were present, and where they were. Participants also described an external positive or negative event or situation that may have occurred since the last ESF report, and rated the valence, stressfulness and importance of these events on 7-point Likert scales from 1 (*not at all)* to 7 (*very*). Reports of internal events were excluded from data analysis. The study concluded that patients and controls did not significantly differ in their frequencies for either hassles or uplifts. Moreover, bipolar patients with residual depressive symptoms and higher number of previous depressive episodes rated negative events as more stressful than both bipolar patients with current subsyndromal manic symptoms and previous manic episodes and controls. With regard to time use, patients spent significantly less time working and with colleagues and more time in leisure activities than controls.

Another recent ESM study examined mood reactivity to daily events in patients with remitted BD (Havermans et al., 2010). The sample and sampling method used in this study were similar to those used in Havermans, Nicholson and deVries (2007) study. However, the ESF used in this study assessed external events and mood. The results of this study replicated and extended the above mentioned findings of Havermans,

Nicholson and deVries (2007) and Myin-Germey and colleagues (2003). This study corroborated the previous finding of a combination of elevated negative affect and lowered positive affect levels. Moreover, as observed by Myin-Germey and colleagues, the decreased levels of positive affect were especially lower in the remitted patients experiencing current depressive symptoms. However, compared to the previous study conducted by Myin-Germey and colleagues (2003), this study reported a smaller decrease in positive affect levels. The authors suggest that this difference may be a result of different operational definitions of stressors in the two studies with this study defining current stressors that occurred within the previous 1-2 hours since the last ESM report and the other study defining ongoing stressors and unpleasant situations.

Ecological Momentary Assessment (EMA; Stone & Shiffman, 1994) closely resembles ESM and these terms are often used interchangeably along with the term ambulatory assessment, despite distinctions among these methods. EMA seeks to collect data in specific real-world contexts. Participants in EMA studies are provided with a signaling device such as a personalized data assistant (PDA) that allows for repeated sampling of a participant's recent states and behaviors (Stone, Shiffman & DeVries, 1999). The method has three signaling schedules: time, event, and signal contingent (Wheeler & Reise, 1991). The time contingent signaling schedule prompts participants to report at predetermined intervals, such as daily at 5 pm or every 6 hours. The event contingent schedule prompts participants to report each time a target event occurs that the researcher establishes based on the research question (e.g., social interaction, pain, depression). The signal contingent schedule prompts participants to report every time the device emits a random signal. The researcher can choose the schedule most suitable to

the research question (Stone & Shiffman, 1994). EMA differs from ESM in the fact that data regarding physiological processes (e.g., heart rate, respiration) and audio or video recordings of behaviors or states can be collected.

To date, there have been no studies of the inner experience of BD using EMA, but Ebner-Primer and Trull (2009) reviewed EMA studies on mood disorders and found six benefits of using EMA to study mood disorders and mood dysregulation. First, real-time assessments minimize retrospective bias and increase accuracy of reports of experience. Second, EMA provides a complimentary method of studying the dynamic process of mood dysregulation. The hallmark of BD is an unstable and cyclical mood pattern and traditional self-report measures may not be sensitive to these dynamics. Third, multimodal assessments can incorporate psychological, physiological, and behavioral data. Fourth, behaviors that are setting or context-specific can be identified. Fifth, real-time interactive feedback can be provided to the participant. Sixth, data collection in naturalistic situations increases generalizability of the results.

Given these findings, EMA may aid in the study of BD in several ways. For example, a daily PDA assessment of hypomanic symptoms may provide more precise estimates of the duration of the hypomanic episode compared to retrospective recall that may lead to inaccurate estimates. A time-contingent EMA protocol has the potential to provide more precise data on the nature of symptoms that are thought to be relatively stable such as depressed affect. EMA may also be useful to assess the participant's behavioral and situational influence on symptomatology (Havermans, Nicholson & deVries, 2007). Overall, ESM and EMA studies of BD are limited and have added little insight into the inner experience of BD. Despite the value of these sampling-based

studies of the experience of BD, these studies are limited in that the aspects of experience to be explored are determined in advance. Thus these studies may inadvertently miss important aspects or facets of the experience of BD.

Descriptive Experience Sampling (DES)

Descriptive Experience Sampling (DES; Hurlburt 1990, 1993) is a qualitative method for obtaining high-fidelity descriptions of the phenomena of pristine inner experience. Pristine inner experience is real experience of people in their everyday lives before the acts of observation, planning, figuring out, and interpretation disturb it (Hurlburt & Akhter, 2006*)*. DES was developed to deal with the limitations of classical introspection and other difficulties inherent in having people look within themselves. DES is an ecologically valid and reliable method for studying inner experience that asks open-beginninged questions (Hurlburt & Akhter, 2006), iterates its method, aims to minimize retrospective bias, and allows for ample interaction between the experimenter and the participant as co-researchers in exploring the participant's inner experience.

DES participants are asked to carry a pocket-sized random interval generator, a "beeper," in their natural environments as they carry out their regular activities. Participants are then instructed to pay attention to whatever was ongoing in their experience at the moment the beep sounded and write down notes about their inner experience. Typically, participants repeat this procedure until six moments of experience have been collected. The investigator then conducts an "expositional interview" with the participant within 24 hours. The expositional interview is the process by which the investigator and participant explore the participant's experience and obtain faithful descriptions together (Hurlburt & Heavey, 2006; Heavey, Hurlburt, & Lefforge, in press).

Hurlburt and Heavey (2006) provide a detailed description of the instructions given to participants.

DES asks participants to wear the beeper in their natural environments to obtain experiences that occur in the participant's normal daily life. Allowing participants to sample in their natural environments provides the DES method with external and ecological validity. Ecological validity is valued in DES because it makes sense to observe pristine experience where it occurs – in the participant's natural environment. DES does not seek to investigate experimentally contrived or otherwise manipulated experiences. Furthermore, having no *a priori* focus aids participants and interviewers to bracket any presuppositions that may bias the participants' capture and recall and the interviewers' understanding of inner experience. Bracketing presuppositions potentially allows for more generalizability of findings as it is less likely for participants to bias their reports towards a specific experience and minimize other experiences that differ from the *a priori* focus.

DES asks participants to jot down notes about their experience within a few seconds of the experience. Note taking serves as an immediate outlet to recall their sampled experience several seconds after the experience occurred while the experiential details are still available in short-term memory. Note taking also serves as a memory aid in the interval (typically 24 hours) between obtaining the sampled experience and discussing it during the expositional interview. Providing participants with this aid helps to minimize retrospective bias and memory failures.

The expositional interview is an opportunity for the investigator and participant to collaboratively examine each moment of the participant's experience. The interviewer

presents herself/himself as a co-investigator because the participant has his/her experience and the researcher has the tools to apprehend that experience. The goal of the interview is to get as comprehensive and precise an apprehension of each sampled moment as possible (Hurlburt & Schwitzgebel, 2007). The central question asked, although it may be stated in many different variations, is: "What was ongoing in your experience right at the moment the beep disturbed your awareness (Hurlburt & Heavey, 2006, p. 77)?"

During the interview the investigator strives to suspend presuppositions about what the characteristics of the participant's experience are. To aid in the bracketing of presuppositions the investigator asks non-leading, open-ended and "open-beginninged" questions regarding the nature of the experience (Hurlburt & Akhter, 2006). Open-beginninged questions don't presume the content about which it asks (Hurlburt & Schwitzgebel, 2007). An example of an open-beginninged question is "What was in your experience, if anything?" because it does not ask the respondent to discuss emotions, thoughts, sensations, or images specifically. The investigator also attempts to aid the participant in suspending his or her presuppositions during the subsequent series of questions and discussions. Throughout the interview, the interviewer's questions become more specific in order to gain as comprehensive an apprehension of the details of a participant's inner experience at each moment as possible.

The DES interview allows for investigator and participant to have a face-to-face conversation within 24 hours after the collection of about six sampled moments. This interaction between the researcher and the participant is a unique aspect of DES compared to other sampling methods. Other sampling procedures often have participants

answer forms with several questions regarding their experiences and turn in the completed questionnaires at a specified later date. Although these methods require minimal researcher supervision of the participant, there is no way to ensure participants are filling out the forms as directed or if they are following other protocols, potentially introducing sampling bias. DES attempts to reduce opportunities for sampling bias by providing an opportunity to check in with a participant after their first day of sampling to ensure the protocol is being followed and troubleshoot any issues he/she may have with the protocol.

During the interview, the DES investigator is also able to attend to non-content cues and offers other outlets to monitor for the presence of biased and/or incomplete reporting and self-presentation bias in the participant's reports of their experience. Participants are regularly surprised by the amount of detail about inner experience the investigators ask for and they may have difficulty answering many questions asked by the investigators. The first expositional interview day provides the participant with examples of the kinds of details the investigators seek. Over time participants typically become more skilled observers of the phenomena in their inner experience at the moment of the beep and, subsequently, become better at describing their inner experience.

DES is an iterative procedure. The preferred result of the first sampling day's sample/expositional-interview/write-description procedure is a faithful apprehension of six moments of the participant's experience. However, participants, at the outset of sampling, are not likely to be adequately skilled, first at apprehending their pristine experience and then reporting that experience. The participant is not initially practiced in bracketing presuppositions about inner experience and the interviewer and participant

have not yet adjusted to each other's manner of questioning and reporting, which leads to only a rough approximation of faithful apprehension. The iterative nature of DES allows participants opportunity to improve their apprehension and reporting of pristine experience with each repetition so that the fidelity of the process is improved on the next iteration.

DES is an ideographic procedure that focuses on one individual's experience at a time. This focus on one individual allows for an extensive investigation of that individual which may potentially provide unparalleled insights that aggregates of data may not be sensitive to. The issue of the validity of DES concerns whether DES faithfully apprehends an individual's inner experience and if the description of inner experience can be validated for the particular individual (Hurlburt & Heavey, 2006). However, DES can also be used to study the inner experiences of a collection of participants who share a common feature such as a psychiatric diagnosis (e.g., schizophrenia, depression, bulimia, etc.). In this type of study, several individuals with the shared characteristic are sampled to ideographically apprehend accounts of inner experience. Then nomothetic characterizations of common experience among the group can be made.

Hurlburt and Heavey (2002) investigated the interobserver reliability of DES. In this study two interviewers separately interviewed participants about the same moments and coded each moment for the presence or absence of 16 forms of inner experience. Consistency between the raters was found in an analysis of the five most frequently occurring forms of inner experience. The percentages of agreement were 83 % for sensory awareness, 90% for unsymbolized thinking, 92% for feeling, 95% for inner speech, and 97% for inner seeing (aka image). The validity of DES has been supported

by a study that connected DES findings to externally observable behavior (Hurlburt, Koch & Heavey, 2002). This study found that individuals with fast speech had more complex inner experience than individuals without fast speech.

DES differs from other sampling methods in a number of ways. For example, DES participants are asked to focus on whatever is ongoing in their awareness at the moment of the beep without identifying any particular kind of experience. Both ESM and EMA have *a priori* hypotheses or experiential targets that then determine which aspects of experience will be queried. ESM and EMA also require participants to report their experience using a structured format. DES has no *a priori* hypotheses or pre-determined goals and strictly adheres to obtaining as faithful an account of an individual's inner experience as possible. DES is only concerned with the participant's naturally occurring inner experience and does not ask the participant to pay attention to certain aspects of their experience (e.g., situations, emotions, cognitions). DES also provides qualitative descriptions of inner experience compared to the quantitative analyses ESM and EMA provide (Hurlburt, 1997). Finally, the interactive and iterative nature of DES allows the researchers and participants to collaboratively build their skills and ability to communicate about the participants' experience over successive expositional interviews.

DES has been used on several occasions to explore the inner experience of those with affective disorders. Hurlburt (1993) sampled with four individuals who ranged from hypomanic to normal dysphoric, to mildly depressed, to deeply depressed. Examining the inner experience of individuals with abnormal mood provided an opportunity to observe mood related inner experience both within and between participants because three of the

four individuals experienced mood fluctuations while sampling over the course of a few weeks.

The first participant, John, typically experienced hypomania. During his slightly hypomanic period his inner experience was dominated (95% of samples) by inner seeing. The majority of these inner seeings were recreations of scenes seen earlier in reality. These inner seeings had clarity, color, rich visual detail, movement within the inner seeing, and the center of the inner seeing was clear with the periphery gradually degrading. John's inner experience was also characterized by some kind of inner speech that mostly occurred while reading. Although John could easily differentiate between different emotions, he could not distinguish how each emotional experience was present to him. During John's period of fatigue, his inner experience was dominated by inner seeing, but the characteristics of these inner seeings differed from the inner seeings during his slightly hypomanic period. The inner seeings had abrupt edges, lacked motion, and the visual details were indeterminate. Overall, the symbolization in John's inner experience decreased dramatically from his slightly hypomanic period, and John lacked insight into the atypical nature of these unsymbolized characteristics of inner experience during his fatigue period.

Michelle experienced periods of dysphoria and normal mood. While sampling during her period of normal mood, her inner experience frequently (61%) involved inner speech. Her inner speech had the same characteristics as her outer speech, but was mentally said to herself. She also experienced feelings in almost half of her samples. These feelings were sometimes simple feelings and at other times they were complex. A few of Michelle's samples involved just paying attention to what she was doing without

any cognitive process occurring in her awareness. Similarly, Michelle described two samples in which she was engaged in conversations and she was merely listening to the other person without any thoughts, feelings, and sensations present at that moment. Sampling during Michelle's period of dysphoria took 13 separate days of sampling involving long and confusing discussions to try to clarify the characteristics of her inner experience. Inner speech, feelings, and inner seeing were still present during her period of dysphoria, but the experience in each of these forms became less symbolized. For example, Michelle's was unable to clearly describe the verbal characteristics of her inner speech. Ultimately neither she nor Hurlburt were confident about the nature of her inner speech. Her descriptions of her inner experience in her period of dysphoria were harder to understand and less clear than her descriptions had been during her period of normal affect. The less distinct inner experience may have been due to her inner experience being less clear, or her failure to maintain a constant point of view, or her failure to maintain awareness of inner perceptual reality, or any combination of these situations.

Susan's mood fluctuated from a period of mild depression, to a period of brighter affect, to a period of stronger depression. Her inner experience during the mildly depressed period was mostly (42%) characterized by unsymbolized thinking. Susan also experienced feelings that were sometimes directly in her awareness and sometimes brought into focus of awareness by the beep. Her inner experience also included inner speech (12%), indeterminate inner seeing (5%) and sensory awareness (5%). During the period of brighter affect, inner speech became her most dominant form of inner experience. The inner speech was often experienced with mental words being present without those words being spoken. Susan's inner experience also became more complex.

She reported multiple forms of inner experience such as unsymbolized thinking, sensory awareness, and words present at the same time. When Susan sampled during her more depressed period, her inner experience was dominated (72%) by unsymbolized thinking. Sensory awareness and inner speech were in her inner experience, but the awareness of these phenomena was more passive and unsymbolized. Feelings were present in her inner experience at the same percentage as her mildly depressed period, but the feelings during her more depressed period were all negative feelings of frustration, annoyance, anger, disgust, and perplexed.

Lastly, Diane experienced more debilitating levels of depression than the other participants as she lived in a psychiatric halfway house at the time of sampling. Diane's inner experience was mostly (48%) unsymbolized thinking – thinking without any words, images, or other clearly definable characteristics. She also experienced inner speech that was perceived to be freely produced by her, in her own inner voice, and in complete sentences at a higher frequency than Hurlburt would have predicted given the trend of greater unsymbolized inner experience as severity of depression increased. This finding may be the result of the fact that Diane's diagnoses had ranged from depression to schizophrenia to borderline personality disorder over the years. Inner seeing was also the focus of 10% of Diane's samples. Her experience of these inner seeings had clearly definable visual characteristics half of the time and were indeterminate inner visual experiences the other half of the time. Similar to Susan's period of mild depression, Diane's experiences were complex, involving the simultaneous presence of two or more aspects of an experience. Her complex experiences were often experienced as two

alternating thoughts in her awareness, or as lasting for long periods of time, or as cognitive experiences localized in her body.

The primary finding of these studies was that higher levels of depression were associated with more unsymbolized inner experience. Participants experienced less clearly represented inner seeing, inner speech, and feelings. They had a harder time observing and communicating the characteristics of their inner experience as the severity of their depression increased. Moreover, the participants were unaware of this change in inner experience across varying mood states.

The Present Study

The present study employed the DES method to explore the inner experience of four individuals with BD. Participants were recruited from the University of Nevada, Las Vegas (UNLV) Neuropsychology Lab who consented to be contacted for future research. Participants' diagnoses were confirmed by conducting a SCID interview in a previous research study for the Neuropsychology Lab. The four participants with BD who volunteered for this study were asked to wear a random signal generator (beeper) in their natural environments during their typical daily activities. The beeper signaled them to observe their inner experience at random moments. Participants were instructed to collect six samples of inner experience on each of the approximately eight sampling days. Then they participated in an expositional interview in compliance with DES guidelines following each day of sampling. The expositional interview was an open-ended interview aimed at gaining a high-fidelity understanding of their inner experience during the sampled moments.

After each interview the primary investigator typed up summaries of the participants' inner experience during each sampled moment. Then the primary investigator and faculty advisor(s) engaged in a collaborative editing process of these beep summaries to discuss discrepancies in the understanding of the inner experience. After the editing process, an ideographic analysis of each participant was conducted by reviewing a participant's samples of inner experience and observing patterns of phenomena. A nomothetic analysis of all participants was also conducted by examining all samples of inner experience for patterns that emerged across subjects.

CHAPTER 6

METHOD

The present study recruited participants from a database of neuropsychology research participants who gave consent to be contacted for future research studies. The participants met the inclusion criteria for the present study, namely that they had a diagnosis of BD. Participants who agreed to participate in the present study were asked to share their inner experience.

Participants

Participants included individuals from the Las Vegas area with a diagnosis of BD. Participants were recruited from University of Nevada, Las Vegas (UNLV) Neuropsychology Laboratory BD participant database. The participants' diagnoses were assessed for using the Structured Clinical Interview for DSM-IV Axis I disorders (SCID; Spitzer et al., 1992) in a previous research study at the Neuropsychology Laboratory. Participants' estimated IQ, education and employment were also assessed in that previous study and will be reported in the individual participant chapters below. Four participants, two males and two females, volunteered to participate in the present study. The mean age of participants was 39.25 years old. All volunteers were compensated $10 an hour with a bonus of $10 for completing at least eight sampling days. Participants were given the option to continue sampling after their eighth sampling day and were compensated $10 an hour.

Materials

The Symptom Checklist-90-Revised (SCL-90-R; Derogatis, 1992) is a 90-item self-report inventory designed to provide a summary of an individual's range of

psychological symptoms and the intensity of those symptoms. Participants were asked to rate the occurrence of symptoms on a five-point scale ranging from 0 (*not at all*) to 4 (*extremely*). The SCL-90-R provides nine different symptom dimensions including: somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism. In addition, an overview of psychological distress (Global Severity Index), a measure of intensity of the reported symptoms (Positive Symptom Distress Index), and a total number of reported symptoms (Positive Symptom Total) are also provided. The SCL-90-R takes approximately 15 minutes to complete (Derogatis, Lipman, & Covi, 1973). The Global severity Index has demonstrated high reliability with a Cronbach's alpha of 0.96 (Schmitz, Hartkamp, Kiuse, Franke, Reister, & Tress, 2000).

In order to sample random moments of inner experience, participants received a small random-interval sounding device (beeper) developed by Hurlburt. The rectangular shaped beeper generates a 700 MHz tone at random intervals that can be heard through an earpiece to minimize external interference. The beep occurs at random intervals between 0 and 60 minutes with a mean duration between signals of 30 minutes. The volume of the beep is adjustable and can be stopped and reset by pressing a button at the top of the beeper.

A pocket-sized notebook was given to participants for recording notes about their inner experience at the last undisturbed moment before the beep sounded.

Procedure

Participants from the Neuropsychology BD participant database who gave consent to be contacted for future research studies were contacted by the primary

investigator by phone to schedule a one-hour meeting with the primary investigator in the Experience Sampling Lab at UNLV. At this meeting, participants completed informed consent, and the SCL-90-R. Participants were made aware that they were able to discontinue sampling at any time without penalty. Participants were informed of their role as co-investigator in the expositional interviews. Participants were also informed about their right to confidentiality and right to refuse discussion of any sensitive material (Hurlburt & Heavey, 2006).

Participants received the pocket-sized beeper and were instructed how to use it. They were instructed to use the earpiece with the beeper to minimize any potential external interference with hearing the beep. Participants were taught how to turn it on and off, adjust the volume, stop the beep, and how to reset it. Participants also received a 3 in X 5 in spiral notebook to write notes about their experience at each beep.

The primary investigator explained the DES method in detail including the procedure of sampling followed by an expositional interview and the goal of obtaining high-fidelity accounts of pristine inner experience. The primary investigator also instructed participants to pay attention to their naturally occurring experience at the last undisturbed moment before the beep occurs and jot down notes about their experience in the notebook to aid recall of the experience during the expositional interview. Participants were instructed to wear the beeper during a time of their choosing within 24 hours of the next meeting. Participants were notified that their notes were solely to aid their recall of their inner experience and would not be collected or used otherwise. A subsequent meeting was scheduled before the participant left each meeting.

The successive meetings were hour-long expositional interviews conducted by the primary investigator and one or more faculty research supervisors (i.e., Dr. Heavey and/or Dr. Hurlburt). The expositional interview involved trying to develop a high-fidelity apprehension of what was ongoing in the participants experience at the moment of the beep. Invesitgators reminded participants of the co-investigator role of the participant. The expositional interview began with the investigator asking the participant some variant of the question, "What was ongoing in your experience right at the moment the beep disturbed your awareness (Hurlburt & Heavey, 2006, p. 77)?" This question was typically followed by the participants consulting their notes about their samples and then and attempting to describe their experience to the investigators. Investigators encouraged participants to be open and honest about his/her inner experience.

Participants' reports of inner experience included things such as: a) the context of the experience (the situation or background), b) the individuals involved, c) the activity they were engaged in (driving, studying, watching TV, etc.) d) the experience that occurred before the moment of the beep, e) the ongoing experience at the moment of the beep, f) the experience that occurred after the moment of the beep, and g) reasons for the experiences that occurred before, at, and after the moment of the beep. The aim of the expositional interview was to focus on e) the ongoing experience at the moment of the beep as much as possible and collaboratively work toward a high fidelity apprehension of the participants' pristine inner experiences.

The process of collecting samples and conducting an expositional interview was an iterative process because participants generally became more skilled at apprehending and describing their inner experience and filtering extraneous facts over time. Due to this

iterative nature, the first expositional interview was typically considered to be a training exercise and therefore the data collected was not used, unless the data provided additional support. This process of participants collecting samples and then participating in an expositional interview was repeated until the investigators concluded they gained a reasonably good apprehension of the participant's inner experience or the participant decided to discontinue participation. After their eighth sampling day, each participant was asked if they would like to continue sampling for one or two more days. All participants participated in at least eight sampling days. One participant participated in nine sampling days, and two participants participated in ten sampling days. After their last expositional interview participants were provided the opportunity to ask questions.

Analysis of Data

After each expositional interview, the primary investigator typed summaries of the participant's inner experience at each of the beeps discussed during the interview. The purpose of the written descriptions was to provide a high fidelity description of what was ongoing in the participant's inner experience at the moment of the beep. Then the primary investigator and faculty advisors (Dr. Heavey and Dr. Hurlburt) engaged in a collaborative editing process of these beep summaries and discussed discrepancies in the understanding of those experiences. When a disagreement over the accuracy of a beep description occurred, we reviewed the video recording of the interview and adjusted the written description accordingly to accurately reflect the participant's report.

Upon completing sampling with each participant, all investigators met for approximately five hours to conduct an ideographic analysis of the inner experience of

that individual. We reviewed the participant's entire sample of inner experience, looking for patterns, characteristics and salient phenomena.

Lastly, a nomothetic analysis was conducted by exploring all samples of inner experience from all participants for patterns and/or characteristics that emerged across participants. Dr. Heavey, Dr. Hurlburt and I engaged in a lengthy review of the idiographic descriptions of each participant's inner experiences discussed below in their individual participant chapters. We also reviewed the participants as a whole and the features of inner experience that occurred across the participants discussed in the final across-participants chapter.

CHAPTER 7

IDIOGRAPHIC DESCRIPTION OF KATHERINE'S EXPERIENCES

Chapters 7 through 10 present idiographic descriptions of each participant's inner experience. These chapters are presented in the order they began sampling. These chapters are divided into sections based on each participant's salient characteristics that emerged across their sampled moments. Table 1 (below) provides a summary of salient characterisitcs of inner experience of all four participants and figures from Heavey and Hurlbut's (2008) study on the salient phenomena of inner experience in a sample of individuals without a psychiatric diagnosis. Following these idiographic profiles, Chapter 11 reviews the similarities and differences of inner experience across all four participants. Chapter 11 also presents a discussion of the results and implications for future research.

Table 1. Frequency of common phenomena of inner experience

Characteristic	Heavey & Hurlburt, 2008	Katherine	Jewel	Trent	Brandon
Inner speech	26%	11%	9%	2%	20%
Inner seeing (aka images)	34%	9%	12%	32%	3%
Unsymbolized thinking	22%	18%	5%	8%	3%
Feeling	26%	7%	2%	6%	3%
Sensory Awareness	22%	80%	33%	44%	38%
Emotionally tinged experiences	-	41%	19%	34%	10%
Perceptual disortions	-	16%	5%	4%	8%

Katherine is a 41-year-old, right-handed, multicultural female who sampled with us from October of 2011 through February of 2012. Katherine met criteria for BD without psychosis as assessed for by the SCID-I (First, Gibbon, Spitzer, & Williams, 1997). She also met criteria for Agoraphobia without Panic Disorder, Specific Phobia of Animals, and a Rule Out Diagnosis of Axis II Symptomatology. She reported her psychiatric history included a diagnosis of Borderline Personality Disorder, and was prescribed Wellbutrin and Depakote. She stated her age of onset was 21 for depressive episode, 18 for manic episode, and 21 for hypomanic episode. She has been hospitalized twice. She has 12 years of education and her estimated IQ was in the average range. She received a Global Severity Index score of 2.7 on the SCL-90-R (Derogatis, Lipman, & Covi, 1973; Derogatis, 1994), suggesting the presence of psychological difficulties. Katherine has never been married and lives alone with her dog and pet snake. She does not work because she is on mental disability.

Katherine sampled on ten separate occasions, collecting a total of 47 sampled moments. The first day of sampling is typically considered training and they were not consistent with her subsequent sampling days, so these first day samples will not be discussed. This left 44 sampled moments.

Progression of DES Skill

Katherine appeared to struggle with understanding the DES task. On her first day of sampling we had great difficulty trying to convey the task of observing anything that was in her experience, but only that which was directly present rather than what she could discern or observe after searching for thoughts or feelings. She did become better at

sorting out what was and was not in her experience on her second day of sampling. For example:

> Sample 2.1: Katherine was looking for excrement in her snake's, Fluffy, enclosure. At the moment of the beep, she was mostly smelling the aspen-ness of the bedding as she sifted through it. She was also hearing the scraping noise of the plastic sifter against his glass enclosure as she was sifting through Fluffy's substrate looking for poop. Katherine was also feeling warm and feverish which she described as having a negative valence as it related to her still having an upset digestive system from the previous day. She was holding Fluffy with her left arm held out and over the kitchen floor; she felt his weight in her left arm and there was a lingering presence of her hoping that Fluffy didn't poop on her. Lastly, she was hearing the sound (but not the smell) of coffee brewing.

Katherine seemed much better at noting that something had been in her experience before the beep but was no longer in her experience when the beep sounded (e.g., looking for the excrement), and determining that something entered her experience after the beep (e.g., the smell of the coffee).

Katherine's progression of the DES skill, however, was not linear, as is most often seen in the sampling process. Sample 4.3 was an example of Katherine not being skilled at pinning down where the beep occurred in her experience.

> Sample 4.3: Katherine was still playing Scrabble while looking out her window periodically. She sequentially experienced a sense of something outside, followed by a flash of anxiety and gasping, "huh?!", and then followed by the realization that the something outside was the kids next door. All three of these things were

in her experience at the moment of the beep; the gasp/anxiety was most prominent in her experience. Katherine had a vague, fleeting sense of something outside. She did not see a shadow but knew something to be there. Katherine then felt a sudden surge of anxiety inside her torso in the area of her sternum and she gasped. Katherine then just as suddenly realized that this "something" outside was just the kids next door. This realization was a thought without words or images.

In this sample, Katherine first sensed something, then she felt anxious, and thirdly she had a realization. Katherine was unable to say where the beep came in this sequence of events, which is not typical of participants on their fourth day of sampling.

This struggle continued throughout the fifth and sixth sampling days, like in sample 6.1.

Sample 6.1: Katherine had been carefully packing and repacking aluminum foil and other kitchen supplies that she was planning to take with her when she moved in with her friend Julie. At the moment of the beep, Katherine was innerly saying to Julie, "We can use mine if yours runs out," with an apologetic/defensive inflection. Katherine was also innerly seeing Julie. Julie was facing Katherine, standing in her kitchen; Katherine was not seeing the surroundings, which she knew to be Julie's kitchen. Katherine was also feeling a physical sensation of being rushed/time pressured and her heart pounding which she recognized as feeling slightly manic. Katherine may have also been aware of the pile of foil and plastic that she was packing.

Katherine's report of seeing the pile of foil and plastic was not believable. Katherine had difficulty with complex experience In particular we thought she backed away from saying

she could see it; she may have been aware of it but not actually seeing it at the beep. Her report of seeing may have been the result of her view that went something like, *if I'm talking to Julie, I* ***must be*** *seeing Julie*. We pressed hard on the continuation of this view, *if I'm talking to Julie in the kitchen, I* ***must be*** *seeing the kitchen*, but we did not come to any conclusions regarding whether she was seeing Julie or seeing the kitchen. Our best guess – without any reason to defend it – was that she was seeing Julie but not seeing the kitchen. In any case, the inner speaking seemed much more salient. Notably, Katherine was observed to be quite irritated/annoyed during this part of the interview. She did not seem to be distinguishing carefully enough between what was experienced and what was not experienced. Making the distinction between whether the seeing was in her experience was difficult for Katherine after five sampling days. It may be that her experience itself was not clear, or in some aspects was not clear, so our questions were difficult, probably excruciatingly difficult.

Katherine appeared to have a shift in understanding the DES task after describing her fifth beep on her sixth day of sampling. She seemed to be sleepy, depressed, and irritable before and during the interview on her first and second beep. By the end of describing her fifth beep, Katherine's mood seemed entirely transformed and she appeared more awake and dramatically happier.

> Sample 6.5: Katherine had been on her patio smoking a cigarette wearing a tank top and sweat pants. At the moment of the beep she was taken over/completely fixated/zoned in/entranced by the blue Christmas lights on Robert's apartment down the street from hers. There were lights of other colors in Robert's display, but Katherine was absorbed in the blueness. Katherine was also gently feeling a

crisp, pleasant chill sensation mostly on her shoulders and neck (areas exposed to the cold without clothing to cover them).

During the discussion of this beep, Katherine seemed delighted to be talking about this experience and she could not overemphasize how powerfully she was transfixed by the blue lights. By the end of this interview her mood seemed entirely transformed from what it had been when she began the interview. It may be that talking about this experience delighted her, or she seemed delighted to experience the experience itself, or neither of these inferences. However, given her past struggles with coherent experiences, it may be that what delighted her was the experiencing itself – felt straight on, without much judgment or distortion.

Despite this moment of clear, coherent experience on Day 6, her struggle continued and was especially apparent in sample 7.2 when she was unable to confidently describe her pondering.

Sample 7.2: At the moment of the beep, Katherine was innerly seeing her upstairs neighbor's living room window and a burgundy/floral couch against the window. She saw this image from the perspective of her sitting down on a nonexistent landing outside the window. She saw the window ledge and the top of the back of the couch. This inner seeing was apparently part of Katherine's pondering of several different ways it would be possible for her neighbor to pick up her daughter and throw her daughter against the window and cause the window to break. Katherine stated that the beep came in the middle of a sequence of images and the beep may have interrupted her from seeing the rest of the stream.

Initially, it seemed like Katherine was describing an unsymbolized thought, but after a fair amount of time discussing the pondering of several different ways for someone to be thrown against a window to break it, she came to the description of inner seeing. It was also hard for her to settle on what she saw, eventually coming down to only a bit of the couch seen from the outside. However, the imagery was believable in the sense that it described an impossible image being seen from a perspective that was impossible to take in reality. It may have been that imagery was fairly frequent in her experience but was overlooked as being not important.

Katherine's ability to carefully distinguish between what was experienced and what was not experienced appeared to vary with her mood. Specifically, on sampling days where she struggled with the DES task, we observed her to be in a down mood. Her struggle also seemed to vary with the type of experience; when she was clear it was usually with sensory awareness experiences. She was ultimately able to do the DES task with less variability in skill on her ninth and tenth days of sampling.

Sensory Awareness

Sensory awareness was present in 35 (80%) of her 44 beeps. Katherine had sensory awarenesses from early on in her sampling. In total, she had 67 sensory awarenesses in 44 beeps – an average of 1.5 sensory awarenesses per beep. Moreover, sensory awareness was the most frequent and most believable of her inner experiences. Sensory awareness is a sensory experience (seeing, hearing, smelling) that is in itself a main focus of experience (Hurlburt, Heavey & Bensaheb, 2009). Sensory awareness may be bodily (e.g., a tingle, an itch, pressure, etc.) or external (e.g., hearing the tone of a sound, nothing the color of an object, taking in the characteristics of a landscape, etc.;

Hurlburt & Heavey, 2002). A sensory awareness can occur on its own, with other types of experiential characteristics, or with additional sensory awarenesses. Katherine had multiple sensory awarenesses like in Sample 2.1 when she was searching for excrement in her snake, Fluffy's, enclosure, discussed earlier, was an example of multiple sensory awarenesses occurring simultaneously. Katherine had five sensory awarenesses including two separate awarenesses of hearing (the scraping noise and coffee brewing) and bodily sensations (warm and feverish throughout her body and Fluffy's weight in her left arm.)

She had other samples with multiple sensory awarenesses occurring simultaneously in subsequent sampling days like in sample 10.2.

> Sample 10.2: She was still outside and a tall (perhaps 6'5'' to 6'8'') man was walking on the sidewalk across the street from her. At the moment of the beep, Katherine was noticing his tall thinness. She was also seeing the light pink color of her neighbor's house (the house was behind the man). Katherine was also hearing him yelling/grunting/mumbling to himself. She was also feeling the furrowing of her eyebrow. Somehow she understood in the moment that the furrowing of her eyebrows was the beginning of being vigilant.

Katherine had two separate visual sensory awarenesses (tall thinness and pinkness) occurring simultaneously in this sample.

Although, Katherine had multiple sensory awarenesses occurring at the same time on her second day of sampling, she seemed confused that this could occur in an imagined way as well when this occurred on the sixth day of sampling.

> Sample 6.3: Katherine had been packing her spices and then was stuffing her coffee filters into a bag. At the moment of the beep, she was hearing the rough

rustle of the filters as she tried to get them into the bag. She was also feeling the dusty lids of her spices with her right hand fingers. This sensation was of feeling the dusty lids, even though she was not at that time in physical contact with the lids. In fact, those fingers were in contact with the coffee filters, but she was not feeling filters, she was feeling lids. Katherine was also feeling the physical sensation of being rushed/time pressured and her heart pounding, which was also present in the first beep. Hearing the sound of the filters was most central in her experience, perhaps 75%.

During the discussion of this beep, Katherine first explained her multiple sensory awarenesses as she read her notes, then paused and seemed confused as she realized that feeling the dust and hearing the rustle did not actually occur at the same time. She initially seemed to be confused that these multiple awarenesses could occur in an imaginary way as well. The imaginary feeling of the dusty lids was surprising to her. She eventually settled confidently on both sensations being present in her experience at the beep.

Sensory awareness, by definition, involves paying attention to a sensory characteristic, but Katherine had moments where she was more than paying attention to a sensory characteristic, her experience was taken over by a sensory awareness. Specifically, she was overpowered by visual sensory awareness occasionally throughout sampling, but not other kinds of sensory awarenesses (e.g., tactile or auditory). Her first example of being powerfully engrossed in the visual aspects of her environment was observed in sample 6.4.

Sample 6.4: Katherine had just watched her snake, Fluffy, feeding. At the moment of the beep, she was powerfully visually absorbed in watching him reset his jaw by making a yawning/twisting/side to side movement. This yawning/twisting/side to side movement was very cute. As Katherine talked about watching Fluffy and the cuteness of how he resets his jaw, she seemed powerfully delighted by the experience, smiling broadly, almost unable to contain a giddy happiness that she experienced. It was not clear whether this powerful delight (a) occurred during the retelling; (b) occurred during the experience but was not experienced at that time; or (c) occurred during the experience and was experienced—the cuteness.

In Sample 6.5, discussed above, Katherine was engrossed in a color. She was fixated/zoned in/entranced by the blueness of the Christmas lights in sample 6.5. During discussion of this beep, Katherine discussed this fixation on the blue with an intensity that she did not use to discuss other kinds of inner experience. She could not overemphasize how powerfully she was transfixed by the blue lights. She used many different ways of describing her experience including: fixated; entranced; becoming one with the lights; and saying that it was as if the lights went directly into her. Again in Sample 8.6 the draw of color comes through.

Sample 8.6: At the moment of the beep, she was feeling flushed/very warm on her face. This was perhaps 60% of her experience. About 30% of her experience was feeling very sleepy which she felt in her eyes feeling heavy and a thumping feeling in the core of her body expanding outwards from her waist up. This thumping feeling was repetitive (every few seconds) and she described it as if her body expanded for a moment every few seconds: thump…thump…thump. The

duration of the thump was likened to the sound of a tympani being played. Katherine was also "zoned in" on the light copper patch on her cat's neck, apparently absorbed in the copper color.

In sample 8.6, Katherine was "zoned in" on the copper color but the zoned in visual sensory experience was not the majority of her experience. She was simultaneously zoned in and was paying more attention to another experience, feeling flushed/warm.

Katherine also had moments of experience where she was completely engrossed in seeing several colors simultaneously. In sample 8.3, Katherine was zoned in on the comparison and contrast of colors.

Sample 8.3: Katherine had walked into her bedroom and saw the dog she was dogsitting, Parfum, on her bed. Parfum was a white dog who was on Katherine's white bedspread. At the moment of the beep, Katherine was seeing Parfum standing on her bed. She was seeing the whiteness of Parfum on the whiteness of her bedspread—that is, she was attending to the colors of the scene. She was also seeing the dog standing—that is, she was not only seeing colors. She was also thinking, "maybe she (Parfum) wants to go to sleep" and asking Parfum, "You want to go sleepies?" Katherine maintained that she experienced both the thought and the speaking. Katherine also saw the blackness of her dog, Pepper, at the head of her bed, noting the color of the blackness (apparently by contrast to the whitish of Parfum and whitish of the bedspread, although she was not particularly attending to the contrast).

In this moment, Katherine was attending to two different shades of whiteness and their contrast. She was also attending to the blackness, and contrast of black and white.

In sample 10.3, Katherine was zoned in on the blendedness of colors.

Sample 10.3: Katherine had turned POGO (an online gaming website) on. She had a POGO mini (cartoon representation of herself) wearing a white robe in a meditative position with clouds on either side. At the moment of the beep, she was pleasantly/peacefully immersed in the blendedness of purple, blue, and black hair and clouds. She was also seeing the colors and movement of the star shower behind her mini.

Katherine had multiple sensory awarenesses occurring simultaneously including two separate awarenesses of hearing, and bodily sensations; she also had tactile sensory awarenesses. However, her visual sensory awarenesses related to seeing colors appeared to be the most powerful to her; they were the only kind of sensory awareness that completely overpowered her. Her sensory awarenesses were generally more clear and believable than her other inner experiences.

Emotionally Tinged Experiences and Feelings

Katherine stated it was hard for her to express feelings in general. We worked to keep this view at bay and examine her experience whether or not feelings were present. Feelings are the experience of emotion. Katherine may have had experiences with an emotional tinge or feeling in 18 (41%) of her 44 beeps. Of these experiences she may have only had three (17%) moments with feelings and all other moments (15 moments or 83%) with an emotional tinge – they seemed, in some way, to be feelings or in the direction of feelings, and in other ways seemed to be something considerably different from feelings. These moments had a range of clarity and had some sort of tangled-ness to them.

Katherine had some moments where her feelings were not labeled the standard feelings like, anger, sadness, joy, etc. like in samples 3.2 and 4.2.

> Sample 3.2: Katherine was standing at her stove smoking a cigarette. At the moment of the beep, she was “feeling liberated,” which apparently referred to some sense that "It’s my house and I can do whatever the fuck I want to, it’s not going to hurt the kids." (She was believably confident that there were no words present in the experience.) It appeared to not be entirely cognitive and/or entirely emotional. Furthermore, “liberated” did not seem in line with the expression, which was more like obstinate or stubborn or don’t-tell-me-what-to-do. She was also, at the same time, smelling the cigarette smoke which comforted her; the smell and the being-comforted were both part of the experience, with the smelling apparently somewhat more prominent.

In this sample, Katherine reported she felt liberated and comforted. These are not typical labels for feelings. Being liberated or comforted is something that happens and the result is something like feeling free and safe, respectively, but her word choice of liberated and comforted made it seem as if she was referring to something that happened, which may have contributed to her lack of clarity of these experiences with an emotional tinge in this moment.

> Sample 4.2: Katherine was still playing Scrabble. She was sitting with her right side to her living room window which was open to hear if anyone was outside who might try to smash her window by throwing something which had happened a few days earlier. At the moment of the beep she was thinking ‘Twilite’ is NOT a word. Although the thought involved these specific words and seemed to be a

sequential phrase with an emphasis on 'NOT,' these words were not spoken, heard, written or seen. She could not say more about how the specific words were present to her. Katherine was also feeling "duh/gigglyish," as if laughing to herself. She reported this feeling began between the words, 'is' and 'NOT' of her thought and was present in her head. Katherine was also feeling coldness on the surface of her skin just above her right knee.

In this sample, Katherine labeled her feeling as "duh/gigglyish." This is also not a standard feeling, and again her word choice may make it difficult for her to have a coherent experience of this emotion.

Katherine also had difficulty distinguishing her feelings/emotions from her cognitive processes that it was impossible to clearly label the experience as either feeling or thinking, so the experience may have been a combined thought/feeling. In sample 3.2, just discussed above, liberated and comforted were experienced as thought/feelings. On the second day of sampling, Katherine described her first beep with some kind of emotional tinge in sample 2.2. In this sample, Katherine was realizing she needed to shower. She described having a feeling of resentment because taking a shower would take time out of her day, but she was unsure whether the feeling was in her awareness at the moment of the beep. She was confident about thinking of having to take a shower today at the moment of the beep, and that that thought had something like a feelingness to it or that it was a thought/feeling. Katherine also felt warm and fuzzy. She was unable to describe her experience of feeling warm and fuzzy, but she demonstrated that this experience was like a self-hug by crossing her arms across her chest, raising her shoulders, smiling and giggling. This sample may have involved two emotional

experiences – resentment, and warm and fuzzy. Resentment was possibly a thought/feeling. Furthermore, resentment may or may not have been present at the moment of the beep. She was unable to confidently say either way. At best, she expressed the thought of having to take a shower had something kind of a feelingness, without any further details. Katherine was unable to describe how she experienced warm and fuzzy. It may have been a feeling, may have been some sort of retrospective characterization, may have been something else — we don't know. Whatever it was, it had a positive valence. Her inability to describe her experience or disentangle her thoughts and emotions suggests some aspects of her experiences like experiences with an emotional tinge are unclear.

Katherine most commonly lacked a coordinated view of emotion and instead focused on one piece of emotionality. For example, Katherine had two experiences of sadness that were experienced only in her eyes in samples 3.3 and 5.1.

> Sample 5.1: Katherine was watching *Law & Order: SVU* on the television. At the moment of the beep, she was paying attention to the show and she was feeling her eyes well up, which she recognized as sadness/melancholy/empathy. That is, there was nothing in her experience beyond the welling up which was recognized as being sadness/melancholy/empathy. She was also noticing Louie, her neighbor's dog, pacing.

Katherine's tears welling up in sample 5.1 was (a) not a coordinated view of sadness (it also includes /melancholy/empathy) and (b) not *her own* sadness—it was empathized sadness; it was sadness/melancholy/empathy *for Louie* who wants to be upstairs. This feeling was not merely a directly experienced sadness. Her entire experience of sadness

was the sensation that her eyes were tearing up. She had a lack of integration between her bodily sensations and emotional consciousness. At moment of beep, she felt eyes welling up, but then when she described it to us she said she was feeling sad.

Other examples that indicated Katherine indirectly experienced other experiences that only became a feeling when telling us about it, if at all were samples 5.4 and 6.1.

> Sample 5.4: Katherine was playing an online game where she was trying to collect badges by clearing pink flowers; if there were no pink flowers on the screen she could click the button labeled, 'new game' to try and get pink flowers. She had four screens in a row without pink flowers, making it impossible to collect badges. At the moment of the beep, she was feeling impatient which was experienced as her clicking on the button labeled 'new game' repeatedly.

Similar to sample 5.1, Katherine's clicking the button repeatedly was her entire experience of impatience. In Sample 6.1, discussed above, Katherine was "feeling a physical sensation of being rushed/time pressured and her heart pounding which she recognized as feeling slightly manic." This feeling was not an integrated aspect of the experience.

Katherine also had four emotionally tinged experiences where the tone of her voice was all of the emotional experience. Samples 6.2 and 9.4 involved Katherine speaking aloud. In sample 6.2, Katherine was asking her friend, "Why were they standing out in the middle of the street talking?" in a pissy tone. In this sample, she was only focused on the pissy tone of the question she had asked. In sample 9.4, Katherine had just dropped the beeper, and at the moment of the beep she was saying aloud, "Good one,

dipshit." In this sample, she was only focused on the sarcastic tone of her statement and no other aspects of feeling sarcastic.

Samples 7.1 and 9.6 involved the tone of her inner speech.

Sample 7.1: Katherine had been reading a letter she had received from her bank. At the moment of the beep, she was feeling an inverted tingly sensation throughout her entire body and most intense in the core or midline of her body. She had difficulty explaining this sensation, but stated that it was not like a normal tingly sensation, that the tingle seemed somehow to have a direction from the outside in (whereas normal tingles seem to be directed from the inside out.) She said this sensation had been ongoing for some time before the beep and continued after the beep. She also related it to feeling groggy and numb-ish as an aftereffect from having taken Seroquel the previous night. This sensation was a majority of her experience (perhaps 60%.) Katherine was looking at the letter from the bank. She saw the words "**collections**" and "**credit report**" in bold and close to her (although they were not actually in a different font than the rest of the letter). "**Collections**" was seen at the upper left; "**credit report**" was seen at the lower right. She saw some words leading up to "credit report": "might have negative impact on your **credit report**." She was not seeing the rest of the letter. The words collections and credit report meant that the consequences being discussed in the letter from the bank were not as dire as she had feared, but this thought was not being experienced. Katherine was also innerly saying, "kewl." This was said in her voice with the inflection and intonation of the spelling the word "cool" as "kewl." This innerly spoken, heavily inflected saying of "cool"

represented a happy feeling related to her relief about the content of the letter, but again she was not experiencing the feeling. She was also dimly hearing the buzzing sound of fluorescent lights in the kitchen.

In this sample, feeling happy was only experienced in the happy tone of her inner speaking.

Sample 9.6: Katherine had been watching the TV show, Cops. The cops had wrestled the guy to the ground and the sirens were continuously going off. At the moment of the beep, she was hearing the profoundly annoying/unpleasant sirens and innerly yelling, "Turn those sirens OFF!!" This was said in an extremely annoyed/frustrated tone. Katherine was also paying attention to the TV show, but her focus was the blue and red flashes at the left edge of the screen. (These flashes came from lights of police cars which were themselves off screen illuminating the trees that were seen.) Her focus was much more on the flashes than on the main action of the man being arrested.

In this sample feeling annoyed was only experienced in the tone of her inner yelling.

Katherine did not appear to have a coordinated experience of feelings. Her experience often involved disorganized mélanges of which she only focused on one piece of emotionality instead of the entire, integrated feeling. The experience of a piece of emotionality were not commonly observed when sampling with typical participants, yet Katherine had many occasions of a piece of emotionality being all of the emotionally tinged experience.

Katherine had three samples that involved coherent experiences of feelings in samples 3.3, 3.4 and 7.3 below.

Sample 3.3: At the moment of the beep blood was coming out of Sweeney Todd's slit throat on the TV. Katherine was hearing rain (the sounds were actually the dripping blood sounds from the movie, but she heard rain). She was also hearing "like tears…in rain," a rehearing of a line from the movie *Blade Runner*, a movie that she had seen often. She may have also been seeing the *Blade Runner* actor, Rutger Hauer, as he said those words, but we were skeptical because of the delay before Katherine's report of the seeing. Katherine also experienced a cleansing/peaceful/sad feeling around her eyes that she described as feeling like a hint of a cry.

In this sample, Katherine was noticing the sensation of a hint of a cry in a specific location – around her eyes. Having a location of a feeling made it a more coherent feeling than the emotionally tinged experiences described earlier.

Sample 3.4: At the moment of the beep, Katherine was noticing the quietness of her surroundings. At the same time, she was hearing a ringing in her head. Also at the same time, she was also looking at Mimic, her stray cat, sitting on her porch. Katherine also experienced a feeling of sadness/poor guy located across her chest area and focused on the area on her chest where her tattoo is (above her left breast). She reported the feeling had a sensation of a little heaviness. Katherine also described this feeling as a flood of her love for animals. During the interview, she vacillated between whether or not this feeling had a rising quality to it like a flood. This feeling was complex, with multiple aspects including "he's so cute, I feel sad for him and all the others, I want to save them all," but no words were present nor could she dissect or elaborate the aspects of the feeling.

In this sample, the sadness/poor guy feeling was located in her chest and had a specific sensation – heaviness, making this a more coherent emotional experience. However, this feeling was not a straightforward feeling that others typically have. It was a complex feeling that had a questionable experiential organization to it because she was unable to describe if flood was a flood or not.

> Sample 7.3: At the moment of the beep, Katherine was feeling frustrated. She could not describe her experience of frustrated in words other than to describe it as "Ugggggghhhhh!" This feeling was perhaps 55% of her experience. The other 45% of her experience was yelling "Get down!!!" to her kitten who had gotten back up on the kitchen counter. This was yelled through her teeth.

In this sample, both the feeling and the speaking were in her experience, in contrast to sample 7.1 where only the speaking, "kewl" in a happy tone was in her experience but the feeling was not. Although Katherine experienced a coherent feeling of frustration and she was able to apprehend it, she was unable to say more about her experience of the frustration. She did not observe feelings often, so when she did experience them, she did not or may not have been able to capture all the experiential details.

Overall, Katherine's samples may have had some emotional tinge in fifteen moments, and more coherent feelings in three samples. Her experiences with some kind of emotional tinge were unclear, not coordinated, and tended to focus on one aspect of emotionality (e.g., bodily sensation like crying-ness of eyes or tone of speech). This may reflect that she only had a parital way of apprehending her emotions on most days. On the other hand, she had three feelings that were generally clear that involved a location and/or sensation, or were fully coordinated.

Perceptual Distortions

Katherine had moments where her experience involved some perceptual distortion of reality. She may have had about seven (16%) experiences where her experience was a perceptual distortion of reality. Her first moment with a perceptual distortion was observed in Sample 3.3, described above, involved a distortion of hearing. The sounds in reality that were coming from the TV were sounds of blood coming out of Sweeny Todd's slit throat, but Katherine was not hearing the blood coming out; instead she was hearing rain. She was also rehearing a line from another movie as it had been said in that movie.

Katherine also had several moments in which her visual experiences were distorted. She distorted text she was reading in samples 4.1 and 7.1.

> Sample 4.1: Katherine was playing Scrabble on her computer. At the moment of the beep she was seeing her whole rack of letters that were in the order: E1, S1, B3, A1, U1, Z10, D2. She was focused on the A1, U1, Z10 portion more than on the rest of the letters. Furthermore, Katherine was focused on the brownness and blackness of the Z10 tile rather than its significance as a Scrabble tile. Katherine initially reported that the A1, U1, Z10 portion "stuck-out" as if they were closer to her than the other letters. She then described that portion being bolder than the other letters.

In this sample, the bolded perception of Scrabble tiles was her first instance of a visual perceptual distortion, and she was unable to be clear about if the words appeared bolded to her or not. However, this phenomenon occurred again in sample 7.1

Sample 7.1, discussed earlier, involved distorted words. Katherine was reading the letter from the bank but she did not see any words on the page at the moment of the beep except the bold words and words leading up to the bold words, which somehow stood out closer than the real page was known to be. *Bold* may not have exactly described the phenomenon, perhaps gripping or enhanced may be better; however, Katherine described the characteristics of what she saw to the best of her ability. She was not merely describing an everyday figure/ground phenomenon because she was confident that the words themselves stood out or grabbed her attention. Also, unlike in everyday figure/ground where the figure occupies one place (the center) of the visual field, the words **credit report** and **collections** were separated.

Katherine also had visual perceptual distortions involving an image, like in sample 9.2.

> Sample 9.2: Katherine had been watching the same man (on TV) sitting on the couch. At the moment of the beep, she was looking at him and visually perceiving that he looks like Chaz Bono. This was a visual experience that involved some sort of subtle perceptual creativity/change where what she was seeing was somehow slightly different than the man's actual face, but it also wasn't the face of Chaz Bono. She was confident that she was not paying attention to a specific feature of this man. She was also confident that she was not seeing Chaz Bono's face on the man's body. Katherine was also dimly sensing stickiness on the fingers of her right hand.

In this sample, she imaginarily saw Chaz Bono's face on a man she was seeing on TV.

Another example of a visual perceptual distortion was in sample 8.2.

Sample 8.2: Katherine had been watching a fictional character based on Nancy Grace on Law & Order: Criminal Intent. At the moment of the beep, perhaps 75% of her experience was of seeing the actress on the right side of the television screen. Katherine was seeing the Nancy Grace-ness of the actress' hair, make-up, and facial expressions. Katherine was also sensing the color red. She was not paying attention to where the red was from (it could have been from the news logo on the bottom of the screen or the actress could have been wearing something red). Instead, she was experiencing red in her seeing. Katherine also felt a feeling that if put into words might be Yes!(said with fist pump)/fuckin A, bitch! No words or gestures were present, but they best describe her emotion. She was also still feeling her heart beating harder (as described in beep 8.1). This sensation in her heart was not as hard as the sensation in beep 8.1.

In this sample, Katherine was seeing red in her experience, without knowing the source of the red. Moreover, there may not have been anything red on the screen at this moment in reality, but she was experiencing red nonetheless.

Katherine experienced tactile perceptual distortions in samples 6.3 and 10.4. In sample 6.3, discussed earlier, Katherine was feeling dusty lids even though the dust on the lids was no longer physically present on her hands because she had washed them. She was imaginarily feeling dusty lids that were no longer present in reality.

Sample 10.4: At the moment of the beep, Katherine was feeling sleepy. She was also feeling a bit chilly throughout her body and very tired in her eye and head area. She was also experiencing herself as being in her warm bed even though she wasn't.

In sample 10.4, Katherine had moved herself into her bed in her experience but in reality she was seated in front of her computer. She imaginarily felt her warm bed.

Although perceptual distortions of reality are fairly rare among DES participants, they seemed more common in Katherine's inner experience mostly involving perceptual distortion of reality in various sensory modalities.

Discussion

Katherine appeared extremely eager to please us and tried her best to do the DES task with the highest fidelity; however, we struggled to convey the DES task across several sampling days. Her progression of the DES skills was not linear. She struggled with pinning down when the beep occurred, and what was and was not present in her experience. She was able to carefully distinguish and believably describe her experience at the moment of the beep on some samples and some sampling days. Moreover, her mood was observed to be down on sampling days where she struggled with the DES task.

Emotionally tinged experiences and feelings were difficult for Katherine to be clear about. She had difficulty distinguishing between thoughts and feelings, or she tended to focus on only of piece of emotionality, like the tone of her voice or a bodily sensation. She may have had three feelings that we would characterize as a coherent experience of feeling because they were coordinated with corresponding locations and/or sensations. As best we could determine, experiences with an emotional tinge or feelings (41%) were in her inner experience at the moment of the beep.

Katherine also had several instances where her sensory experiences did not align with reality, perhaps reflecting some type of lack of coordination of experience. This type of experience is fairly rare among DES participants, but Katherine experienced these

perceptual distortions across sensory modalities (e.g., auditory, visual, tactile). These experiences were also generally unclear.

One exception to her unclear experiences were her sensory awarenesses (80%), especially color-based visual sensory awarenesses were Katherine's most clear moments of experience throughout sampling. Her ability to describe coherent sensory awareness, suggested that Katherine was able to complete the DES task when she had clear experience (e.g., sensory awareness). Conversely her frequent difficulty with the task was most likely due to her experience generally being unclear or nonexistent. Other explanations may be that her ability to carefully complete the DES task of distinguishing what was and was not in experience varied with her mood, or having clear experience made her both be able to do the DES task and be in a good mood.

CHAPTER 8

IDIOGRAPHIC DESCRIPTION OF JEWEL'S EXPERIENCES

Jewel is a 20-year-old, right-handed African-American female who sampled with us from November 2011 through March 2012. Jewel met criteria for BD without psychosis as assessed by the SCID-I (First, Gibbon, Spitzer, & Williams, 1997). She also reported that her psychiatric history included a diagnosis of Attention Deficit Hyperactivity Disorder and her medical history included a diagnosis of Lupus. She was not prescribed any medications at the time of sampling. She stated her age of onset was 10 for depressive episode and 10 for manic episode. She has been hospitalized twice. She has 16 years of education and her estimated IQ was in the average range. She received a Global Severity Index score of 1.32 on the SCL-90-R (Derogatis, Lipman, & Covi, 1973; Derogatis, 1994), suggesting the presence of psychological difficulties. Jewel has never been married and lives with roommates. She works as a photographer.

Jewel sampled on eight separate occasions, collecting a total of 48 sampled moments. The first sampling day samples are usually not discussed because they are considered training, leaving a total of 43 sampled moments, of which two were skipped because the situations were similar to a previous beep. Thus this report is based on 43 samples of experience. Jewel had moments when she was quite good at capturing and describing what was in her experience; however, she also had days where she lacked precision in identifying what was in her experience. These unclear moments of experience tended to occur on days where she reported her mood to be down and/or we

observed her mood to be down. This chapter will explicate Jewel's pattern of experiences chronologically; then other salient phenomena of Jewel's experience will be described.

Overview of Jewel's Sampling

Jewel was skilled at observing and describing her inner experience on her second sampling day. For example:

> Sample 2.3: At the moment of the beep Jewel was staring at herself in the bathroom mirror. Her finger was in her mouth to dig stuff out of her teeth. She was not seeing herself in the mirror or paying attention to digging stuff out of her teeth. She was just doing these things on autopilot.
>
> Sample: 2.4: Jewel was rolling on the floor crying in pain after stubbing her toe. At the moment of the beep she was experiencing pain inside her right ear in the center of the ear canal. She heard a high-pitched noise in her right ear. She speculated that the noise may have been a combination of her crying sounds and TV static, but she was focused on the painfulness of the sound – the sound was painful. The pain was located inside her ear in the center of the ear canal. She also experienced a "rippling" pain in her big toe on her right foot. The pain seemed to ripple/throb at a rate of about every half-second. She also felt a pain on the outer side of her right knee. This was a duller, constant pain like she had been hit by a hammer on the side of her knee. Jewel also felt tears from her left eye on her left cheek, a thick gooey wetness. Jewel reported that her ear pain was most salient in her experience, followed by her toe pain, and then her knee pain, and the tears were the least salient.

In Sample 2.3, Jewel was able to differentiate between behaviors happening on autopilot (seeing herself in the mirror and digging in her teeth), and intentional experiences (none at the moment of Sample 2.3). In Sample 2.4, Jewel had multiple physical sensations that she was believably able to rank in terms of salience in her experience. Jewel also had multiple experiences in sample 2.5.

> Sample 2.5: Jewel had finished a phone call about a potential job opportunity that she was very excited about. At the moment of the beep she was pushing the end button on her phone with her right thumb to hang up the phone call. She was also experiencing a positive/excited sensation something like her entire body and more being a giddy/shaken champagne bottle ready to pop/"AH!". That is, this sensation was not contained just in her body, but appeared to be in her surrounding environment as well. Jewel was also feeling her heart beating fast, rhythmically and loudly pounding in her chest. Jewel's thoughts were racing too. She had many thoughts including: "You're getting a Bentley soon!" "You're going to get another house." "Oh man! You're mom's going to be so proud." These thoughts were seen, not heard and were seen to be in complete sentences that were in a crude (Jewel called it "8-bit") font that was bold and 3-dimensional. The letters were white on a black background. The sentences travelled diagonally in relation to her head. These thoughts raced by at an extremely fast speed, in what seemed to hundreths of a second. She was not sure if the sentences occurred one right after the other or overlapped. The sizes of the letters were bigger for shorter sentences and smaller for longer sentences. The hanging up of the phone,

the champagne/bubbliness, her heard pounding and the racing thoughts all were approximately equally salient at the beep.

This was a complex sample that involved multiple experiences with multiple characteristics (i.e., emotional experience with bodily sensations, thinking, and inner seeing. Her inner seeing was in itself complex and involved many details. She innerly saw complete sentences in a certain font, in a certain color, in a certain order, and moving in a certain direction.

Thus the experiences on the first two sampling days ranged from no experience at all (picking teeth, sample 2.3), to multiple simultaneous experiences (pain, sample 2.4), to highly multiple experiences that existed both inside and outside her body (body about to pop, sample 2.5). These examples are all from sampling day 2; sampling day 1 was similar in its range. Jewel's initial skill was different from the struggle our other participants had with observing and describing their inner experience. However, her skill did not remain constant. It appeared to vary between and across days, perhaps corresponding to changes in her mood or perhaps corresponding to other unknown factors.

On her third sampling day, five days after her second sampling day, Jewel's experience was unclear and we investigators had moderate to high degrees of skepticism about her reports of these moments. We noticed her mood to be down compared to her two previous sampling days, and Jewel reported she was more tired than her two previous sampling days. Overall, there was little or no experience in almost every sampled moment on this day. For example:

Sample 3.3: At the moment of the beep Jewel was focused on putting her left foot into her shoe. She was doing this with substantial attention/care. She was also hearing dimly her boss saying something to her on the phone about her being awake.

Sample 3.6: At the moment of the beep Jewel was stepping into a Chrysler 300 automobile. This movement was on autopilot. She may have also heard a passerby saying something about how cool the car was and wondering whether Jewel and her party were celebrities.

In these samples, there was nothing in Jewel's experience except for just doing behaviors. In sample 3.6, we were not clear of the extent to which Jewel experienced the passerby's talking. It penetrated her in the sense that after the beep she herself made a comment about it, but it was not obvious whether she experienced it as it was taking place. Jewel also had one sample on her third day where nothing was in her experience.

Sample 3.4: Jewel had been in "space out mode" where she was not thinking about anything and was grabbing her suitcase with her camera in it. At the moment of the beep, she may have innerly said "memory cards." This thought was a reminder to herself to buy extra memory cards.

In this sample, it was likely that nothing was in Jewel's experience. She was not convincing in her description of the "memory cards" experience. We were not convinced that this was innerly said because she could not or at least did not make distinctions that most people who innerly speak can or do make, such as between inner speaking and inner hearing. Her moments of experience on this sampling day tended to lack clarity, but also lacked complexity that was evident on some of her other days, like having multiple

experiences ongoing simultaneously. Jewel varied between extremes of nothing in experience on this day to having multiple clear experiences on her second sampling day. This variability suggested that Jewel did not have some stable platform of experience, and this pattern was seen throughout the rest of her sampling.

On her fourth day of sampling, her mood appeared to be less down than on her third sampling day but less up than on her second sampling day. Her reports of experience were similar to her third day of sampling – lacking in details and clarity. We were confused about her experience even after asking questions aimed at achieving more clarity. Jewel could not say more about her experience to clear up the confusion. For example:

> Sample 4.5: Jewel had been standing on the pole stage in her living room rapping. She had just finished rapping the words, "stripper pole." Just prior to the beep, she had messed up her rap (by thinking too much about it). At the moment of the beep, she was playing off this mess-up as no big deal because she was a superstar rapping to a crowd. She saw a crowd in front of her stage. She saw the actual stage she was standing on and a crowd of people past the stage in her living room and in the quad outside her window. The crowd of people was a copy-and-pasted group (that is, the same people were seen to the left and straight ahead and to the right) of about 20 individuals she has seen before. For example, she saw someone sitting on top of another person's shoulders (which she took as evidence that the crowd was into her rapping). Jewel was also feeling hyped up.

In this moment, we were not sure about her experience of inner seeing, but we were also not sure if it was another kind of experience. We also were not sure of her feeling hyped

up since it was not clear, but we suspected that her feeling hyped up was experienced as the seeing of the excited crowd, with no aspects of feeling directly in experience. Another example of an unclear report of experience was observed in sample 4.4.

> Sample 4.4: Jewel was rapping and she didn't stop to write notes about her experience until she had finished the song. At the moment of the beep, as best she could recall later she was fully engaged in rapping and the words were rolling out to the beat. (She refers to this as "free styling," where the aim is not to think, which would interfere with the rap process.)

Jewel did not stop to write notes about this beep until she had finished the song she was rapping. To our knowledge, she did not typically wait to write down notes about her experience at each sampled moment, so this made her report about this experience less believable. Jewel also had two moments where she had nothing in her experience in samples 4.1 and 4.3.

> Sample 4.1:Jewel had been lying down next to her friend. They were rapping and talking shit to each other. Her friend had just rapped about her. At the moment of the beep there was nothing in her experience. She was "at a pause." Jewel's sense was that during this interval she was thinking at some level about what she would rap in response, but this thinking was not in her experience.
>
> Sample 4.3: Jewel got up to change the music to the next song. At the moment of the beep Jewel was just walking from the couch to the chair. As far as she could ascertain, there was nothing in her experience.

On her fifth sampling day, Jewel reported she was tired. She also appeared tired during the interview, especially during discussion of her last beep. She struggled to describe any of her experiences except for sensations. For example:

> Sample 5.1: Jewel had been blow-drying her hair at her friend's house. At the moment of the beep the top of her head burned, an intense pain. This sensation was about the size of the blow-dryer opening.
>
> Sample 5.3: This beep came very shortly after beep 5.2. At the moment of the beep, Jewel was still hearing her loud singing and the cracking-ness of her voice, and feeling pulling/pain on the back of her head. The pulling/pain included an additional area slightly below the area in the previous beep as her friend had moved onto combing another knot below the knot in the previous beep. That is to say that the pulling/pain was experienced in one location, but a bigger sized location than the previous beep.

In these samples, nothing was going on in her experience except noticing the pain sensation on her head and hearing her cracking voice singing. Another example of sensations being most salient in her experience was in sample 5.2.

> Sample 5.2: Jewel was sitting in a chair and singing, *Someone Like You* by Adele, while her friend was blow-drying and combing Jewel's hair. The friend was combing/pulling a knot in Jewel's hair and Jewel was singing louder and louder to hide the pain she was feeling from her friend pulling her hair. At the moment of the beep, Jewel was hearing her loud singing, and may have been paying particular attention to the cracking-ness of her singing. She was not experiencing herself singing, just the hearing of her singing. Jewel was also experiencing

intense pulling/pain on the back of her head. This pulling/pain felt like the roots of her hair was being pulled out of her scalp.

In this sample, we were confused about her report of her experience of hearing. We were unable to discern weather she was hearing her singing with an emphasis on the cracking-ness or if she was hearing her voice, and the voice happened to be cracking. However, her report of pain was not confusing.

Jewel's mood did not appear to improve by her sixth sampling day. She reported she had been in the hospital for approximately two-and-a-half weeks for medical reasons since her last sampling day. However, her mood appeared to vacillate between appearing down to appearing animated during certain points of the interview. Specifically, she appeared to become animated when discussing her experiences in high fidelity. Moreover, she had clear experiences during this sampling day when she had begun the interview in a down mood; this was unlike the other sampling days with down moods when she had less clear experience. She also needed a lot of normalizing about her experience on this day. For example:

Sample 6.2: At the moment of the beep Jewel was innerly seeing a t-shirt design. It was an outline of Africa which was also the profile of Kony's face and his neck was the lower part of the continent. As she was seeing the design, she was also drawing it but the drawing was happening mostly on autopilot as she was engaged in what she was seeing. She saw the imagined design so clearly that the drawing of it seemed more like tracing than creating; the design was already created mentally and either she could see it on the paper clearly enough to simply trace it or she had it so clearly in her mind that the drawing of it was automatic.

During discussion of this sample, Jewel appeared to have a strong reaction to realizing she was tracing an image that was not on the paper but that she experienced to be in her mind. She seemed embarrassed about it, as if it was strange or a sign of being crazy. We normalized her experience and explained that inner experience can be impossible because it does not have to follow the rules of reality. She also required much normalizing during the discussion of sample 6.8.

> Sample 6.8: Jewel had just read her brother's ex-girlfriend's pregnancy status on Facebook. At the moment of the beep she was yelling in a teasing way to her brother who was downstairs. She yelled, "Woo, Mari, Your girlfriend's best friend who's your ex-girlfriend is pregnant. Woo, you in trouble." Her yelling was about 80% of her experience. Jewel was also questioning the paternity of the child, thinking her brother might be the father. This was the experience of seeing photos but the photos themselves were not seen. She also had the experience of seeing the words, "Woo! That's your baby!" but she did not see the words themselves. Her experience was of seeing something, even though the something she was seeing was not itself seen.

In this moment, Jewel again seemed to be distressed by the idea that she experienced herself as seeing these things even though she did not see anything, and required much normalizing.

On the opposite end of her mood spectrum, Jewel also became animated when talking about her experiences in high fidelity. For example:

> Sample 6.3: Jewel had been logging into Facebook to tell her friends what to do to help the KONY 2012 cause. At the moment of the beep she was imagining her

friends who were going to help. She saw the upper torso of her friends one by one as they faded in and out. Specifically, she saw her first friend at 50% opacity who then faded out to 0% opacity as her next friend faded into 50% opacity and so on, about one friend per second. She saw her friends all around her computer screen, meaning, she saw her first friend to the left bottom of her computer screen and the next friend a little higher to the left of her computer and so on until she saw her last friend to the right bottom of her computer screen. In this way her friends' faces gradually appeared in an arc around the top of the computer screen she was looking at (even though the computer screen wasn't in her experience). She saw her friends at a maximum of 50% opacity and she felt their presence in the room with her, even though there was no one in the office with her at the time.

During discussion of this sample, Jewel was animated as she described her experience of imagining her friends in succession and their fading in and out. This experience of inner seeing was more believable and complex than reports of her experience on sampling days three, four, and five.

On her seventh sampling day, Jewel appeared to be in a happier mood than her third, and fifth sampling days. Her reports of experience were also more believable and more complex than her reports on those days. For example:

Sample 7.3: Jewel was in the bathroom starting to put on eyeliner. She had been feeling hungover. At the moment of the beep she was paying careful attention to putting the eyeliner on. She was also innerly hearing, "You better not poke yourself in the eye." This was said in her voice with a "black girl attitude" inflection to it.

In this sample, Jewel was focused on putting her eyeliner on while hearing herself warn her not to poke herself in her eye. Jewel's ability to distinguish between hearing herself or talking to herself made this report more believable than on previous sampling days. She also had two experiences occurring simultaneously, and these experiences were more intentional than experiences on previous days where she was generally a passive recipient of limited experience. Another example of multiple experiences was observed in sample 7.5.

> Sample 7.5: Jewel's best friend had been rapping and Jewel was her hype person, which required Jewel to guess what her friend would say as the last word of each rhyme, so Jewel could say the word at the same time as her friend. At the moment of the beep, Jewel was hearing her friend's rhyme. She was also innerly hearing the same rhyme (same friend's voice, rhythm, tone, inflection, and rate) about a fraction of a second delay. The inner hearing was also quieter than the actual rapping she was hearing. Jewel was innerly repeating the rhyme to catch up to her friend's words. She was also thinking of what word her friend might say next (the last word). Jewel's thinking was of pulling out one word from a bunch of words in the back of her head. She sensed many words were present in the back of her head, but what the words were and how they were present was not known to her. This seemed analogous to imageless seeing. Jewel was also physically rocking to her own metronome-like tempo of the rap.

This sample was complex because Jewel had at least six experiences (i.e., hearing, inner hearing, inner speech, wordless thinking of words, and rocking her body) occurring simultaneously.

On her eighth and final sampling day, Jewel seemed noticeably more down at the outset of this interview and she directly acknowledged that she was having a hard day. She had little in her experience except for noticing sensations. For example:

> Sample 8.2: Jewel had been lying on the floor trying to squeeze into tight jeans while squinting. At the moment of the beep, she was somehow paying attention to both the pulling up and the squinting. Although we were not successful in ascertaining exactly what about the pulling up was experienced, she did seen confident about this: that she was paying attention to the pulling up; that she was also paying attention to the squinting, and that the pulling up attention was somewhat more prominent in her experience than the squinting (perhaps 60% and 40%, respectively).

In this sample, Jewel only had sensations in her experience. In other moments, she had some other experiences, but these lacked the complexity of her moments of experience on her seventh sampling day. For example:

> Sample 8.5: Jewel and her friend Noah had pulled over because his car had overheated. They were standing outside the car. Noah was telling a joke about his car being hoopdy (a slang word meaning kick-ass). The beep occurred in the middle of Noah's telling of his joke. At the moment of the beep, Jewel was looking at Noah eye-to-eye and listening to him.

Jewel was just looking and listening in this sample, without any other phenomena in her experience. Another example of simple experiences of paying attention to sensations and just doing was observed in sample 8.4.

Sample 8.4: At the moment of the beep, she was hearing the loud music of E-40 rapping (about 70% of her experience). Also, in rhythm with the music, she was wildly shaking her head/hair so that the people in the car's back seat would see the hair braids fly about (about 20% of her experience). She was also feeling a pain in her neck moving up towards her head that was the beginning of a headache (about 10% of her experience). Her eyes were closed and this was the smallest aspect in her experience.

In this sample, Jewel had four separate experiences that were sensations (i.e., hearing, feeling pain, and eyes closed) and just doing (i.e., shaking her hair/head). Like other days when her mood was down, her experience in this moment lacked clarity. For example, we were not sure if she was hearing loud music or if she was hearing E40 rapping that was playing loudly. Jewel appeared to become more engaged during the discussion of this beep.

Jewel also had a moment where there was nothing in her experience in sample 8.3.

Sample 8.3: At the moment of the beep, Jewel was walking out the door with her hand on the door to close it. This was happening on autopilot; she was not paying attention to it. As best she could ascertain, there was nothing ongoing in her experience. Her explanation was that she had just finished saying bye to her brother but had not yet created the experience that would follow that.

This experience of nothing was similar to other moments of nothing in her inner experience on her third and fourth sampling days when her mood was down.

Jewel appeared to be surprisingly believable on her second day of sampling. This believable ability to observe and describe her experience right at the moment of the beep was also seen on her first day of sampling. However, Jewel's level of clarity of experience varied greatly across days, suggesting she lacked a stable locus of experience. Her samples on the second day of sampling were complex and involved creative inner seeings. Then, on her third, fifth, and eighth day of sampling Jewel's mood was more down than on her first, second, fourth and seventh sampling days. This shift in mood was accompanied by a shift in her experience. Specifically, her inner experience included nothing in inner experience or focused primarily or exclusively on sensations instead of complex, multiple inner experiences. Her reports of experience were generally less believable and seemed confusing or unconvincing when her mood was down. Her sixth day of sampling did not fit with this pattern because her mood vacillated between down and animated and her experiences were complex and described with high fidelity. It appeared that she was not clear about her experience at the beeps on her third, fifth, and eighth sampling days, and this was not because of she did not know how to be clear given that she did have clear experiences on her second and seventh days of sampling when her mood was up, and on her sixth day of sampling when her mood was variable. On the days when her mood was down, she may have not been able to have clear inner experience, or she may have had more difficulty accessing her inner experience. Furthermore, she did not have any experiences of inner seeing on her third, fifth, and eighth sampling days. Other salient characteristics of Jewel's experiences will be discussed next beginning with inner seeing.

Sensory Awareness

Jewel had some experiences of sensory awareness throughout sampling. Sensory awareness was in fourteen (33%) of her 43 moments of experience. Half of these moments of sensory awareness involved focusing on visual aspects of her experience. For example:

> Sample 2.1: Jewel was stopped at a red light while riding her moped. At the moment of the beep she was focused on the alluring and strange/unusual blue color of the sky. She was also asking herself aloud "Why in the hell is the sky blue?" This speech was occurring on autopilot as she was focusing on the color of the sky.
>
> Sample 8.6: Jewel had been sitting in the backseat of the car and looking out the window to her right. At the moment of the beep she was noticing the blue horizontal panels of the house. She was seeing the entire house, but she was focused on the panels just below the roof on the right side of the front of the house. She was particularly noticing the panel-ness of the house. We understood "panel" to mean aluminum siding, but her description was of the panels that were wider than typical aluminum siding.

In both samples 2.1 and 8.6, Jewel was focused on the blueness of the sky and house panels, respectively. In sample 8.6, in addition to the color, she was also noticing the panel-ness of the house.

Jewel had sensory awarenesses in other sensory modalities. In sample 5.1, discussed earlier, she was focused on the pain on the top of her head from the blow dryer's heat. In sample 5.3, she was focusing on the cracking-ness of her voice. In sample 5.7, Jewel had just picked up a full trash bag to take it out. At the moment of the beep she

was smelling the sour/salty nasty smell of the trash. This smell filled up her nose cavity and she felt it inside her nose. Jewel also tasted the sour/salty nasty smell on her tongue. In this sample, Jewel was focused on an aspect of the trash's smell. The smell was hyperclear, as she could taste the smell and feel it in her nose.

Jewel also had unusual sensory awareness experiences like in sample 2.4 discussed earlier where she experiences multiple sensory awarenesses in her toe, knee, and ears that were all discreet sensations in the same body. Another unusual sensory awareness was in sample 4.6.

> Sample 4.6: Jewel had called her apartment office about a package and the handsome David had answered the phone. At the moment of the beep Jewel was listening to Drew. She was wrapped up in David. Jewel was feeling the muscles in her cheek smiling. She also felt a physical movement/breeze inside her head between her brain and her head. This was a soft and yet strong mellow airy/breezy sensation in the outer layer of her brain.

Having a sensation of movement between the brain and head is unusual because this is a sensation that does not occur in reality.

Jewel also attempted to alter her sensory awarenesses like in samples 5.2, and 5.3 discussed earlier where she was feeling pain on her head as her hair was combed. She was trying to sing louder to alter her sensory awareness of the pain.

Sensory awareness was the largest percentage of Jewel's inner experience. All of her sensory awareness, with the exception of her sensory awarenesses in sample 2.1 and 2.4, occurred on days when her mood was observed to be down. Half of her sensory awarenesses involved paying attention to visual aspects. Other sensory awarenesses

involved paying attention to sound and smells. Jewel also had some unusual sensory awarenesses and sometimes tried to alter her sensory awarenesses.

Inner Seeing

Jewel had five (12%) experiences involving inner seeing throughout her 43 sampled moments. These occurred on days where her mood was up, and on her sixth sampling day where she had a variable mood and three inner seeings in one day. She had her first report of inner seeing on her first sampling day, which will be discussed because the experiences described were consistent with other sampling days. For example:

> Sample 1.3: Jewel was texting a guy back. At the moment of the beep Jewel was feeling excited/happy about interacting with this guy. This excitement was experienced as a physical sensation of her heart beating fast throughout her entire body and concentrated across her upper chest and shoulders. The beating also had a rhythm resembling the rhythm of Beavis and Butthead's laugh. Jewel was also seeing scenes involving herself and the guy she was texting. She innerly saw a series of scenes (at least three scenes) in rapid succession. She first saw two hands, from the wrists down, holding each other with interlocked fingers and the side of jeans. She saw this image as if she was standing in front of these hands and looking at them—that is, from a perspective that she herself can never take. Although she wasn't sure whose hands they were they represented her holding hands with this guy. Jewel then saw an image of her and the guy standing in the front of Fashion Show Mall looking at the aluminum shade structure. She was seeing the two of them and no other people were present in the image She saw this image as if she was standing behind them across the street from the mall,

seeing herself and the guy from the back. The third image she saw was her shopping for a wedding dress surrounded by dresses and her holding a dress, smiling. She saw her side view and saw this as if she was standing to the right of her seen self. She knew that the dress she was seeing was the wedding dress she owns, which she thinks is ugly, but in this scene it represented her imagined pending wedding to this guy. She was also thinking in general terms, without specific words or ideas, about what she should text him back. This thinking involved the general sense that she should be careful to text something that presented herself well. These seeings were in color. Jewel reported these three experiences (feeling excitement, inner seeings, and texting carefulness) may all have been equally salient in her experience.

In this sample, Jewel had multiple clear inner seeings in rapid succession. Another example of multiple inner seeings seen in rapid succession was in sample 6.1.

Sample 6.1: At the moment of the beep Jewel was innerly seeing a series of inner seeings of herself, clear and detailed (not like line drawings or photos) that were going by extremely rapidly like a flip-book where there were scenes that were seen one after the other in quick succession, each conveying some slightly different or completely different aspect of what she wanted to do. There were many different scenes depicted in the inner seeing. In one series of seeings, she saw herself putting posters of KONY 2012 up on casino walls. She saw this as if from behind herself so she saw her back as she put up the posters. The next series of seeings were of her running from the cops, which she understood to be the consequence of having illegally put posters on the hotel. This was seen from a

rotating 360-degree view as she ran away. Another series of seeings were of her at the computer ordering her KONY 2012 T-shirts. Jewel was also telling her brother about her plan that was a telling of her images to him about the same time she saw them in her head. Her talking to her brother was not part of her experience. The words were coming out of her mouth as if an automatic narration of the scenes she was seeing, but she was wrapped up in her inner seeing.

In this sample, her inner seeings also progressed in chronological order in rapid succession like in sample 1.3.

Jewel had other creative images like in samples 2.5, 4.5, 6.2 and 6.3 discussed earlier. In sample 2.5, Jewel saw multiple worded thoughts including. "You're getting a Bentley soon!" "You're going to get another house." "Oh man! You're mom's going to be so proud." She saw these thoughts in a crude (Jewel called it "8-bit"), bold, and three-dimensional font. The image also had movement because the sentences travelled diagonally in relation to her head. These thoughts raced by at an extremely fast speed, in what seemed to hundreths of a second. She was not sure if the sentences occurred one right after the other or overlapped. The sizes of the letters were bigger for shorter sentences and smaller for longer sentences. Instead of multiple inner seeings of separate worded thoughts (which would be similar to the rapid succession of inner seeings she had in sample 1.3 and 6.1), she saw one image with several worded thoughts zooming past her. In sample 4.5 she innerly saw herself rapping to a crowd of people. This was a highly imaginative seeing because it was impossible in reality. This seeing also lacked fidelity. Instead of seeing individual people, she saw a copy-and-pasted group of people. Samples

6.2 and 6.3 where she was innerly seeing a t-shirt design, and imagining her friends, respectively, were also highly imaginative seeings.

Emotionally Tinged Experiences and Feelings

Jewel had some kind of emotional tinge in her experience or feeling in eight (19%) of her 43 sampled moments. Most of the time, Jewel lacked a coordinated view of feelings, and she was focused on one part or a small number of parts of the feeling. Jewel directly experienced an emotion in one (13%) of these eight moments in sample 6.7.

> Sample 6.7: Jewel had been writing her previous beep's notes on her phone. She had written her notes out twice before and her finger had accidentally touched the wrong button sending her to another page and deleting her notes. She had finished writing her notes for the third time and, again, it was accidentally deleted just before the beep. At the moment of the beep she was feeling frustrated, a bodily sense starting from her chest and bolting up to her head. She was also experiencing some kind of content that might be put into words such as "I don't want to do this again." This content seemed to exist around the outside of her body to inside her. There were no words present but the general notion of not wanting to type her notes again was felt physically. Jewel was also looking at the blank phone screen.

In this sample, Jewel's experience of feeling frustrated was a typical feeling with a physical sensation and a location. However, she had two locations of this frustration – in her body and her head, which is not typical. These two locations were experientially separated and highly compartmentalized.

Jewel had other moments with some emotional tinge that were not directly experiences of emotions. An example of a moment with some emotional tinge was in sample 2.5 when she experienced a positive/excited sensation in her body something like her entire body and more being a giddy/shaken champagne bottle ready to pop/"AH!" This sensation was in her surrounding environment and not in her own body. Jewel could not say if the sensations were an emotion or if this was merely a bodily sensation, or some other experience entirely. It appeared that she was focused on a piece of the emotion – the sensations and not directly experiencing joy or excitement or some other emotion. Moreover, it is unusual for her to have two distinct locations of sensations with one of these locations being outside her own body. Jewel had difficulty clearly describing experiences with some emotional tinge throughout sampling. For example:

> Sample 3.2: Jewel had been looking at herself in the mirror while straightening the front of her hair with a flatiron and seeing her acne under her chin and the lower right side of her cheek. At the moment of the beep she was seeing the goose bumps on her left arm, which because of the straightening was being held directly in front of her eyes. She also felt the goose bumps. Jewel was feeling angry/icky/cringing about her acne. This feeling was experienced as goose bumps in her forearms, which she was seeing and also feeling. Along with seeing the goose bumps, Jewel was also seeing her face, somewhat out of focus because her eyes were aimed at her arm and her face was relatively more distant in the mirror. However, despite the out-of-focusness of her face, the blemishes on her face were seen clearly. Jewel was also feeling the heat from the flat iron on her forehead.

In this sample, Jewel did not directly experience feeling angry/icky/cringing. Instead, her experience of angry/icky/cringing-ness was in the goose bumps themselves.

Another example of a partially experienced or unclear emotion was seen in sample 4.6, discussed earlier, where she was on the phone with Derek and smiling. In this sample, Jewel felt her cheek muscles smiling and felt a breeze in her head, but these sensations did not fully become an experience of an emotion. Jewel lacked coordination between the sensations in her check muscles and in her head, and feeling happy in this moment, and thus did not directly experience feeling happy. Instead her feeling happy was merely in the sensations themselves. The breeze in her head sensation is another unusual experience of emotion because feeling a breeze in one's head is an impossible phenomenon.

Jewel appeared to have difficulty with the experience of emotions. She may have had only one sample where she directly experienced an emotion. In general, she experienced pieces of an emotion (e.g., bodily sensations) that she labeled as an emotion. She also had samples where she experienced pieces of an emotion without being labeled an emotion.

Discussion

Jewel's experience varied in its clarity, coherence, and complexity across sampling days. Her variability of sampling, ranging from nothing in experience to hyper-clear experiences, was her most salient characteristic suggesting she lacks a stable locus of experience. She appeared to have a high skill level with the DES task from her believable reports of inner experience on her second day of sampling, indicating that she was good at the DES task sometimes. This believability was also seen in her seventh

sampling day when her mood was observed to be up. During these days, her samples included multiple experiences, complex experiences, and vivid inner seeings. Jewel had five (12%) samples with inner seeings that were extremely creative. Some samples involved high-fidelity images, and other samples involved low fidelity images. Some inner seeings also involved a rapid succession of several seeings. Three of these inner seeings occurred on her sixth sampling day. She needed much validation on this day, perhaps because the nature of these inner seeings seemed to disturb her because they seemed impossible or made her seem "crazy."

Then, on her third, fifth, and eighth sampling days, she appeared to struggle with observing and describing her experiences with high fidelity. On these days, her mood appeared to be down, and her experiences involved nothing or primarily sensations. Her fifth and eighth sampling days included the majority (nine of fourteen total samples) of her sensory awarenesses. These experiences involved a variety of sensory modalities including: visual, auditory, tactile, and olfactory. Visual sensory awarenesses were most compelling and frequently occurring. Jewel also experienced unususal sensory awarenesses and sometimes actively attempted to alter her sensory awarenesses.

On the fourth sampling day, her mood appeared to be somewhere in the middle of the two observed extremes, and her experiences included nothing in experience, sensations, and one degraded inner seeing. On her sixth sampling day, she appeared to be down coming into the sampling interview, but her mood vacillated between being down and being animated when discussing experiences in high fidelity. Her experiences on this sampling day included richly detailed images, inner hearing, a quasi-emotional experience, and imageless seeing.

Jewel also had instances of imageless seeing and wordless thinking that involved specific words. It is difficult to know what to make of these experiences. They are generally rare, and we only observed one instance of each in Jewel's samples. We can speculate that they might occupy a type of middle ground of richer but incomplete experience. If Jewel does in fact vacillate between having complex and impoverished periods of inner experiences, these types of incomplete experiences might occur during transitions between those more "extreme" states.

Emotionally tinged experiences and feelings was a less salient feature and occurred across days of varying mood. Jewel may have had approximately eight (19%) experiences with emotional tinge or feeling. The emotionally tinged experiences tended to focus on one aspect of the emotion instead of a fully integrated emotional experience.

Her variability across sampling days appeared to correspond to her mood, with up days being associated with clearer, richer experiences and down days associated with less clear or more rudimentary experiences, such as sensations. The fact that when she had clear inner experience, she was able to convey it convincingly, appears to indicate that the differences in her reports across days was not due to some general difficulty with the task or with describing her experience. Thus her intermittent difficulty describing her experience most likely suggest that at those times, which were typically when she appeared to be down, her inner experience was unclear. Of course, we do not know the directionality of the relationship, if it does exist, between mood and clarity of experience, or whether there is another factor causing both.

CHAPTER 9

IDIOGRAPHIC DESCRIPTION OF TRENT'S EXPERIENCES

Trent is a 56-year old, right-handed Caucasian male who sampled with us from February through May of 2012. Trent met criteria for BD without psychosis as assessed for by the SCID-I (First, Gibbon, Spitzer, & Williams, 1997). He also met criteria for Lifetime Alcohol Dependence, Lifetime Stimulant Dependence, Lifetime Cocaine Dependence, Lifetime Cannabis Abuse, and Substance Induced Panic Disorder with Agoraphobia. At the time of participating in this study, he was taking medications (Wellbutrin and Abilify) prescribed by his psychiatrist to manage his symptoms of BD. He stated his age of onset was 9 for depressive episoe and 16 for manic episode. He has been hospitalized once. He completed 13 years of education and his estimated IQ was in the high average range. He received a Global Severity Index score of 0.56 on the SCL-90-R (Derogatis, Lipman, & Covi, 1973; Derogatis, 1994), suggesting the presence of psychological difficulties. Trent is married and has two step-children; he lives with his wife and their dog. He is a retired sound engineer and does not work because he is on physical disability.

Trent sampled on ten separate sessions, collecting a total of 55 samples. However, samples from the first interview are typically considered training and will not be discussed, and he had one beep that was not discussed because he could not recall the detail of that moment, leaving a total of 50 samples.

Trent appeared to be a motivated participant who tried his best to do the DES task. The first day of sampling is typically considered training because only rarely have participants understood or adequately mastered the task to describe their inner experience

on the first day. Trent's struggles to convey coherent inner experience, however, continued through his final (tenth) day of sampling. He tended to miss the target of experience and deflected to generalities or discussions of topics other than his experience. Moreover, it was often quite difficult to understand what was going on in Trent's inner experience, and even with significant redirection to remain on the task of describing his inner experience, he was unable to clearly describe his inner experience. Trent had many moments of unclear or nonexistent inner experience and some moments of somewhat clear inner experience, particularly if these moments involved inner seeing or sensory awareness. Trent's struggle with clearly describing inner experience was consistent throughout his ten days of sampling and thus was a central theme of our sampling. We will begin by discussing Trent's persistent lack of clarity. Other phenomena (i.e., emotionally tinged experiences/feelings and experiences of thinking/unsymbolized thinking) of inner experience were even less coherent.

Lack of Clarity of Experience

Trent's struggle to clearly describe his inner experience continued throughout his entire sampling process. On Trent's second day of sampling he frequently told us about things other than his experience at the moment of the beep, and subsequently we were only able to cover 4 of his 6 beeps during the hour-long interview. In general, when participants are aimed at the center target of high-fidelity inner experience, other side discussions off the center of the target decrease. For example, this sample reflects the uncertainty about his inner experience at this moment after an extensive interview:

> Sample 2.2: Trent's phone had rung. At the moment of the beep he wondered who was calling him and speculated that it was his friend. This wonder/speculation

involved, or was related to, or perhaps was entirely captured by Trent innerly seeing his rectangular phone screen. He saw the white screen with his friend's name, Peter, in the middle of the list of contact's names on the screen. His friend's name was in black Arial font like it would actually occur on his screen. He also saw black fuzzy lines before and after his friend's name on the screen that were other contact's names on the list, though they were not clear/readable. We were unable to determine if the inner seeing was his entire experience of the wondering or if there was a separate experience of wondering. The inner seeing seemed to be part of his wondering. Trent also mildly dreaded seeing who was calling. As best we could determine, this dread was a flash/jolt of tension/tightness in his neck and shoulder area.

In discussing this moment, Trent required much redirection to stay aimed at the center of his inner experience instead of describing his friendship with Peter or other topics that were tangentially related to his inner experience. He was not able to report with any confidence of how he experienced his wondering. He was also not able to report how this thinking was present, or how the dread was experienced. His difficulty was somewhat understandable on the second day of sampling, but his unclear experiences continued into later sampling days. On his fifth sampling day, Trent shared he had difficulty "drawing the line" between what was in his experience at the moment of the beep and what was before the beep. He also shared he did not use the headphone we advised him to use with the beeper for days 2, 3, 4 and 5; he kept the beeper on his lap or near him instead. We asked him to use a pair of headphones on subsequent sampling

days, and he happily agreed. Trent's inner experience continued to lack clarity. For example:

> Sample 5.2: Trent had found his pen and had decided to put it where it belongs so he does not lose it or think his wife took it again. At the moment of the beep he had a general notion that this pen was the same pen he talked about last week and here he was, coincidentally, putting it away. He also saw the pen on the mouse pad. Trent also reported, later in the interview, that he may have innerly seen the interview room with Chris Heavey sitting in the middle, from his seated perspective. This seeing may have been before the beep, but Trent was not sure.

Beyond the lack of clarity evident in this beep, Trent's experience at this moment was based on the premise that this pen was the same pen discussed in the previous week's sampling meeting, but that premise was incorrect: the pen discussed the previous week was a red pen with a red case, which Trent reported on this sampling day that he had not found. The pen he was discussing in sample 5.2 was a blue pen. Trent was not aware of this discrepancy between his experience and reality. His lack of clear details of this inner experience may have contributed to his inability to notice this discrepancy.

Trent used his headphones to collect his samples for his sixth day of sampling, but he continued to have unclear experience. For example:

> Sample 8.3: Trent was opening an email. At the moment of the beep he was realizing it was from his high school friend, David. A flood of memories came to Trent all at once, but also somewhat extended over time: riding motorcycles with David, playing bass with David, David's sister, and so on. It was hard to say how these appeared: visual? Just recalled? There were many (and they seemed

somehow to come up, but what that meant was not clear). These were good memories, and Trent likened the entire experience to a welling up of emotions, but it was not clear whether any emotion was felt.

In this beep on his eighth sampling day, the content of the individual memories was clear, but his emotions and thinking were not clearly differentiated. Moreover, his lack of focus and multiple experiences appeared to bombard him so that he could not say how many memories were in his experience at this moment. He could not say more than, "many."

Sample 9.5: Cathy's co-worker had stopped by unexpectedly to ask Trent about a guy who was following her and had come to the office where she and Cathy work and asked for the co-worker by name. She had told Trent she discovered the man had a record for assault, mayhem, and rape. Trent had looked up the legal definition of mayhem online and had read it over several times. At the moment of the beep Trent was explaining the definition to her. He was simplifying his explanation so she would understand the gravity of the situation. In addition to somehow seemingly attending to what he was saying and what he was reading about mayhem, Trent may also have been feeling worried/shocked, which may have involved thinking about her not understanding the gravity of the situation/his wife also works in the office/and Trent doesn't want this guy at his wife's office. He also may have thought of the rape, mayhem, assault charge and the loss of limb definition of mayhem. Trent also heard his dog barking.

Trent had difficulty determining what he experienced, perhaps partially because he was in the middle of a conversation and didn't note his experience until some moments later and the woman to whom he was speaking asked him what the beeping sound was. These

multiple, simultaneous thinkings and other experiences were not clear to Trent, and therefore, he could not clearly describe it to us. This sample also illustrated the wandering nature of Trent's descriptions. He started out the discussion of this beep by saying he had finished reading, but then gradually shifted to being convinced that he was simultaneously reading. This shifting nature of Trent's may be the nature of his inner experience, and may be the reason for his difficulty in having clear inner experience.

Trent was still unable to clearly describe his experience on his tenth and final sampling day – well past the number of sampling days it usually takes other participants to be able to convey coherent inner experience.

> Sample 10.4: Trent had fixed the string on his mandolin and was trying to find a really light, thin, nylon pick that would bend and sound the best with his mandolin. He had been choosing picks from a cigar box full of picks he has collected over the years, strumming the mandolin, and then repeating the process until he found the right pick. At the moment of the beep Trent was shuffling through the picks. He was feeling the feel of the picks with his right hand. He also had a sense of his mandolin's set up and how the pick would work with it.

In this sample, feeling the feel of the picks on his hand was a clear experience, but what was not clear was where the beep occurred in his sequence of activities. We understood him to change his position several times on what precisely he was doing when the beep sounded.

After ten sampling days, Trent very rarely described clear inner experience. He struggled to differentiate between what was present at the moment of the beep and what was present before the beep, and appeared to be overwhelmed by the multiplicity and

complexity of his inner experience. However, sensory awareness and inner seeing, when present were generally clear. These experiences will be discussed in the next sections. The fact that Trent was clear when some types of experience were present but not clear in many other instances suggests that his frequent difficulty apprehending his experience reflects an underlying lack of clear experience during those moments.

Trent's persistently unclear experience may be understood several different ways. First, we, the researchers, may have been inept at understanding Trent's experience clearly. Second, Trent may have lacked the language skills to do the task. Third, Trent may have had difficulty with the task. Fourth, Trent's experience itself was fundamentally unclear and therefore difficult to describe. Of these, the fourth choice may be the best understanding for Trent's unclear experience. The first choice is unlikely, because we, as a collective, have sampled with hundreds of individuals and we have been able to understand their experiences. We are skilled at understanding people's inner experience and are not easily confused by what people say unless what they say is confusing. The second and third choices are also unlikely because at some times, Trent was able to have clear descriptions when his experience was clear. The following sections will describe Trent's frequently occurring sensory awarenesses and inner seeings. When he had sensory awarenesses or inner seeings, they were generally clear. Thus, language difficulties or task difficulties were not what make it difficult for Trent, but instead, his unclear experience reflected his experiential difficulties.

Sensory Awareness

Sensory awareness was present in 22 (44%) of Trent's 50 samples. Furthermore, his experiences of sensory awareness were generally clear when compared with his other

moments of experience. Trent generally had more believable and clear moments of sensory awareness than his other moments. However, he also had some moments when even the sensory awareness was not clear. Trent's sensory awarenesses were varied. Fifteen instances (68%) focused on the visual characteristics of something in his external or internal environment, three instances (14%) focused on tactile sensations from his external environment, four instances focused on auditory characteristics of what he was hearing (18%), two instances focused on multiple sensory aspects (auditory and taste; and auditory and visual), and one instance focused on bodily sensations (5%). The following sample provided an example of one of Trent's visual sensory awareness experiences.

> Sample 5.3: Trent's wife, Cathy had just lit a candle and had walked past it. At the moment of the beep, Trent was intently and daydreamily watching the flickering of the flame on the middle wick of the candle. He also saw the oval shaped candle with three wicks and the translucence of the green candle where the light lit through it.

In this example, Trent was focused on the sensory aspects of flickering-ness and translucent green-ness of the candle and was not paying attention anything else. Moreover, compared to the lack of clarity in the majority of his samples, this sample had a clear experience of sensory awareness. The majority of Trent's visual sensory awarenesses were focused on specific colors of objects. For example:

> Sample 8.2: Trent was on his Netbook. At the moment of the beep, he was seeing and advertisement for a red Toyota Rav 4 with mountains in the background and sagebrush and the red Utah-type soil. This was about 70% of his experience. Trent was also imagining himself in the Rav 4 with his canoe strapped to the roof

driving down the windy red dirt road to his property in Utah. This imagining involved seeing out the front of the Rav 4 as he drove down the windy dirt road. Most centrally he saw the front of his canoe (which he always straps to his roof) and the red Utah-type road out in front of him. He also felt himself to be high up in the Rav 4, though he could not describe how this sense of being high up was present in his experience. He may have seen this vague image superimposed on the advertisement on his screen, but he was not confident about how this image was in his experience. There were thus two important reds in this experience—the bright red of the Rav 4 and the Utah-red of the soil/road. He was of the impression that the red of the soil in the actual seeing triggered the seeing of the imaginary road, but this was not in his experience at the moment of the beep.

In Trent's inner seeing he was able to differentiate and be sensorially focused on two different shades of red – the paint-redness of the Rav 4's color and the Utah-redness of the road. He was not paying attention to the meaning or purpose of the car or the road. Both of these examples, seeing the flickeringness, translucent greenness and seeing the two different reds, are straightforward instances of visual sensory awareness. Furthermore, these examples support the understanding that Trent was able to be clear when his experience was clear.

Trent also had three instances involving tactile sensory awareness. However, these varied in clarity. In the first of these three examples (Sample 4.5), Trent was rubbing his Chihuahua's, Mr. Baby, belly with both his hands and feeling the softness of Mr. Baby's fur on his fingers. This was a straightforward example of tactile sensory

awareness and Trent's experience of this was unequivocally clear. The other instances were less definite. For example:

> Sample 7.2: Trent was watching a TV commercial with ukelele music. At the moment of the beep he was feeling the position of his hand finger the D and then E minor chords, which he took to be a sort of fingering along with the chords he heard on the TV. He may have also innerly seeing his hand playing the chords on his ukulele. This image was vague and less clear than feeling the position of his hand. He may have also been innerly hearing/comparing his own imagined playing of the D and E minor chord to the D and E minor chord on TV. The hearing of the two chords on the TV was in his experience, but less central than his feeling the position of his hand. Trent was also wondering if he was right about the chord's being D and E minor, while also thinking he was pretty sure he was right. There also seemed to be a sense of something like pride that he could infer the chords from hearing the music. He could not say more about how these thoughts were in his experience.

In this sample, Trent's experience at this beep was entirely unclear – even his sensory awareness of feeling the position of his hand. It was most likely he was feeling the position of his hand finger the D and E minor chords centrally, and in the periphery we were less confident that he may have been seeing his hand playing the chords, he may have been hearing the chords, he may have been wondering, and he may have been feeling proud, or some of these experiences, none of these experiences, or all of these experiences. This fingering position-ness of his hand was less clear than the previously discussed examples of sensory awarenesses. These samples demonstrated the lack of

clarity in his experience despite other experiences involving sensory awareness being clear.

Two of Trent's samples that included sensory awareness involved focusing on auditory aspects of the experience. Sample 7.3 was an example of a generally straightforward auditory sensory awareness.

> Sample 7.3: At the moment of the beep, Trent was looking for the TV remote to turn down the volume. He was hearing the loudness of the volume and also maybe the thud, thud thud (about 1 thud per second) low rap base texture of the sound. His hearing might have had some tone of annoyance to it. He may have also been thinking something about the damn commercial people put that sound in there to have people pay attention to their commercial. [It turned out that he was looking for the wrong (old) TV remote; the remote that he could actually use was there in front of him.]

Trent's focus on the loudness and low rap base texture of the sound was generally clear, but it was muddled by his lack of clarity regarding the emotional experience that may have also been present at this moment.

Trent's second instance (Sample 8.6) of auditory sensory awareness was somewhat different than sample 7.3.

> Sample 8.6: Trent was playing his guitar that was hooked up to an amp that his friend had just built for him. At the moment of the beep, he was listening to the tone/ringy/chimy/texture/pureness sound of the augmented D chord that he was playing. This was about 60% of his experience. He was also listening to the sound for what it conveyed about the amp and the extent to which the new amp

produced a different sound from his other amp, which was about 40% of his experience.

Trent was more than just focused on the tone/ringy/chimy/texture/pureness of the augmented D chord. He was additionally doing some analysis of this sound. Trent appeared to be aiming his sensory awareness and actively manipulating the experience toward the other amp. This phenomenon was what we describe as the doing of sensory awareness – the sensory awareness was not occurring naturally, rather, Trent was manipulating his sensory awareness.

Another instance of sensory awareness included two separate experiences of sensory awareness, and was referred to as a multiple awareness. A multiple awareness consists of two or more separate and mostly unrelated ongoing processes occurring simultaneously (Hurlburt & Heavey, 1999).

Sample 10.5: Trent was watching TV. He was watching American Chopper and the men were in Malaysia. At the moment of the beep, he was hearing the computer guy yelling, "Monkey! Monkey! Monkey!" and watching the monkeys jumping into their boat as the men threw bananas at the monkeys. The hearing was about 60% of his experience and the seeing was about 40%. He may have also been enjoying the humor of the scene.

In this example, Trent was focused on two distinct sensory awarenesses – the hearing and the seeing – that were tied together by the commonality of the television as the stimulus of these experiences. Other multiple awarenesses were more distinct from each other, like in Sample 10.3.

> Sample 10.3: Trent was thirsty. At the moment of the beep, he was innerly seeing five iced teas that [his wife,] Cathy had made them in jars with a screw-on top and placed them on the top shelf of on the refrigerator door. He was also innerly hearing the pop-hiss sound of opening the homemade ice-tea jars. Trent was also tasting a metallic taste in his mouth, which he understood as him being thirsty. Trent also had some sense that he has to go make some ice-tea because he already drank the ones Cathy had made. Thus there were four simultaneous ongoing experiential aspects: innerly seeing tea, innerly hearing hiss, tasting metallic, thinking make tea.

Trent was sensorially focused on both the pop-hissingness of the opening of the jar and the metallic taste in his mouth. These were two simultaneously occurring sensory experiences that were not directly related to each other, and the sound was imagined while the taste was real. Trent had one instance of a bodily sensory awareness in Sample 6.3 where he was in the process of standing up. The sharp pain in his knees seemed to generally be the most central experience in his awareness at this moment.

Trent was generally more clear when describing his moments of sensory awareness than his other moments; however, consistent with his more common unclear moments of inner experience, he also had some moments when even the sensory awareness was not clear. This variable clarity supports the understanding that Trent had the ability to clearly describe clear sensory awareness when his sensory awareness was clear, but when his sensory awareness was unclear, his description was unclear.

Inner Seeing

Trent experienced inner seeing at least once each sampling day except his last one. In total, he reported inner seeing in 16 (32%) of his 50 samples. Trent appeared to be confident about his inner seeings and his reports of inner seeing were as frequently clear as his moments of sensory awareness – that is, they were generally clear, but sometimes unclear. Trent's inner seeings were often of past memories.

In Sample 2.2 his inner seeing of his friend's name on his phone screen was fairly believable, and he could distinguish between seeing 'Peter' written clearly, and the other names which were only visible as black fuzzy lines. Another example of fairly clear inner seeing on his second day of sampling was in Sample 2.4.

> Sample 2.4: Trent was sitting on the couch. At the moment of the beep, he was imagining himself driving a big truck for Pacific Bell, the phone company where he used to work. He innerly saw the windshield and big army-green hood of the truck. This was seen as if he was driving the truck. He did not see the gear shifter to his right side and the steering wheel in front of him, but he knew them to be there. As best he could tell, this was a realistic seeing of a type of truck owned by Pacific Bell, but not a truck he used to drive. The ones he drove were white. In retrospect, it was surprising to Trent that he would imagine the green truck rather than the white one—he had never actually driven the green (older) kind of truck.

Trent was clear about this experience of inner seeing to a greater degree than in Sample 2.2. He was able to distinguish what was (e.g., windshield) and was not in his inner seeing (e.g., gear shifter).

Other inner seeings of past memories were found in Sample 3.5 and 6.5. These samples included emotional experiences along with the inner seeing. In contrast to the clear experience of inner seeing, the emotional experiences were vague.

Sample 3.5: Trent was reading a list of NASCAR participants for a race he was going to see this weekend. He had read #29, Kevin Harvick from Bakersfield on a list of NASCAR race participants. At the moment of the beep, he was remembering his last trip to Bakersfield in July. He was innerly seeing a Bakersfield riverbed, seeing the hood of his car as he drove on a bridge. He was looking out the window to his right, seeing the rail of the bridge and the dry riverbed beyond the bridge. He also knew his wife to be in the passenger seat, but he did not see her. This inner seeing had a pleasantness to it or the entire experience was pleasant, but he did not have a separate experience of feeling pleasant apart from the inner seeing.

Sample 6.5: Trent was watching TV. At the moment of the beep, he was watching a 7-year-old kid looking up and waiting to catch the fly baseball as it came down. This watching TV was about 10 % of his experience. The majority of his experience was re-living when he tried to catch a fly ball. In the inner seeing, he was looking up trying to see the ball coming down to catch it. He also saw the deep grass, chain link fence, and people in both stands on either side of the field. [Trent recognized that this dual perspective was impossible in reality, but was confident that it somehow existed in his experience.] Trent was also hoping to catch the ball and there was some sort of anticipation, but it was not clear how this hoping and/or anticipation were in his experience.

Inner seeing also occurred with sensory awareness and vague emotional experiences like in Sample 6.2 where Trent was innerly seeing the ebay thumbnail picture of the TRS part he had purchased, and was focused on the blueness of the pin while he felt self-doubt. Other examples of inner seeing being the clearest experience and any other experiences being unclear occurred in Sample 2.3 and 7.4.

> Sample 2.3: Trent had been watching a TV commercial playing the song, Crazy Little Thing Called Love. He had been trying to figure out who sang that song. At the moment of the beep, Trent was hearing Crazy Little Thing Called Love from the TV. He was also innerly hearing the beginning of the song, *The Log* which was sung by the same artist. Trent was also innerly seeing to his upper left, an album cover with Robert Plant in a white suit holding a microphone to his mouth with his right hand and his left hand extended out. Trent also recognized it was Robert Plant signing the song. This recognition was something like "its Robert Plant" but there were no words that were spoken or heard. Again, similar to beep 2.2, researchers and Trent were unable to say if the inner seeing and inner hearing was his entire experience of the recognition or if there was a separate experience of recognizing it was Robert Plant singing.

In this sample, his inner seeing of Robert Plant was clearest, and the hearing, and experience of thinking were unclear.

> Sample 7.4: Trent was looking for 300 feet of 21-gage microphone cable to purchase online to make ten 25- to 30-feet microphone cables cheaper than $450 dollars for his brother. He had 5 different windows (each window being a different seller for these cables like eBay, Sam Ash, Amazon, etc.) and the

calculator application displayed on two monitors. At the moment of the beep, he was looking at the Amazon window and comparing/calculating prices between Amazon and eBay. Trent was trying to figure out what his maximum bid should be. This figuring out may have included making sure he doesn't bid higher than what he would pay at Amazon, which was $78 including free shipping, subtracting the $15 shipping from his bid on eBay, double checking that the two items were the same gage, outside diameter, material, and double checking the prices. Trent was also innerly seeing the eBay thumbnail that was small like the thumbnail size of a wooden spool with the black cable around it with a piece of plastic at the end that was slightly peeled off on a cement background. He was unable to say with confidence of the end goal of making 10 cables cheaply was in his experience or not.

In this sample, Trent's innerly seeing of the ebay thumbnail of microphone cable was the clearest experience. Trent also had multiple vague thinkings present at this moment, but none of these thinkings rose to the level of clarity as his inner seeing.

Despite Trent's inner seeings being about as clear as sensory awareness, and clearer than other salient characteristics, they never reached a level of clarity reached by typical participants. By the tenth and final day of sampling, he still struggled to convey the experiential details of his inner seeing in some samples.

Sample 10.1: Trent's wife had been away for a week. Before leaving, she made him food and stored it in Tupperware in the refrigerator. Trent had eaten that food throughout the week, but now there was not much left. At the moment of the beep, Trent was innerly seeing the refrigerator with the doors open and the light

on. He was mostly focused on the emptiness of the shelf where all the Tupperware had been. He also saw eggs, cheese, milk, salami, and bread around the empty area. This seeing represented to Trent that there were no more leftovers to eat for dinner and his thinking/wondering what he should have for dinner. Trent may have also been thinking of having hamburgers/what he should do. This thought may have involved several thoughts including: I should have defrosted it last night, can I pull off making the hamburger patties? And Cathy usually hands the patties to me to grill. If this thinking was present at the beep, there were no experienced symbols.

Trent was unable to distinguish if the inner seeing of the emptiness in the refrigerator was a seeing of nothing or not seeing the Tupperware that should have been there. With many other participants it has been possible to reach this level of detail. However, in this sample, we were also trying to discover whether there was any experienced thinking about hamburgers. The discussion of a thought about hamburgers came up late in discussion of the beep so it was questionable to us whether the thought was actually present in experience; in the end we were not able to pin down either the presence or the characteristics of the thought.

Trent's inner seeings were about as clear as his sensory awareness, which was more clear than any of his other sampled moments. However, whereas Trent had some very clear inner seeings and he also had inner seeings that lacked clarity. His overarching difficulty with describing clear experience remained despite some moments of clear inner seeing.

Thus far, the best understanding of Trent's inner experience we achieved was that Trent's experience lacked clarity unless on occasions that he was able to pay attention to just one or a small number of sensory awarenesses or inner seeings. There were other aspects of Trent's inner experience that were consistently unclear, including experiences of thinking/unsymbolized thinking, and emotionally tinged experiences/feelings. These experiences will be discussed in the next sections.

Experience of Thinking/Unsymbolized Thinking

Approximately 24 (48%) of Trent's 50 samples possibly included some experience of thinking. This was as close to a precise count as we could determine, because Trent was rarely sure of whether or not thoughts were present in his inner experience. Despite the frequency with which the experience of thinking was discussed, Trent's experiences of thinking were all unclear in some way. Sometimes, Trent was not sure of the existence of an experience of thinking at the moment of the beep. At other times, his experience of thinking lacked a focus and he had multiple possible experience of thinkings at once. An example of unclear experience of thinking was found in Sample 7.3 that was discussed in the Sensory Awareness section. In that sample, Trent had been looking for the TV remote to change the channel and he may have also been thinking something about the people put that sound in there to have people pay attention to their damn commercial. Trent's auditory sensory awareness was clear, but his experience of thinking about the people who put the sound in the commercial was unclear, and he was unable to say with confidence that this was present at the moment of the beep.

Samples 7.4, 8.4, and 9.1 were examples that included multiple vague experience of thinkings at once. In sample 7.4 discussed above, Trent was trying to figure out what

his maximum bid should be. This figuring out may have included making sure he doesn't bid higher than what he would pay at Amazon, which was $78 including free shipping, subtracting the $15 shipping from his bid on eBay, double checking that the two items were the same gage, outside diameter, material, and double checking the prices. Trent had a general understanding that his inner experience at this moment involved being engaged in comparing prices while taking into consideration shipping and correctness of the product, but he was not confident about which, if any, of the myriad potential thoughts related to this were actually present in his experience.

> Sample 8.4: Trent's wife had told him she wanted the Bose Bluetooth. At the moment of the beep, Trent was thinking lots of thoughts debating on what he should say/saying what he wanted to say in a nice way. Some of these thoughts were that he thought it might be too complicated for her, he doesn't see her using it, it might not be what she needs, he doesn't really care about the difference between a Bluetooth and the phone, and she does need something while driving. These were not distinct, separable thoughts, but also were not merely one thought. The overall theme of the thoughts seemed to have to do with not upsetting his wife.
>
> Sample 9.1: Trent was trying to decide whether or not he should solder the cover to the ground pin on his XLRs (connectors for sound cables). At the moment of the beep, he was simultaneously thinking several things – maybe 4 or 5 (he first reported 7 or 8 thoughts, but after discussing this moment further, he lowered his estimate) related to this decision. These thinkings were semi-distinct from each other. For example, one involved memories of a show he had worked the sound

for many years ago when Debbie Reynolds was performing; there had been an unexplained buzz in the sound system, which was resolved when he by chance moved an XLR connector (on which he had soldered the ground to the cover) off of the metal stage. Included in this, or as a separate thinking he recalled his former boss during the same event yelling at him, "no one ever solders this!"

In this sample, there were several simultaneous thinkings, each reported to have a substantial amount of detail. None of these thinkings were visual as far as Trent could ascertain, but there may have been a hint or trace of seeing an XLR connector, though Trent was not even sure about that. Although the details of Trent's the details regarding his experience of thinking were always nebulous, these samples were an example of multiple experiences of thinkings that were simultaneously nebulous and were not made into a coherent inner experience of thinking. Trent's most clearly apprehended moment of thinking came on day 9.

Sample 9.2: Trent was watching the TV show Friends. At the moment of the beep, Trent was watching Chandler scooping and angrily slapping mashed potatoes on his plate. This was about 20% of his experience. Trent also thought, "Wow (coincidentally), we had mashed potatoes last night." Trent was not sure if there were specific words present or if this thought was heard or spoken. The thought was about 80% of his experience. Trent had a vague sense that there may have been specific words, and that they may have been heard or spoken, but he was not able to determine whether or not that was the case despite struggling with it for several minutes.

Trent reached the clearest idea of an experience of thinking in this sample. However he was still unable to determine other characteristics of the experience of the thinking, if there were any.

Trent had 4 (8%) of 50 samples that may have contained unsymbolized thinking. The following are three examples of unsymbolized thinking, two taken from early on in sampling and the other two toward the end of sampling. For example:

> Sample 4.2: Trent had been watching an ad on National Geographic that showed a time-lapse image of ice forming underwater. At the moment of the beep, he was visually absorbed in seeing the clear column of ice forming in a swirling motion from the water towards the ocean floor with red, pink, and yellow starfish and black sea-urchins moving on the ocean floor. He was not hearing the commercial in his experience, even though there was an ongoing narration. He may have been absorbed in the visual details of this unfolding scene, but we could not determine with confidence whether that was or was not the case. Trent was also thinking about what was causing the ice crystal to form with the notion that perhaps electrolysis was involved being central to this thinking. It was not clear how this thought was present in his experience. There may or may not have been the word, "electrolysis." Trent vacillated between saying the word was there and that there were not words during the interview. This thinking was located in his head.

This may have been a pre-unsymbolized thinking. He may have been experiencing the beginnings of this thought that was not yet fully developed or it may be that Trent's experience of thinking often remains only partially developed or elaborated. Trent had two samples with unsymbolized thinkings in samples 8.1 and10.6.

> Sample 8.1: Trent was texting Johanah. He was typing the letter, 'm' in 'tomorrow' and somehow preparing to type the 'o'. At the moment of the beep, he was watching the word as he typed it out, seeing if it appeared to be spelled correctly, as if he would recognize a misspelled word if it appeared visually wrong. Trent was also wondering how the number pad switches to the keyboard when he flips his phone so the screen was positioned horizontally, wondering whether this was done by a mercury switch. There were no specific words or images associated with this wondering. He was also somewhat concentrating not pressing his finger on the letter too hard and pushing other keys.

This sample was as clear as the experience of unsymbolized thinking got for Trent. In contrast to the previous examples of experiences of thinking, Trent was fairly confident, in sample 8.1, of the experience of a clear thought that was not represented in words, images, or other symbols.

Trent's lack of clarity in experience was apparent in experiences of thinking. His experiences of thoughts were most unclear when there were multiple thoughts bombarding him, and most clear in one sample, sample 8.1, that involved vague unsymbolized thinking that still failed to reach the typical level of clarity of unsymbolized thinking achieved by other participants.

Emotionally Tinged Experiences and Feelings

Twenty-one (42%) of Trent's 50 samples had some kind of emotional tinge or feeling. It was difficult to label these emotionally tinged experiences as feelings because they did not seem to be direct experiences of emotion. They were more unclear, muddled moments with some sort of emotional content that was difficult to disentangle from other

characteristics. Often, these experiences were blurred with thoughts (a thought/feeling) so that the experience was neither a feeling or thought but a combination of both. An example of a thought/feeling was found in Sample 5.5.

> Sample 5.5: Trent had just typed a page address and was waiting for the page to load, but it was not loading correctly. At the moment of the beep, Trent was looking at the whiteness of the screen. He was also wondering something like, What was it doing? Was it me? Was it my computer? Why isn't it doing anything? The wondering was difficult to specify in terms of whether it was one complex thought or a sequence of thoughts or a checklist of possible causes for the delay, etc. There were not specific words present. He was irritated, but again it was difficult to determine if this was a feeling or a thought or some combination thereof, or was a characterization of the multiple jumble of thoughts or something else. Trent was also aware of his wife being in the room and that he was inhibiting the intensity of his reaction because of her presence, which may have been part of his thought process or may have been something separate.

In this sample, the clarity of the sensory awareness of the whiteness of the computer page was in contrast to the unclear aspects of the thought/feeling. It was unclear if the jumble of thoughts was the irritation itself or if it reflected the irritation. Sample 7.1, that was discussed above, where he had a repetitive jumble of thoughts about mailing his wife's social security forms that had an angry/uptight/tense/frustrated-ness to it, or was itself anger/uptightness/tension/frustration provided another example of a thought/feeling. When emotional content and thoughts were present in the same moment, it was difficult for Trent to have a clear experience of feeling(s).

Fifteen (71%) of these twenty-one samples with some emotional content or feeling present contained an experience of a negative emotional content or feeling while seven (33%) entailed a positive emotional content or feeling. The negative emotional content or feelings appeared to be related to Trent's anxiety. Throughout sampling, Trent shared he often felt anxious about leaving his home and doing things like answering phone calls he did not want to answer (Sample 2.2), and doubting himself (Sample 6.2). Generally, his experience of negative emotional components or feelings was more likely to be a bodily experience than his experience of positive emotions. For example:

> Sample 6.2: Trent was buying components for a large job that he was doing with his
>
> brother in California at the end of April. He was on eBay and had been planning to check his purchase history because he was questioning if he had bought the correct part. At the moment of the beep, Trent was wondering if he had bought the female ones like he was supposed to or if he had bought the male one. Trent was innerly seeing the eBay thumbnail picture of the TRS he had purchased on a white background. He saw the blue on the inside of the open end of the TRS but the details that would distinguish male from female TRS were indistinct or not seen. That is, his inner seeing was clear where it could be clear and indistinct or not seen where his knowledge was incomplete. He was focused on the blueness at one end of the pin, perhaps because that was where the crucial (but missing) information regarding male or female was but more likely (based on his nonverbal expressions about the blueness) because he was drawn to the vivid blueness, or both. The things to do were also present to him somehow that he could not say

more about except that it was not a visual experience of seeing or imagining a list, and that the list was not in a typical list format but was a sense of tasks that had to get done in an order. He also felt self-doubt. This was a physical sensation that crept up his shoulder to the back of his neck.

In this sample, Trent's feeling of self-doubt was experienced as a physical sensation with a clear location.

Two of Trent's samples (4.1 and 4.3) entailed a doing of an emotion where Trent deliberately attempted to alter his emotional state. Both samples did not rise to the level of a feeling because they were not direct experiences of emotion, but that may have been Trent's goal in these moments – to avoid directly experiencing emotion because a negative emotion was involved. That is, it was not the emotional content itself, but it may have been that Trent's doing of emotion may have contributed to his lack of clarity of emotions. As a speculation, if he had actively tried to alter his experience of emotions, he may have been trying to avoid paying attention to the experiential details, but we cannot be sure of this.

Sample 4.1: Trent had been looking for his red pen while trying not to look like he was looking for something to avoid his wife noticing he was looking for something and joining his search. Trent had assumed his wife took his pen and misplaced it somewhere. At the moment of the beep, he was innerly seeing the red pen. The pen's case was the same red color as the pen's ink. He saw the pen positioned horizontally with the point facing to his left. Trent was also feeling irritated. He could not say more about his experience of his irritation. There may have also been some sense of his trying to hold back his irritation and trying not

to look like he was looking for the pen so as to avoid starting an argument with his wife and feeling guilty about feeling irritated at his wife in his experience but we could not determine with confidence whether or not these things were in his experience.

Sample 4.3: Trent was about to write a message on Facebook to his friend about his friendship with Skip Spence (the guitarist in Moby Grape). At the moment of the beep, Trent was innerly seeing the last time he saw Skip. Trent saw Skip Spence standing off Highway 17 with his long blond dreadlocks, his right thumb sticking out the hitchhiker's sign and a $2000 blond Rickenbacker 12-string guitar in his left hand. He also saw the redwood trees on the embankment, the off ramp, Santa's Village in the background, and the freeway. Trent was also feeling sad. During the interview Trent's sadness overtook him and he did not want to say more about how the sadness was in his experience at the moment of the beep.

Despite feeling sad, Trent seemed to avoid experiencing his sadness, perhaps making his experience of sadness unclear. It may have been that the alternatives to the doing of his sadness like sitting with the feeling and experiencing all the details that go along with it appeared worse to Trent than having unclear experiences with some emotional tinge to them.

Trent also experienced unclear positive emotionally content or feelings like admiration (sample 3.6) and proud (sample 6.1) that seemed to be related to Trent feeling like he accomplished something.

Sample 3.6: Trent had just cleaned the birdcage. At the moment of the beep, he was looking at the cleaned cage. He was perhaps experiencing some combination

of admiring the cage, admiring himself for having cleaned it, seeing it from his wife's point of view, feeling good having accomplished something, feeling good about doing something without his wife asking him, or thinking the cage looked good. We could not determine with confidence which of these things were in his experience.

Sample 6.1: Trent had clicked on a web link on his big computer (not his Netbook that he usually uses) and the page loaded very rapidly, almost instantly. At the moment of the beep, he was admiring how fast it had loaded. It was difficult to specify his experience of admiring. It seemed to involve some sense of the computer he had built, specifically that he had used a quad-core processor, and maybe that he had put in 8 GB of RAM. There was also some sense of proudness, which may have also included some sense of the components he had used in the computer and that he had done it cheaply. It wasn't clear if this proudness was more of a cognitive process or a feeling or something else.

Trent had frequent moments with emotionally tinged experiences but his experience of feelings was rare. He may have directly experienced an emotion in 3 (14%) of 21 moments with some emotional tinge to them. It was difficult to determine if these experiences with an emotional tinge present at the moment of the beep were feelings because most of the time, these experiences lacked focus. Furthermore, the jumble of thoughts with feelings or Trent actively trying not to experience emotions may have contributed to the lack of clarity of Trent's experiences with some emotional tinge to them.

Discussion

Trent was a motivated participant who worked to capture and report his inner experience. He made several comments that he was learning a lot about himself throughout sampling. For example, he reported that he realized people do not know the details of his inner experience unless he was able to communicate a high fidelity description. Despite this understanding, Trent persistently struggled to describe clear experiences. This struggle with obtaining clear experience throughout all ten sampling days was greater than the struggle other participants typically experience. He struggled to differentiate between what was present at the moment of the beep and what was present before the beep, and often appeared to be overwhelmed by the multiplicity of his inner experience. Trent also had more difficulty than typical participants in following the recommended beeper procedure of using headphones while sampling.

His lack of clarity was especially apparent in his difficulty in describing his experiences of thinking and experiences with an emotional tinge. His experience of thinkings (48%) were vague and it was difficult to be clear of his experiential details. We were often unsure of the existence of an experience of thinking at the moment of the beep, or there were multiple possible experience of thinkings at once. He also had three samples that may have been unsymbolized thinkings, but he was never able to reach a point of clarity of the experiential details of these possible unsymbolized thinkings. Trent's experience of emotionally tinged experiences and feelings (48%) was also mostly unclear. These emotionally tinged experiences were often highly intertwined with thoughts and were negative feelings related to his anxiety. Trent also had a few samples where he actively attempted to alter his emotional state.

Trent's inner experience was fundamentally complex and not clarified along hardly any dimension unless on occasions, he was paying attention to just one or a small number of sensory awarenesses or inner seeings. Sensory awareness occurred frequently (44%) in Trent's experience and was generally clear and believable. Moreover, his visual sensory awarenesses appeared to be more clear than other forms of sensory awareness. Inner Seeing (32%) was also a frequently occurring characteristic and just as clear as sensory awareness, meaning, it was clearer than other moments of inner experience.

Although there was no way to know for certain, Trent's lack of clear inner experience may have contributed to his struggle in providing high fidelity descriptions of his inner experience. He was unclear most of the time, but he was clear sometimes, so it is likely not an inability to be clear or inability to clearly describe his inner experience that contributed to his lack of clarity. His lack of clarity in his reports of inner experience was most likely an accurate reflection of his actual experience.

CHAPTER 10

IDIOGRAPHIC DESCRIPTION OF BRANDON'S EXPERIENCES

Brandon is a 40-year old, right-handed Caucasian male who sampled with us from February to April 2012. Brandon met criteria for BD as assessed by the SCID-I (First, Gibbon, Spitzer & Williams, 1997). He also met criteria for Substance or General Medical Condition Induced Psychosis. He stated his age of onset was 5 for depressive episode, 25 for manic episode, and 15 for hypomanic episode. He has been hospitalized once. He completed 16 years of education and his estimated IQ was in the average range. He received a Global Severity Index score of 0.66 on the SCL-90-R (Derogatis, Lipman, & Covi, 1973; Derogatis, 1994), suggesting the presence of psychological difficulties. He is going through a divorce and has two children, and lives alone. He does not work because he is on mental disability. He worked as an on-call security officer prior to receiving social security disability.

Brandon sampled on nine separate occasions, collecting a total of 48 sampled moments. However, the first day is typically considered training, and these beeps will not be discussed, and two beeps were skipped because of difficulties with the earpiece or not writing down any notes. Thus, we have a total of 40 sampled moments.

Progression of DES Skill

Brandon appeared to be pretty confident, maybe unwarrantedly, in his ability to describe coherent inner experience throughout most of his days of sampling. On the other hand, we struggled to obtain and understand his coherent inner experience throughout much of his sampling. Although the first day of sampling is typically considered training, Brandon's struggle with the task seemed to continue well past the early days of sampling.

Because the difficulty apprehending Brandon's inner experience was longstanding and a central theme of our sampling with Brandon, we will begin by discussing the chronological progression of Brandon's sampling. Although Brandon had difficulty determining what was and was not present in his inner experience on the first day of sampling that was not at all unusual. This difficulty, however, continued throughout at least the first four days. He was never clear about what was in his experience at the moment of the beeps on his second day. For example:

> Sample 2.1: Brandon had been reading online a John Quincy Adams quote about government being ill equipped to handle its people. At the moment of the beep, he was reading the word "government," but it was not clear whether that particular word was experienced or whether he was simply comprehending the meaning of the statement as it unfolded or neither of the above. He also said he had a "nebulous" notion about the immorality and lack of concern for God's will in society, but it was not clear whether that was directly in his experience at the moment of the beep or whether that somehow served as the background or starting point of his experience. If this notion was present at the moment of the beep, it did not have words or images. He also said he was innerly seeing a bust of John Quincy Adams, like an illustration in blue ink, but it was not clear whether he was describing experience that was actually ongoing at the moment of the beep or describing what he recalled at the time of the interview about a drawing in a book.

Brandon had not yet narrowed down the moment of the beep. He could not precisely pinpoint what was present before, at, or after the moment of the beep, or convincingly

distinguish any of those from context. Another example of Brandon's difficulty was observed in sample 2.2.

> Sample 2.2: Brandon was walking on the sidewalk from his car to the building where his art space was located. At the moment of the beep, he was innerly singing the song "rejoice in the Lord always" and was at the moment of the beep on the word "always." However, it was not clear whether he actually experienced his inner singing. Furthermore, he may have been feeling joy that the song conveyed, and if he was experiencing the joy, it was like an inner warmth. However, he may have been confusing the warmth of the actual sun on his body as he walked for the joy experience; or perhaps he was actually experiencing the sun's warmth. Furthermore, Brandon may have also innerly seen God with Jesus at His right hand and the disciples gathered around, the figures themselves being luminous with light coming from the figures that he knew to be Jesus and God. However, we were not confident that this seeing was actually ongoing at the moment of the beep.

Each time the researchers asked what was in his experience at the moment of the beep, Brandon described something that may or may not have been in his experience that he had not mentioned previously. For example, the joy being in his experience came up after only talking about this sample for several minutes; but then by the end of the interview about this sample, he reported the joy was the most central aspect of his experience. The phrase, "he may have" in the sample summary conveys that we were not convinced some experiences were in his experience at the moment of the beep.

Although Brandon was unclear about his experience, he did not seem to be aware of this lack of clarity. Possibly his experience itself was unclear; another possibility could be that Brandon did not yet know what we meant when we asked for his "experience at the moment of the beep."

Brandon's third day of sampling was only minimally more convincing to us in terms of obtaining coherent inner experience. Sample 3.6 was the most convincingly Brandon described his experience up to this point.

> Sample 3.6: Brandon was driving and was seeing a police car driving on the opposite side of the road. At the moment of the beep, Brandon was seeing the police car and was also thinking something like: all I really wanted to be since I was a kid was a police officer. There were no specific words present in this experience, but his description and answers to the interviewers' questions were consistent enough for us to be semi-confident that that thinking had actually been experientially ongoing at the moment of the beep. He may have also been innerly singing along to a song on the radio, "nothing but the blood of Jesus," but we were not confident that that was actually part of experience at the moment of the beep.

In this moment we understood Brandon to be describing a coherent thought and visual experience that we semi-confidently apprehended as being present. We continued to find, however, facets of possible experience that we are unable to pin down (e.g., whether or not he was innerly singing).

The iterative nature of DES interviews is designed to provide unpredictable opportunities to clarify the nature of the DES task. One seemingly important such opportunity occurred on the last beep of the fourth day of sampling:

> Sample 4.7: Brandon was peeing. At the moment of the beep, he was engaged in the task of aiming his stream, watching and hearing the stream hit the middle of the bowl, which was where he was aiming. He may have also been paying attention to a sensation of release of tensions and a wind blowing in from the open window.

Brandon initially reported he was peeing. We had the opportunity through discussion of this beep to indicate to Brandon in a way that we thought was clearer than heretofore that we were interested in anything that was present in his inner experience, including sensations. Prior to that discussion, it had perhaps seemed to Brandon that we were interested only in thoughts, so that if something sensory had occupied his experience, he might have conflated a felt physical experience with something else (as in Sample 2.2 when he may have felt the sun's warmth but interpreted it as religious joy); or created the experience of thinking when some sensory aspect had been present but not judged important enough to report.

Perhaps as a result of the reiteration of the nature of the sampling task during the discussion of sample 4.7, Brandon's descriptions of experience seemed to become more coherent and believable on his fifth day of sampling, and largely (three of four, or maybe four of four) involved sensory aspects.

> Sample 5.1: Brandon was picking out a shirt for the day. At the moment of the beep, he was seeing wooden hangers and a white t-shirt and pink cotton shirt on

two of the hangers. Brandon was also listening to a reading of Acts 6 from his computer. He was hearing the words, "seized him." He was also, but to a lesser extent than the seeing and the hearing, feeling cold in his upper part of his middle finger and hearing an airplane behind his house.

Sample 5.2: Brandon was driving out of his neighborhood. At the moment of the beep, he was focused on the brightness of the cactus thorns in contrast to the dark green barrel cactus in his neighbor's yard. He was also turning the steering wheel with his right hand to make a left turn. This was in his experience. He was also sensing the warmth from the steering wheel on his arm. Brandon was also focused on the words of the song playing on the radio. He was hearing the words from the song and perhaps innerly saying at a very low level of experience, "eternity." He was only hearing the words like they were being sung a cappella (without instrumental accompaniment).

All the samples from day 5 were the most clear and believable experiences up to that point.

On the sixth day of sampling, Brandon appeared somewhat flat and all the samples on day 6 involved an uncertain or ambivalent connection to the sensory; that is, in all this day's samples, Brandon described some sensory aspect of the experience but then denied that he was drawn to or involved with the sensory aspect. Here are examples:

Sample 6.1: Brandon had asked his wife for a pen and he was waiting for it. At the moment of the beep, he was looking at a yellow and red tile on the table top. It was difficult to determine the extent to which the yellow and red tile of the table was present

in his experience. At points he said he was blank, but it seemed perhaps more likely that he was at least somewhat drawn to or interested in the red and yellow colors in the tile.

Sample 6.5: Brandon was walking through the hallway in his house. He was watching the interactive pattern that several flies were flying in, a small moving tight pattern. This was about 90% of his experience, but he denied being drawn to this visually. However, his denial was not convincing. The other 10% of his experience was hearing water dripping.

In sample 6.3, we again discussed the DES task and the center of the inner experience target.

> Sample 6.3: Brandon was still sitting at the table. At the moment of the beep, he was listening to a balloon guy telling a story about being laid off. Brandon was also seeing the balloon guy's colorful outfit and his twisting of the balloons. He was paying attention to the story and perhaps also somewhat involved in the colors of the balloon guy's shirt and balloons, though we could not determine this with confidence.

In his initial description of this experience, Brandon reported that he felt heat in his lower back like a heating pad, but then later he said that "the beep made [him] aware of [the heat]." We continued to discuss this point and provided clarification on the DES task and the inner experience we were interested in is whatever was caught in flight by the beep – not recreated or noticed after the beep.

On the seventh day of sampling, Brandon reported that he had felt terrible/furious/angry for the last 48 hours, including when he collected the seventh-day samples. He acknowledged with slight surprise that although he had thought he was

angry throughout the period, the anger did not appear in any of his six beeps. He described his mental acuity being 20% as sharp due to medication side effects. Nothing in his experience was clear (or perhaps even existent) in the moments on his seventh day of sampling. For example:

> Sample 7.1: Brandon was talking to his parents on iChat. At the moment of the beep, he was answering their question saying something like, "I met some people" without much attention to what he was saying. His eyes may have been pointed at some part of his screen that was not the part of the screen where his parents were, but he was not sure if he was paying attention to the screen or not.

That is, we could not be confident that there was anything in his experience: the answering seemed mostly on autopilot without necessarily being experienced at all.

> Sample 7.2: Brandon was listening to a sermon on the parable of a rich man in Mark 10. At the moment of the beep, he was somehow taking in the whole of the parable. This may have involved some very faint visualizing of the parable. He was simultaneously listening to the sermon and simultaneously somehow considering whether the pastor's interpretation of the parable matched his own. He said he was focused on the rich man's feeling/motivation for his behavior, but it was never clear how or whether this focusing took place.

The previous sample contained two strands: (1) taking the parable in, and (2) comparing interpretations. However, neither of these strands were necessarily experienced at all, and if they were experienced, they were not clear. Perhaps there was a visualization, but perhaps he was simply somehow taking in the parable entirely outside of experience.

Perhaps he was experiencing a comparison, but perhaps he was performing that comparison outside of experience.

Similarly, the following sample also reflected our shared difficulty in reaching clear apprehension of Brandon's experience.

> Sample 7.5: Brandon was reading about spiritual gifts online. At the moment of the beep, he was trying to get all the content which may have included trying to figure out the definitions of several different theories about spiritual gifts. He was also trying to comprehend the content quickly and with a sense of urgency. Brandon could not say more about the experience of quickly and urgency, except that they were different things. As an analogy, he said something like: "understanding quickly" is when you are about to give your CPR class a lecture about defibrillation and you don't have much time left before the class starts and you're reading the instruction manual, trying to get it quickly. "Urgently" is when someone has just had a heart attack, and you're reading the manual trying to figure out how to use the defibrillator."

Thus, Brandon provided a highly intelligent and nuanced explanation of quickly and urgently, but that explanation is not a description of his experience.

Thus we came to a very tentative understanding that Brandon appeared on the sixth sampling day to have understood the concept of the moment of the beep, and/or to have the ability to apprehend experience at the moment of the beep, and/or to have experience at the moment of the beep, but then lost his understanding/ability/experience on the seventh sampling day. The reason for the loss of understanding/ability/experience is unclear but may be related to his mood, but whether his dark mood caused the loss of

understanding/ability/experience or the loss of understanding/ability/experience caused the dark mood is unknown. He may have needed more prompting to remain aimed at the target of coherent experience during certain moods versus other moods or Brandon may have had less or no coherent experience to apprehend at some times.

Brandon appeared to have clearer experience on the eighth and ninth days of sampling. Sample 8.1 was an example of greater clarity and Brandon reported that not much was ongoing in experience overall.

> Sample 8.1: Brandon was in the process of sliding in to sit at his computer. He was trying not to bump the table as he sat down, but this was not in his experience. From his description it seemed that this was somewhat of a tight squeeze for him. At the moment of the beep, he was seeing the top of his computer monitor and a little bit of the screen. [This seeing might have been part of the trying not to bump the table—the monitor would have been the most movable item. But this was not directly in his experience.] He was mostly in "idle mode" and the seeing of the computer monitor was about 5% of his potential experience, meaning about 95% of his experience was "idle mode" or blank.

Although Brandon reported he was mostly in "idle mode," he may not have meant that nothing was in his experience, as we see from his samples on his ninth sampling day.

> Sample 9.3: Brandon was stepping over something to get to his hose. At the moment of the beep, he was hearing the hollow thunking/slapping sound of his sandal flopping against his foot.

Brandon reported not much was going on his inner experience at the moment of this beep, but he was clearly hearing the hollow thunking sound – a clear sensory awareness –

which he discounts as inner experience and says it is nothing. We saw this discounting of experience in sample 9.4 that also was generally clear.

> Sample 9.4: Brandon was asking his dog if he wanted his dinner. At the moment of the beep, he was looking at his kitchen floor tiles. This was about 90% of his experience. The other 10% of his experience was hearing the sound of his dog's nails on the floor and seeing his dog in his peripheral vision to track if his dog was following him for his dinner or not.

Our general understanding of Brandon's descriptions across sampling days was thus that on the first several days (through day 4), Brandon was for whatever reason relatively unwilling or unable to notice or describe sensory aspects of his experience even though the sensory was important for him. This unwillingness/inability largely disappeared during the last half of his sampling. There are at least three possible explanations: (1) his ability to describe his experience improved across sampling; (2) nothing about Brandon changed except that he learned to speak in a way that convinced the investigators; and (3) his experience itself became clearer during the last half of sampling. We think all are live possibilities.

The first possibility (that his descriptive skills improved across sampling) holds that his experiences themselves remained constant across the sampling days, but his ability to apprehend and describe those experiences improved. In particular, he may at the outset have been of the impression that sensory awareness "didn't count," and when he discovered (on the fourth sampling day) that we were indeed interested in sensory aspects, then he became more skillful at apprehending that aspect of his experience.

The second possibility is that his experience remained constant, and his ability to apprehend it remained constant, but his way of talking about it changed across sampling. In particular, the sensory may never have been important to his experience, but he discerned that speaking about sensory things would "satisfy the investigators." He therefore increased his frequency of sensory descriptions and thus became convincing to the investigators.

The third possibility (that his experience itself became clarified or came into existence), perhaps the most controversial, holds that at the outset Brandon had an unwillingness to recognize the sensory when the sensory was in fact important for him. Then at any moment, if some sensory aspect began to arise in his experience, he would literally or figuratively "turn away from" it. If the sensory was indeed prominent, this would result in a turning away from experience in general. When it became evident that we accepted the reports of the sensory, it became less necessary to turn away from it, and experience itself became clearer.

After the discussion of his final sample, Brandon reported he learned to talk about his experience differently (the second possibility), in ways that were more aligned with what he believed we wanted. He described this as involving learning our language, but he said that it did not involve lying or changing his reports to please us. Of these possibilities, we suggested the third possibility seemed most likely. The change in the clarity or existence of Brandon's experience over time was the most striking aspect of his sampling, but there were also a few salient features of his experience that warrant consideration. We discuss those features below.

Religious Components

The most prevalent feature of Brandon's sampled moments was the presence of some religious component. Because of the frequent uncertainty about Brandon's inner experience, we considered this feature broadly across experience, possible experience and activity or behavior. Twenty-one (52%) out of Brandon's 40 samples involved a religious component. Brandon described being a devoted evangelical Christian who attended church, sang on the praise team, and told others about God. The religious components he described included praying, reading a bible verse, listening to a sermon, listening to worship music, singing worship music, and telling others about God. Many of these components were not or at least were not certainly in his experience. Sample 3.3 provided an example of listening to a sermon while simultaneously thinking about his ability to fast as an act of religious devotion.

> Sample 3.3: Brandon had been sitting in his car in the driveway listening to the radio. At the moment of the beep, he was hearing a sermon from the radio about Daniel fasting for 21 days, 3 weeks without eating anything but only drinking water. Brandon was also thinking a complex and difficult to specify variety of things related to Daniel and his fasting. They included things like how the 3 weeks of fasting would affect Daniel physically and anatomically, how it would affect Daniel spiritually, and the reason why Daniel would fast. He also was thinking about how such a fast might affect him himself, and perhaps also people in general.

The religious components in Brandon's experience were often unclear, like in the following sample.

Sample 4.2: Brandon was listening to and enjoying the song, Your Grace is Enough. He was also whistling the melody of the song. At the moment of the beep, it was difficult to determine if hearing the song, his whistling and his singing along with the song were experienced or if they were simply occurring but not in experience.

Religious components were present in 50% to 100% of the moments in the first five sampling days; there were no religious components present in any moment on the ninth sampling day. Eleven (55%) of twenty samples from sampling days 2 through 5 had some religious component versus only four (20%) of twenty samples from sampling days 6 through 9. The decrease in religious components occurred with a simultaneous increase in experiential clarity. Brandon appeared to hold a view of himself as a person who fears God and prays at all times. This view may have conflicted with the goal of gaining experiential clarity. We pressed him about his pristine experience, so as to obtain the best apprehensions of his actual pristine inner experience possible. It was unclear the extent to which were successful in getting him to suspend this view, and did not try to diminish his religious components, though it is suggestive that the frequency of the presence of religious components declined as sampling continued and was absent on days when he reported his inner experience most believably.

Sensory Awareness

Sensory awareness occurred in 15 (38%) of Brandon's samples. Brandon's samples did not contain sensory awareness until his fifth day of sampling – after clarifying the nature of the DES task in sample 4.7, as discussed above. Sensory awareness was in four (20%) of twenty samples from sampling days 2 through 5 versus

twelve (60%) of twenty samples from sampling days 6 through 9. Sample 5.2, was an example of a straightforward experience of sensory awareness where he was visually engrossed in the contrast of a barrel cactus thorns' brightness against the barrel's dark greenness. Another visual sensory awareness occurred in sample 8.5.

> Sample 8.5: Brandon had been picked up by the rental car company. He was talking with the driver about God's message. At the moment of the beep, Brandon was trying to remember the exact wording of the scripture and articulating the message of the scripture (which he could not precisely remember) the best way he could. Although Brandon was talking, conveying his sense of the scripture to his companion, he was not aware of the words he was producing. He may have been feeling joy and frustration (Brandon went back and forth with saying he did not pay attention to these feelings but they were present and that he was paying attention to these feelings at the time but at a low level). Brandon was also paying close attention to the deepness of the lines around the driver's eyes, the darkness of the driver's skin tone, and the brightness of the exterior of the vehicle behind the driver's head.

In this sample Brandon was engrossed by several visual sensory awarenesses simultaneously, including the deepness of the driver's facial lines, the darkness of the skin tone, and the brightness of the vehicle color.

Other examples of sensory awareness included:

> Sample 5.4: Brandon had been driving listening to a sermon on the radio. The speaker had divided the audience into "yes" and "no" responses. At the moment of the beep, he was hearing "no." He was tracking the meaning of the "no" being

no to pridefulness. He was also experiencing patchiness of warmth and cold on his body and car. For example, he was feeling warmth on his left knee and cold on his right arm and warmth in the lower half of his car and cold in the upper half of his car.

In this sample, he experienced the patchiness of warmth and cold.

Sample 6.3: Brandon was still sitting at the table. At the moment of the beep, he was listening to the balloon guy telling a story about being laid off. Brandon was also seeing the balloon guy's colorful outfit and twisting the balloons. He was paying attention to the story and perhaps also somewhat involved in the colors of the balloon guy's shirt and balloons, though we could not determine this with confidence.

Brandon's experience in sample 6.3 was paying attention to the color of the balloon guy's shirt.

The previously discussed examples were samples of clear sensory awareness, but Brandon also had sensory awareness that was not coherent or integrated. An example of partially coherent sensory awareness was observed in sample 6.5.

Sample 6.5: Brandon was walking through the hallway in his house. He was watching the interactive pattern that several flies were flying in, a small moving tight pattern. This was about 90% of his experience. He denied being drawn to this visually, as in sensory awareness, but his denial was not convincing. The other 10% of his experience was hearing water dripping.

Sample 6.5 included multiple partially coherent sensory awarenesses. The lack of coherent sensory awareness in Brandon's sixth day of sampling seems to suggest

Brandon lost his ability to get to coherent sensory awareness that he experienced in his fifth sampling day. Instead of a clear and coherent focus on experience, part of his focus seemed to be aimed at the sensory experience but part of his focus was not on the sensory experience. Another possibility was that there simply was not much going on in these moments, resulting in a lack of clarity in experience.

Sample 7.4 was an example of an unclear bodily sensory awareness.

> Sample 7.4: Brandon was sending a text message to his former field training officer about the shooting in Florida. At the moment of the beep, he was into the creating of more of the thought he wanted to convey and had some sense that part of the thought he had already created was on the screen. It was difficult to determine how or if this creating was present in his experience. He was also feeling a dull but acute pain, the size of a quarter, below his left shoulder blade.

On the ninth day of sampling, Brandon shared his opinion that nothing was happening in moments containing only sensory experiences. He seemed to have the opinion that the sensory experiences he had did not count as an experience. For example:

> Sample 9.1: Brandon was dragging a picture onto his Facebook. At the moment of the beep, Brandon was seeing the road and surrounding farmland in the picture. Seeing the picture, and in particular, being focused on the road, was about 90% of his experience. The other 10% of his experience was seeing the white space around the small picture. He was not aware of the movement of his hand as he dragged the picture.

Brandon stated nothing was going on in his experience after describing this moment. However, he also described seeing the picture with most of his focus on the road. Our

attempts to reflect this apparent contradiction of saying nothing was in his experience while also saying he was seeing something failed to convince Brandon that this was, in fact, experience.

Sense of Agency

Brandon had several moments across his seventh and eighth days of sampling where he lacked a sense of agency in similar types of situations.

> Sample 7.3: At the moment of the beep, Brandon was listening to another sermon and typing a message. These two things were separate in his experience. Brandon had thought of what he was going to write before the beep and at the moment of the beep, he was seeing his thought appear on the screen as his fingers typed. He was "more of an editor" making sure he was typing the thought he wanted to convey correctly.

Brandon's use of the word "editor" seemed to describe that he did not feel himself to be guiding the typing, but rather had the sense that he was observing what was being typed. Another happening of typing example was observed in Sample 8.3.

> Sample 8.3: Brandon was typing the summary for beep 8.2. At the moment of the beep, he was watching the words as they appeared on his computer screen. This was a visual experience and he was seeing the words as they appeared. The words were simply experienced without the simultaneous or concomitant experience of having produced them, and he was encountering them visually for the first time as they appeared on the screen. This was about 90% of his experience. He was also hearing the sound of the wind blowing outside. This was the other 10% of his experience.

Brandon also lacked a sense of agency in other visual experiences. For example:

Sample 7.6: At the moment of the beep, Brandon reported he was "mentally paused." He was also visually tracking the cursor making sure it moves to the correct place to restart the song he had been listening to. He may or may not have been singing in his head. He had written down (just after the beep) he was singing in his head, but during the interview he doubted if it was in his experience at the moment of the beep because the singing was "mindless" and he had also wrote down he was "mentally paused." Brandon was moving the cursor but in his experience, he was merely watching the cursor move to its correct position.

Sample 8.5, discussed previously, involved a lack of agency in conversation. Brandon was talking but his experience was of the words flowing out of him and not of himself being the creator of the words. Words flowing out of his mouth were also observed in sample 6.4.

Sample 6.4: Brandon's daughter had asked him, "Did you see the guinea pig's face?" At the moment of the beep, he was looking at his daughter's face. He may have been particularly focused on his eyes to see the size of her pupils, her eyelid movements, and other features that might help him understand his daughter's question, but his description of this aspect of his experience was not overly convincing as he frequently resorted to general characterizations of how he examines people's faces to understand their intent rather than speaking concretely about this moment. His facial expression of looking into her eyes was also possibly salient in his experience. He may have also been thinking that the question was weird/strange or been feeling baffled or something like that, but he

wasn't sure if that was present in his experience. He was also replying to his daughter by asking, "What's that?" This was the most peripheral aspect of his experience.

His experience was fragmented as he responded to his daughter's question but he experienced the words "What's that?" flowing out of his mouth rather than being the driver of the speaking. Thus there were six moments where Brandon did not experience himself as the creator or driver of his behavior. Although it is difficult to be confident about how unusual this is given the small sizes of the samples involved, lacking a sense of agency appears to be more common in Brandon than most participants.

Other Characteristics of Experience

Brandon had other uncommon experiences during sampling. Sample 4.1 was both unusual and illustrated that Brandon must have access to his own experience, as he was able to recognize he was speaking something different in his head than what he was looking for.

Sample 4.1: Brandon was looking for the verse Matthew 19:9 on a website. At the moment of the beep, he was scrolling down the page, visually scanning it for the verse he wanted and innerly saying, "Matthew 19:19" in his normal tone and volume of voice. (Notice that there is a discrepancy between what he was saying (verse 19) and what he was looking for (verse 9).) This did not feel like a discrepancy at the moment of the beep; that is, he knew what he was looking for, and the fact that he mis-spoke would not have been noticeable but for the beep.

Brandon also had an uncommon visual experience related to a religious component.

Sample 2.4: Brandon had been eating salmon and fish at a Chinese buffet. At the moment of the beep, he was innerly saying The Lord's Prayer. Specifically, he was saying the word, "kingdom" as in "Thy kingdom come" at the beginning of the prayer. We could not discern how the praying was present to him (Spoken? Known?). Brandon said his focus was on the food, inspecting it for blemishes etc. and praying over it while eating. The eating may or may not have been in his experience. However, when posed the challenge of getting at what was present for Brandon at the moment of the beep, Brandon said he was seeing the piece of imitation crab with a luminescent glow to it. The glow was said to be perceptually seen, and was known to be the result of his praying.

It was difficult to say with confidence if the experience of seeing a piece of crab with a glow to it was directly present to Brandon at the beep.

Lastly, Brandon had an uncommon auditory experience in sample 5.3.

Sample 5.3: Brandon had noticed a woman at a buffet he was at. He had been conversing with an internal voice. Both voices in the conversation were identical and were his voice, but one was being produced by Brandon (the spoken voice) and the other voice (the heard voice), Brandon was listening to – meaning he was not producing the other voice (the heard voice). The spoken voice had asked, "Why are you bringing this woman to my attention?" The heard voice replied, "She's pretty" in a matter-of-fact tone. At the moment of the beep, Brandon was innerly replying, "Uh huh" in a bullshit/I'm-not-buying-it tone of voice. This was said in his voice. This conversation was about 95% of his experience. The other 5% of his experience was seeing the blue shirt and the back of the woman's right

arm. He was not focused on the blueness of her shirt; rather he was just seeing her shirt and arm.

These samples occurred on days when researchers observed his mood to be euthymic – mood that was not particularly depressed or manic. It may be that he had more access to coherent experience, even when those experiences were unusual, during periods of euthymic mood, but we could not reach this conclusion definitely. Although, he had only three (6%) unusual experiences throughout sampling, these experiences are rarely reported in sampling.

Discussion

Brandon was a motivated participant who reported the sampling experience had been valuable to him. He described learning about himself and said that he had gained an appreciation for his inner experience. His progression of the DES skill was slower than is typically seen. Furthermore, he was unconvinced by our view that his experience became clearer and his skill in describing coherent experiences increased. He argued that he merely learned to describe his experience in a way that was more aligned with what he believed we wanted; he described having learned more effective ways to talk about his experience with us using a common DES language. This does not strike us as a plausible explanation for the changes we observed as we worked diligently at all points in the sampling to understand what Brandon was saying. In general, Brandon struggled with apprehending coherent inner experience. There was no way to know for sure the reason for his lack of experiential clarity but his struggle may have been related to the lack of clear inner experience available to him. He also may have had easier access to clear inner experience, or in fact had more clear inner experience to apprehend, during certain moods

versus others. For example, on sampling days where we observed his mood to be down, Brandon appeared to have more struggles than on days where we observed his mood to be up.

His sampling was also notable for the prevalence of religious components throughout sampling. He held an unshakable view of himself as a man of God who serves God in all he does each and every day. This view may have conflicted with the goal of describing pristine inner experience. There was a decline of religious facets of experience on days when his experience was clearer. He also seemed to have more sensory awareness on days when his experience was clearer. Although his experience was clearest in moments containing sensory awareness, he also commonly experienced partially coherent sensory awarenesses. Brandon also interpreted sensory awareness as a lack of experience despite our attempts to challenge this view.

Brandon also had several moments of experience in which he did not experience himself to be the creator of his behavior – he was merely a passive observer of what was going on, such as typing that was just happening rather than being guided by him. This lack of agency in behavior is uncommon in sampling participants. Other notable experiences during his sampling involved unusual experiences of perceptual distortion, including seeing a luminescent glow of a piece of crab that was not there in reality, and unusual auditory experiences, including an inner hearing of a conversation between himself and an unknown other. These experiences are not commonly observed in DES participants. Despite the small sample of moments containing these unusual experiences, they all occurred on days when we observed his mood to be down. It may be that his depressed mood made it difficult for him to have coherent experiences, or that having

these unusual experiences causes his mood to become depressed, or neither of these. In any event, it is an aspect of Brandon's experience that may warrant further consideration should it be observed in others.

CHAPTER 11

ACROSS-PARTICIPANT RESULTS AND DISCUSSION

Chapters 7 through 10 presented idiographic descriptions of the inner experience of our four participants separately. This chapter will examine and describe the shared features of inner experience among our participants and explore how these shared features relate to previous research as well as the diagnostic features of BD. Given that these participants were selected because they met criteria for BD, any shared features of inner experience could be related to or indicative of the inner experience of individuals with BD regardless of the apparent relationship of these shared features to the diagnostic features of BD. Given that this study was exploratory and used such a small sample, all speculations and observations are highly tentative.

Looking across all four participants, three major findings stand out. First, of the five most common characteristics of inner experience (Heavey & Hurlburt, 2008), sensory awareness was the most common feature of inner experience for all of these participants. Moreover, their moments of sensory awareness were typically strikingly clear, with sensory awareness the central and often only phenomenon of inner experience present. Second, in sharp contrast to their clear moments of sensory awareness, most of their sampled moments did not contain any clear or coherent inner experience. Despite how striking this lack of clarity was to the interviewers, the participants were largely or entirely unaware of their lack of clear inner experience. Third, despite the centrality of feelings to the diagnosis of BD, all of these participants had few moments when they were experiencing a coherent feeling. They did, however, more frequently experience what we called "emotionally tinged experience" because the moments contained an

emotional aspect despite no clear feeling being experienced directly. This lack of coherent feelings combined with more frequent emotionally tinged experiences suggests something unusual about feelings for these participants. Each of these major findings, along with two other more tentative findings, will now be discussed in greater detail.

Sensory Awareness

Sensory awareness was the most prominent phenomenon of inner experience across all of our participants. Moreover, sensory awareness was generally the most clear feature of their inner experience. This was in stark contrast to most of their other moments of inner experience, which were typically not clear at all.

Katherine, Trent, and Jewel experienced sensory awarenesses from early on during their sampling – on the first or second sampling day. Brandon had his first report of sensory experience on his fourth day of sampling (Hurlburt, 2009, observed that reports of sensory awareness often occur late in the DES process). Katherine experienced sensory awareness in 80% of her sampled moments. Trent experienced sensory awareness in 44% of his sampled moments. Jewel and Brandon experienced sensory awareness in 33% and 38% of their sampled moments, respectively. These frequencies of sensory awareness were all substantially higher than the 22% frequency reported by Heavey and Hurlburt (2008), and were the only phenomenon of inner experience that approached the frequencies of the five commonly experienced phenomena of inner experience of a stratified sample studied by Heavey & Hurlburt (2008).

All participants experienced sensory awareness in various modalities including visual, auditory, and tactile; this is similar to the report by Hurlburt (2009), who observed that individuals who experience sensory awareness frequently do so across modalities.

All the participants also all experienced multiple sensory awarenesses simultaneously. For example, Katherine sometimes had as many as four separate sensory awarenesses at a time.

The frequency of sensory awareness for these participants was consistent with previous DES studies examining the inner experience of individuals with depression (Cavenagh, 2003; Mihelic, 2013; Perlotto, 2001). Participants who were depressed had more frequently occurring sensory awareness than participants who were not depressed (Cavenagh, 2003; Perlotto, 2001). Having more frequent sensory awareness when depressed was especially true for Jewel. She tended to have nothing going on in experience, or sensory awarenesses that involved just paying attention to basic sensations, when her mood was observed to be depressed. Consistent with all our participants' clear experience of sensory awareness, Mihelic (2013) found a high prevalence of sensory awareness, and sensory awareness was the most clear phenomenon of inner experience across her participants with major depressive disorder and BD. Perlotto (2001) also found sensory awareness to be the second most commonly occurring characteristic of inner experience in individuals with depressed mood (49% was the highest frequency).

In contrast to our findings, the diagnostic criteria and extant literature on BD do not include any mention of sensory awareness. This is not surprising given that the phenomenon of sensory awareness is not widely recognized within psychology even though it is robustly replicated in DES studies (Heavey & Hurlburt, 2008; Hurlburt, 2009). It remains to be determined why our BD participants had clear experiences of sensory awareness but few other clear phenomenon of experience. This may shed

substantial experiential light on the BD. It is consistent with the diagnostic criteria of BD, including the diminished ability to think, flight of ideas, and distractibility (APA, 2000). If mental capacity is needed to create experience, then having a diminished mental capacity may affect the experience of individuals with BD. A possibility may be that sensory awareness is a more basic form of experience because it involves focusing on a sensory aspect of the inner or outer environment and thus may require less cognitive integration, energy, or skill to create. Other possibilities for the pattern of clear sensory awareness but little other clear inner experience our participants experienced may be related to serious mental illness broadly, or to some other factor.

Moments of No Clear Inner Experience

Although all four participants were able to describe clear, coherent inner experience at some moments, they all had more commonly occurring moments of no clear inner experience. They all had difficulty capturing clear inner experience more frequently and persistently than typically observed with DES participants. Thus, we often had little confidence regarding the fidelity of our participants' reports of inner experience. Furthermore, all our participants were unaware of their lack of clarity.

All our participants had difficulty sorting out what was and was not in their inner experience. Katherine, Jewel, and Trent tended to have multiple, complex experiences that were not clarified along barely any dimensions unless they were paying attention to one or just a small number of imaginal seeings or sensory awarenesses. Brandon tended to have experiences that he often discounted as inner experience and therefore did not carefully observe, unless he was paying attention to a religious experience or sensory awareness.

Given that each participant was able to articulate some moments of clear inner experience, moments when they were not able to apprehend or articulate coherent experience most likely reflect that there was no experience present at those moments. Other possible, but less likely, explanations for this variability in clarity of inner experience include participants' lack of language skills to describe coherent experience, and investigators' lack of skill at understanding coherent experience. It was unlikely that participants' lack of language skills to describe coherent experience contributed to the lack of clarity because all participants were able to clearly describe and convey their experience at some moments. It was also unlikely the investigators' ineptitude at understanding coherent experience contributed to the participants' unclear experience because the investigators have demonstrated their ability to skillfully do the DES task without being easily confused by what people say, unless what people say is confusing.

Another possibility was that their task difficulty was related to their diagnosis of BD. One diagnostic criterion for a major depressive episode is the diminished ability to think or concentrate (APA, 2000). Additionally, two diagnostic criteria for a manic episode are: (1) flight of ideas or the subjective experience of racing thoughts, and (2) distractibility – attention too easily drawn to unimportant or irrelevant external stimuli. One of these symptoms alone may impact an individual's ability to consistently create or apprehend coherent inner experience, but with BD, the presence or some combination of these symptoms may be likely, and that would make it even more difficult to dependably capture coherent inner experience. Furthermore, if inner experience is something that must be skillfully created out of the welter of experience (Hurlburt, 2011), then

diminished cognitive capacity, such as may be present in BD, may degrade the ability of the person to create inner experience.

The difficulties all our participants experienced in apprehending their inner experience at some moments was consistent with previous DES studies that examined the inner experience of individuals with mood disorders. Hurlburt (1993) found that as participants' depression increased, their inner perceptual clarity decreased and they had more difficulty observing and articulating the characteristics of their experience. We did not quantitatively track depressive symptoms across sampling days, but we did qualitatively note when participants' mood appeared depressed. From these observations we noted that three participants' (Katherine, Jewel, and Brandon) abilities to distinguish what was and was not experienced appeared to be diminished on sampling days when their mood was observed to be depressed.

Hurlburt (1993) also found that one participant who had episodes of hypomania who experienced changes in his inner experience dependent on his mood. For example, his inner seeings changed from being clear, detailed, and colored during a period of hypomania to having abrupt edges and indeterminate visual details during a period of fatigue. Katherine and Jewel also had sampled moments of inner experience that seemed to be dependent on their mood. Katherine had more salient visual sensory awarenesses during sampling days when her mood was observed to be elevated. Her sensory awarenesses were also more differentiated and more likely to be multiple. When her mood was observed to be depressed, her sensory awarenesses were often focused on bodily sensations, were not as compelling, and were less differentiated. Jewel had several moments where she experienced a series of clear inner seeings when her mood was

observed to be elevated. When her mood was observed to be depressed, her inner seeings had a degraded fidelity (e.g. seeing a copy-and-pasted crowd of people in her living room).

None of our participants recognized that their inner experience was unclear in some moments and clear in other moments. For example, Brandon had the most difficulty apprehending clear inner experience but also had the most confidence about his ability to apprehend experience. His experience became clearer across sampling after several re-clarifications were provided to help him become a more skilled observer of his inner experience. Specifically, his reports shifted from religious experiences (which we understood as being only tangentially related to his ongoing experience) in the first half of sampling to sensory awareness in the latter half of sampling (which we understood to be directly related to his experience). At the end of sampling with Brandon, we asked Brandon what he thought aided this shift in his inner experience. Brandon insisted nothing in his inner experience had changed and he merely learned to "speak our language" despite our strong understanding that the clarity of his experience did change over time.

Hurlburt (1993) also found that three of his four participants with disordered mood failed to notice changes in their inner experience during periods of different affect. Hurlburt suggested a possible explanation for this lack of awareness may be that individuals generally take the specific characteristics of their inner experience for granted. Another explanation is related to the fact that a common consequence of BD is lack of insight. The lack of insight into their illness may have contributed to their lack of insight into the characteristics of their inner experience. However, the direction of

causality may be reversed: lack of clarity of experience leads to lack of insight into illness. Lastly, people have nothing to compare their inner experience against because they cannot apprehend other people's inner experience. It is likely that people then assume their own inner experience is just like everyone else's inner experience.

Additional research is needed to determine whether lack of coherent inner experience is a typical characteristic of the inner experience of individuals with BD. For example, the symptoms of BD may make it difficult for an individual to create coherent inner experience. Another example is that individuals at risk for developing BD may be more likely to also have a stable characteristic of difficulty creating coherent inner experience. Furthermore, if the association between lack of clarity of inner experience and BD was established to be reliable, we would still not know the direction of causality, or whether it was related to some other causal factor.

Few Feelings and Lack of Coordination of Emotions

Bipolar disorder is a mood disorder involving the persistent experience of negative and/or expansive affect (APA, 2000). Therefore, one might expect our participants to have frequent feelings – the direct and coherent experience of an emotion; however, feelings occurred very infrequently within our sample. Across all participants, only (approximately) 8 out of 177 total samples included (or may have included) a feeling, as best the participants could report and we could ascertain. For all of the participants, the apprehension of feelings was absent, not clear, or it was entangled with other experiences. Mihelic (2013) also found infrequent and unclear experiences of feelings across her participants with disordered mood (i.e., MDD or BD).

In contrast, our participants had more frequently occurring emotionally tinged experiences – experiences that involved some kind of emotionality, but did not rise to the level of coherent feelings. That is, emotionally tinged experiences only have a piece or hint of emotionality (e.g. sensation) but are not coherently or directly experienced as an emotion. Emotionally tinged experiences occurred in 46 (26%) moments out of 177 total sampled moments. This percentage was about as frequently as feelings are expected in typical DES studies (Heavey & Hurlburt, 2008). Two participants, Katherine and Trent, experienced a thought/feeling in several moments. They were unable to disentangle the emotional and cognitive aspects of their experience, and instead experienced a thought/feeling. Other participants of previous DES studies have been able to distinguish between the emotional and cognitive aspects of their experience and have coherent experiences of a feeling.

Difficulty with emotions was also sometimes related to difficulty creating coherent emotions. Katherine, Jewel, and Brandon lacked coordination of their emotions. Katherine and Jewel had several moments that appeared to be emotional; however, they were focused on one piece of emotionality (e.g., bodily sensation) and they did not coordinate the bodily sensation into a coherent emotional experience. Brandon's lack of coordination of emotions made it difficult for him to distinguish if he was or was not experiencing a feeling at the moment of the beep.

Trent also had moments that involved a doing of an emotion where the beep occurred while he was in the act of deliberately trying to alter his emotional state to avoid directly experiencing sadness. Although Trent was the only participant who experienced

a doing of an emotion, it was noteworthy that an individual whose diagnosis involves disordered feelings deliberately tried to alter his feelings.

The finding in this study regarding the lack of coherence of feelings was consistent with previous DES studies conducted with participants with mood disorders. Hurlburt (1993) found that individuals with mood disorders often experienced emotional processes outside awareness. The individuals had a difficult time observing and describing the characteristics of their emotional experience. For example, an individual might have been happy, and their bodies would be expressing their happiness, but their awareness at the moment of the beep did not include the coherent experience of feeling happiness. Hurlburt (1993) also found that participants with depression had few occurrences of feelings. This was consistent with the low frequency of feelings among the participants in this study. These findings provide support for the notion that feelings are difficult for people who are supposed to have disordered feelings.

Only one participant, Trent, had feelings of self-doubt. The other participants, Katherine, Jewel, and Brandon did not experience any feelings of worthlessness or guilt in any of their sampled moments; they experienced a range of feelings like joy, excitement, frustration, and anger. Trent and Katherine also had a small number of moments with sadness present in some way. These findings are important to the BD literature because the hallmark symptom of depression is the experience of negative affect for most of the day, nearly every day, and the hallmark symptom of hypomania or mania is the experience of expansive affect (APA, 2000). None of our participants experienced emotions even close to this frequency. It was possible that the low incidence of feeling was a result of our participants having less coordinated experiences in their

inner experience overall. Additional research is needed to examine the frequency and characteristics of feelings of individuals diagnosed with BD, particularly because of the importance of feelings in the diagnostic criteria.

Inner Seeing

Inner seeing was the only other prominent type of clear experience that all our participants had, but the frequency of inner seeing was at a much lower frequency than sensory awareness for all our participants except Trent. Moreover, the frequency of inner seeing was at a much lower frequency than is expected in typical DES studies (Heavey & Hurlburt, 2008). Our participants also experienced inner seeings at a much lower frequency than in previous studies of individuals with mood disorders (Cavenagh, 2003; Hurlburt, 1993; Perlotto, 2001).

Trent had the highest frequency of inner seeing (32%). The other participants had experiences of inner seeing much less frequently. Jewel had inner seeing in 12% of her sampled moments, while 9% of Katherine's and 3% of Brandon's sampled moments included inner seeing. Despite this variability in frequency, when inner seeing was present, it was clear for all four participants.

The diagnostic criteria and extant literature on BD also lack discussion of inner seeing features. Inner seeing was not a frequently occurring characteristic of inner experience for our participants, except for Trent. Similar to clear experiences of sensory awareness discussed previously, it is unclear why three of our participants had a low frequency of experiences of inner seeing. We suggested that clear experience of sensory awareness may be related to diminished thinking ability in individuals with BD because sensory awareness may be a more basic form of experience involving less cognitive skill

to create. Clear experience of inner seeing is likely to involve greater cognitive energy or skill to create, so having diminished cognitive abilities may contribute to the low frequency of inner experience in three of our participants with BD. The low frequency of clear inner seeing may also be broadly related to serious mental illness or some other factor.

Perceptual Distortions

Two participants, Katherine and Brandon, had perceptual distortions, or experiences that were perceptual distortions of reality that were unusual because they rarely occur in sampling with typical DES participants. Katherine had perceptual distortions in 16% of her sampled moments and Brandon had perceptual distortions in 8% of his sampled moments. These perceptual distortions were not frequently occurring, but any occurrence of these kinds of experiences was noteworthy because they are rare experiences in DES studies with individuals without a diagnosis of a serious mental illness.

Katherine had perceptual distortions across various sensory modalities. Her perceptual distortions involved hearing, seeing, or feeling things that were not actually there. For example, she heard rain instead of hearing the sound of dripping blood from the TV. Brandon also heard and saw things that were not there in reality. For example, he saw a luminescent glow on piece of salmon he was about to eat. He also had an experience where there was a discrepancy between his inner experience and his outward behavior where he was saying, "Matthew 19:19", but looking for Matthew chapter 19 verse 9, not verse 19.

It is unknown if Katherine or Brandon had a history of experiencing psychosis. These perceptual distortions may be a type of mini-psychosis experience. Moreover, these perceptual distortions may be related to having a looser grip on reality or some increased fluidity between reality and imaginary experiences. Additional research is needed to explore whether having creative inner experiences is a typical characteristic of the inner experience of individuals with BD, or if it is typical of the inner experience of individuals with other serious mental illnesses. For example, it may be that these are characteristics of the inner experience of individuals who are at risk for developing BD with psychotic features or schizophrenia. If the association between perceptual distortions and BD were established to be reliable, the direction of causality would still be unknown, or whether some other causal factor was involved.

Limitations and Suggestions for Future Research

The present study had a number of limitations. One limitation was the small sample size. DES studies with large sample sizes are difficult to obtain given the very time and labor intensive nature of the procedure. Drs. Heavey and Hurlburt, and I spent approximately 10 direct hours with each participant during the sampling phase, and an additional 10-15 indirect hours per participant in writing beep descriptions and understanding the nature of his or her inner experience. For almost all the interviews, we had three DES researchers present to maximize fidelity to the DES task and minimize the possibility of biases distorting the participants' inner experiences. The participants also contributed at least 40 hours of their time including wearing the beeper and collecting samples, and coming in on an approximately weekly basis to complete expositional interviews.

Another limitation of the study is that variables that may have impacted our participants' experiences were not controlled. For example, many of our participants take daily medications to manage their symptoms of BD and/or other problems. We did not explicitly ask about our participants' medication status. The medication information mentioned in the individual chapters were obtained from what participants reported throughout sampling. Thus, we cannot say how or if medication side effects may have contributed to our results. Understanding the impact of those medications on our participants' inner experience was beyond the scope of this study. Relatedly, our participants may have been using other drugs (e.g., alcohol) during the sampling process that may have impacted their inner experience. There is a dearth of research exploring the impact, if any, of medications and other substances on a person's inner experience.

The findings of the current study indicate that future research employing DES to explore the experience of individuals with BD might increase our understanding of the nature of inner experience and BD. Future research might address the limitations of this study discussed above, including using a larger sample size. Future research may also want to measure participants' moods on individual sampling days, and examine the inner experience of individuals with BD during specific mood episodes (e.g., major depressive episode, manic episode), and when they are not experiencing dysfunctional mood episodes (i.e., euthymic). Lastly, future research may focus on clarifying and, if confirmed, understanding, the discrepancy between diagnostic criteria of BD and characteristics of inner experience of individuals with BD observed in this study.

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EDUCATION

Ph.D. in Clinical Psychology — Expected July 2014
University of Nevada, Las Vegas (UNLV)
Las Vegas, Nevada
Advisor: Christopher L. Heavey, Ph.D.
Dissertation title: "Exploring the inner experience of individuals with bipolar disorder."

M.A. in Clinical Psychology — December 2013
University of Nevada, Las Vegas (UNLV)
Las Vegas, Nevada
Advisor: Christopher L. Heavey, Ph.D.
Thesis title: "Exploring the inner experience of four individuals with bipolar disorder using Descriptive Experience Sampling."

B.A. in Psychology, Minor in Biology — May 2008

University of Nevada, Las Vegas (UNLV), Graduated Summa Cum Laude with Honors
Las Vegas, Nevada
Advisor: Christopher L. Heavey, Ph.D.
Honors Thesis title: "The relationship of alexithymia to the capture and description of inner experience."

PREDOCTORAL CLINICAL TRAINING

Cleveland Clinic, Lou Ruvo Center for Brain Health — June 2013–Present
Las Vegas, NV — Supervisor: Sarah Banks, Ph.D.
Doctoral Practicum Student: Conducted neuropsychological assessments with elderly adults ranging in age from 75 to 84 in an outpatient medical clinic setting using a flexible neuropsychological assessment battery. Responsibilities also included test selection, scoring, interpretation, assisting in clinical interviews, and

report writing. Co-facilitated a weekly support group with caregivers of individuals with memory problems. Co-facilitated a monthly Huntington's disease caregiver and gene-positive support group. Contributed to weekly grand rounds with neurology, physical therapy, and/or social work. Commonly presented patient diagnoses included neurodegenerative disorders, such as Alzheimer's Disease, Frontotemporal Dementia, Lewy Body Disease, Multiple Sclerosis, and Parkinson's Disease. Supervision consisted of weekly individual and group meetings with neuropsychologists from various Cleveland Clinic locations.

Disability Resource Center (DRC) June 2012–October 2013
University of Nevada, Las Vegas Supervisor: Michelle Paul, Ph.D.

Graduate Assistant: Conducted psychoeducational assessments for UNLV students ranging in age from 18 to 65, with suspected learning disabilities, seeking disability accommodations through the university's disability resource center. A standard but flexible psychoeducational/psychological assessment battery was used. Responsibilities also included test selection, clinical interviewing, scoring, interpretation, report writing, consultation, and providing feedback. Provided weekly consultation to disability specialists to review documentation for requests of academic accommodations. Designed lectures for presentations on psychological assessment, ADHD, and learning disabilities for the disability specialists. Commonly presented client diagnoses included learning disabilities, ADHD, affective disorders, anxiety disorders, pervasive developmental disorders, and personality disorders. Supervision consisted of weekly individual meetings.

Center for Applied Neuroscience June 2011–Present
Las Vegas, NV Supervisor: Sharon Jones-Forrester, Ph.D.

Doctoral Practicum Student: Conducted neuropsychological assessments with children, adolescents, adults, and elderly adults ranging in age from 6 to 75 in an outpatient setting using a flexible neuropsychological assessment battery. Cases were typically psychiatric and medical cases with referral sources generally including neurologists, psychiatrists, and psychologists. Responsibilities also included test selection, scoring, interpretation, assisting in clinical interviews, and report writing. Trained neuropsychological testing technician and practicum students on test administration and scoring. Commonly presented patient diagnoses included acquired neurological disorders including stroke, combat-related TBI, and post-concussive disorder, comorbid PTSD, affective disorders, substance abuse, somatic symptom disorders, prenatal substance exposure, pervasive developmental disorders, ADHD, and learning disabilities. Supervision consisted of weekly individual meetings, in vivo co-assessment, and group meetings, which included didactic seminars and clinical case conferences. Didactic seminars included topics such as PTSD in veterans, TBI, and assessment of validity.

Silver Ridge Healthcare Center January 2012–May 2012
Las Vegas, NV Supervisor: Sharon Jones-Forrester, Ph.D.

Doctoral Practicum Student: Conducted neuropsychological assessments with adults ranging in age from 20 to 91 in an inpatient rehabilitation facility using a flexible neuropsychological assessment battery. Responsibilities also included test scoring, and co-leading individual therapy. Commonly presented patient diagnoses included neurodegenerative disorders including dementia and movement disorders, acquired neurological disorders including stroke and TBI, and affective disorders. Supervision consisted of weekly individual meetings and frequent in vivo co-assessment.

Rawson Neal State Psychiatric Inpatient Hospital June 2011–August 2012
Las Vegas, NV Supervisors: Jamie Lee, Psy.D., Paula Squitieri, Ph.D., Dean Nelson, Ph.D.

Doctoral Practicum Student: Conducted psychodiagnostic assessments, brief individual therapy, and group therapy for adults, ranging in age from 18 to 65, hospitalized involuntarily for psychiatric care. Patient population is primarily low-SES and without insurance. Common presenting diagnoses included schizophrenia, bipolar disorder, polytrauma, PTSD, substance abuse, and personality disorders. Primary theoretical approach used was an integrative therapeutic orientation that incorporated psychodynamic techniques, interpersonal techniques, Dialectical Behavior Therapy (DBT), and Acceptance and Commitment Therapy (ACT). Co-facilitated a weekly group aimed at DBT, ACT, and CBT skills. Selected patients for group and individual therapy based on appropriateness for therapy, absence of active, severe psychosis, and motivation for change. Conducted cognitive, personality, and malingering assessments to assist in differential diagnosis. Contributed to multidisciplinary treatment planning team meetings, collaborating with psychiatrists, nurses, social workers, and case workers. Provided consultation to psychiatrists to assist in diagnosis and assessment of malingering. Co-facilitated group sessions with Las Vegas Metropolitan Police Department (LVMPD) officers and patients. Developed lectures for presentations on suicide and malingering for the police officers as part of the LVMPD Crisis Intervention Training Program. Supervision was comprised of weekly individual meetings.

Creative Health Solutions June 2011–May 2012
University of Nevada, Las Vegas Supervisor: Lindsey Ricciardi, Ph.D.

Doctoral Practicum Student: Conducted intakes and group therapy with a diverse population of adolescents and adults ranging from 14 to 60. Co-facilitated a DBT Skills group for eating disorders. Co-facilitated a group for weight management aimed at providing psychoeducation and ACT skills training. Commonly presented patient diagnoses included eating disorders, affective disorders, adjustment disorders, and severe mental illness such as bipolar disorder. Supervision was comprised of weekly individual meetings. Also attended a weekly practicum seminar on campus, which included didactics and clinical case conferences.

Counseling and Psychological Services (CAPS) August 2010–August 2011
University of Nevada, Las Vegas Supervisor: Vicky Genia, Psy.D.

Doctoral Practicum Student: Conducted intakes and provided time-limited individual psychotherapy to a diverse student body. Trained in brief model psychotherapy, informed primarily by psychodynamic and interpersonal theoretical orientations, with an emphasis on multicultural awareness. Responsibilities also included case conceptualization, treatment planning, termination, and outreach services. Processed observed interpersonal group therapy. Co-facilitated academic success support group therapy. Co-facilitated mindfulness skills group therapy. Collaborated with an interdisciplinary team including psychologists, psychiatrist, social workers, and case managers. Common presenting concerns included affective disorders, anxiety disorders, eating disorders, personality disorders, adjustment disorders, bereavement, and relationship difficulties. Supervision was comprised of weekly individual meetings utilizing case discussion and videotape review, and small-group meetings, which included didactic seminars and clinical case conferences. Also attended a weekly practicum seminar on campus, which included didactics and clinical case conferences.

Center for Individual, Couple, and Family Counseling August 2009–August 2010
University of Nevada, Las Vegas Supervisor: Christopher Kearney, Ph.D.

Doctoral Practicum Student and Graduate Assistant: Provided long-term individual therapy to a caseload of seven clients. Primary theoretical approach used was integrative therapy informed by psychodynamic, cognitive-behavioral, and interpersonal theoretical orientations. Graduate Assistant responsibilities included conducting intakes, scheduling, filing, and other administrative functions. Commonly presented client diagnoses included personality disorders, affective disorders, adjustment disorders, and severe mental illness such as schizophrenia. Supervision was comprised of weekly individual and small-group meetings utilizing case discussion and videotape review. Also attended a weekly practicum seminar on campus, which included didactics and clinical case conferences.

Psychological Assessment and Testing Clinic August 2009–Current
University of Nevada, Las Vegas Supervisor: Michelle Paul, Ph.D.

Doctoral Practicum Student: Conducted psychological assessments with adults ranging in age from 18 to 65. Responsibilities also included clinical interviewing, test scoring and interpretation, and providing feedback. Common diagnoses included personality disorders, affective disorders, adjustment disorders, pervasive developmental disorders, somatic symptom disorders, serious mental illness including bipolar disorder and schizophrenia, ADHD, and learning disabilities. Supervision consisted of weekly individual meetings and in vivo co-assessment.

Assessments proficient in: Activities of Daily Living Questionnaire (ADLQ), Beck Anxiety Inventory, Beck Depression Inventory, BASC-2 SRP, Boston Naming Test, Brief Visuospatial Memory Test-Revised (BVMT-R), CPT-II, CVLT-II, DRS-2, D-KEFS, Finger Tapping, Geriatric Depression Scale (GDS), Grip

Strength, Grooved Pegboard, Hopkins Verbal Learning Test-Revised (HVLT-R), Judgment of Line Orientation, Kaufman Brief Intelligence Test, Second Edition (KBIT-2), MMPI-2, MMPI-2-RF, Neuropsychiatric Inventory Questionnaire (NPI-Q), PAI, PANAS, SCL-90, Recognition Memory Test, Repeatable Battery for the Assessment of Neuropsychological Status (RBANS), Rey Auditory Verbal Learning Test (RAVLT), Rey-Osterreith Complex Figure, Structured Interview of Reported Symptoms, 2nd Edition (SIRS-2), Test of Memory Malingering (TOMM), Test of Practical Judgment (TOP-J), Trail Making Test A & B, WAIS-III, WAIS-IV, WISC-III, WISC-IV, Western Aphasia Battery (WAB), Woodcock-Johnson III Tests of Achievement, Woodcock-Johnson III Tests of Cognitive Abilities, WMS-III, WMS-IV, WRAT-4.

SUPERVISION EXPERIENCE AND TRAINING

Center for Individual, Couples, and Family Counseling May 2012–August 2012
University of Nevada, Las Vegas Supervisor: Michelle Paul, Ph.D.

Student Psychotherapy Supervisor: Provided weekly individual supervision to a third-year clinical psychology doctoral practicum student who was providing individual psychotherapy to 8 long-term clients at a psychology-department-operated community mental health center. Weekly supervision included progress note review, videotape review and individual case discussion. Supervision was informed by an integrative interpersonal and developmental model approach to supervision. Training in supervision consisted of weekly group classes dedicated to learning supervision models, techniques, and research; individual supervision provided to me included videotape review of supervision sessions with my supervisee.

Psychological Assessment and Testing Clinic July 2011–Aug 2011; May 2012–Aug 2012
University of Nevada, Las Vegas Supervisor: Michelle Paul, Ph.D.

Student Assessment Supervisor: Provided supervision of two psychodiagnostic assessment cases with two different second-year doctoral students at a department-based assessment clinic. Supervision was informed by a developmental model, and included observing and assisting supervisee in test selection, test administration, scoring, interpretation, report writing, and providing feedback to clients.

RESEARCH EXPERIENCE

GRADUATE RESEARCH

Master's Thesis Research Fall 2010–Fall 2013
University of Nevada, Las Vegas
Committee Chair: Christopher L. Heavey, Ph.D.
Title: Examining the Inner Experience of Four Individuals with Bipolar Disorder
The purpose of this thesis project was to explore the phenomenology and inner experience of four individuals with bipolar disorder using the DES method. This study

included at least 8 weeks of semi-structured interviews using the DES method with each participant.

Culture, Language, and Gendered Violence in Southern Nevada Fall 2011–Spring 2012
University of Nevada, Las Vegas
Advisor: Kathleen Bergquist, MSW, Ph.D. J.D.
The purpose of this study was to identify the needs of communities for whom English is a second language with regard to gendered violence; identify service providers' current ability to respond to these needs; and increase ability of providers to provide culturally and linguistically relevant education, outreach, and services. Responsibilities included developing a questionnaire to assess the needs of communities for whom English is a second language with regard to gendered violence, translating the questionnaire into Korean, conducting focus groups and one-on-one interviews in Korean, translating interview transcripts, and data analysis.

Inner Experience Training Study Fall 2008–Present
University of Nevada, Las Vegas
Advisors: Christopher L. Heavey, Ph.D. & Russell T. Hurlburt, Ph.D.
The purpose of this study is to assist with research that is aimed at increasing efficacy in conducting expositional interviews as required by the Descriptive Experience Sampling (DES) method.

PUBLICATIONS AND PRESENTATIONS

Thaler, N. S., **Kang, J.Y.,** Reger, S.L. (in preparation). IQ testing and the Asian American client. In L. Benuto (Ed.), *Psychological Assessment of Asian American Clients*. New York, NY: Springer Publishing.

Kang, J.Y., Heavey, C.L, & Hurlburt, R. T. (2012). *Exploring the inner experience of four individuals with bipolar disorder*. Poster presented at the 2012 Toward a Science of Consciousness Conference.

TEACHING EXPERIENCE

Introductory Psychology (PSY 101) August 2011–August 2012
Instructor of Record
University of Nevada, Las Vegas
Taught 4 sections of a Psychology 101 course. Developed the course structure, lectures, syllabus, class activities, discussions, exams, and was responsible for all aspects of student evaluation. Received positive evaluations (student ratings of instructor = 3.8/4.0) while maintaining a rigorous grading scheme (overall class GPA = 2.49).

SPECIALIZED TRAINING

2011 **Working with Challenging Couples**
1-day workshop, Nevada Psychological Association, Las Vegas, NV
Workshop led by John C. Friel, Ph.D., focused on teaching theories and techniques for working with couples in therapy.

2011 **Psychopharmacoloy Update: Integration of Medication and Psychological Treatments**
1-day workshop, Nevada Psychological Association, Las Vegas, NV
Workshop led by Morgan Sammons, Ph.D., APBB and Steven Tulkin, Ph.D., M.S., focused on current research on the integration of psychology and psychopharmacology in practice.

2011 **Treating Clients with Borderline Personality Disorder and Substance Use Disorders**
1-day workshop, Behavioral Tech, Las Vegas, NV
Workshop led by Linda Dimeff, Ph.D., focused on teaching application of DBT in working with individuals with co-morbid borderline personality disorder and substance abuse.

2010 **Comprehensive Overview of Dialectical Behavior Therapy (DBT) Treatment**
2-part, 6-day workshop, Nevada Psychological Association, Las Vegas, NV
Workshop led by Alan Fruzzetti, Ph.D., focused on teaching theories and application of DBT.

2010 **Acceptance and Commitment Therapy for Trauma Life After Trauma: Treatment for PTSD and Trauma Related Problems**
1-day workshop, Nevada Psychological Association, Las Vegas, NV
Workshop led by Victoria Follette, Ph.D., focused on the theory and application of ACT to the treatment of trauma. Experiential exercises were conducted.

PROFESSIONAL AND COMMUNITY ACTIVITIES

UNLV Outreach Undergraduate Mentoring Program (OUMP): August 2013 – Current

Coordinator: Responsibilities include coordinating undergraduate students from an underrepresented population with a graduate student in Psychology in order to prepare undergraduates for a career in psychology or a related field. Responsibilities also included conducting workshops relevant to applying to graduate school and/or careers in psychology.

Nevada Psychological Association (NPA) Diversity Committee: June 2013 - Current

Chair: Responsibilities include promoting diversity in Nevada by welcoming psychologists from diverse backgrounds, promoting culturally sensitive services to the community, and ensuring NPA CE trainings include scientific and evidence-based information about working with diverse populations. Created a diversity blog to share diversity issues with the Las Vegas community.

NPA Diversity Committee: June 2011 – Current

Member: Participated in monthly meetings where NPA members discussed current issues of diversity in psychology and mental health in Las Vegas and the state of Nevada.

NPA: June 2011 – June 2012

UNLV Student Representative: Responsibilities included attending monthly meetings to facilitate collaborations with psychologists in the greater Las Vegas community and UNLV students.

NPA Membership Committee: June 2011 – June 2012

Member: Participated in bimonthly meetings to develop and execute plans to increase membership.

UNLV Clinical Student Committee: August 2011 – August 2012

Co-President: Served as a liason between clinical faculty and graduate students, coordinating and assisting with interview weekend activities, organizing student-focused events, and managing the committee's funds.

Clinical Student Committee: August 2010 – August 2011

Historian: Responsibilities include attending biweekly meetings with other CSC members to plan outreaches, clinical student activities, and collaborations with professors and psychologists in the greater Las Vegas community.

UNLV OUMP: May 2008 – Current

Mentor: Responsibilities include meeting my mentees (i.e., undergraduate students from an underrepresented population) monthly to set up and meet goals that further his/her educational and career aspirations in psychology.

UNLV Clinical Student Committee: May 2008 – Current

Mentor: Responsible for acclimating new graduate students to UNLV and Las Vegas.

AWARDS/HONORS

UNLV Graduate Assistantship: 2008 – Present
UNLV Graduate and Professional Student Association Poster Award: 2012
NPA Student Poster Award: 2012
UNLV Summer Session Scholarship: 2011

UNLV Graduate Access Grant: 2011

PROFESSIONAL AFFILIATIONS

American Psychological Association: 2008 – Present
Nevada Psychological Association: 2008 – Present
Psi Chi, National Honor Society in Psychology: 2006 – Present

REFERENCES

Michelle G. Paul (formerly Michelle G. Carro), Ph.D.
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Sarah Banks, Ph.D.

Licensed Neuropsychologist
Head, Neuropsychology Program
Cleveland Clinic Lou Ruvo Center for Brain Health
888 W. Bonneville Avenue
Las Vegas, NV 89106
Email: bankss2@ccf.org
Phone: 702-778-7002