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Examining the Inner Experience of Individuals with Bipolar Disorder

Johanah Yoosun Kang
University of Nevada, Las Vegas

EXAMINING THE INNER EXPERIENCE OF INDIVIDUALS WITH BIPOLAR DISORDER

By

Johanah Yoosun Kang

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University of Nevada, Las Vegas
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Johanah Yoosun Kang

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Doctor of Philosophy - Psychology
Department of Psychology

Christopher Heavey, Ph.D.
Examination Committee Chair

Kathryn Hausbeck Korgan, Ph.D.
Graduate College Interim Dean

Russel T. Hurlbert, Ph.D.
Examination Committee Member

Daniel N. Allen, Ph.D.
Examination Committee Member

Jennifer R. Keene, Ph.D.
Graduate College Faculty Representative

ABSTRACT

Bipolar disorder (BD) is a serious, chronic mood disorder. The diagnostic criteria for BD provide a description of expected experiences of individuals with BD (e.g., sadness, expansive mood, inflated self-esteem, anhedonia). Despite these criteria, the details of inner experience of individuals with BD are generally unknown. Understanding the inner experience of individuals with BD may provide greater understanding of the lived experience of BD and may provide insights into treating BD. The present study examined the inner experience of six individuals with BD using Descriptive Experience Sampling (DES), a method aimed at apprehending high-fidelity accounts of momentary inner experience. Results revealed that our participants varied in their ability to have clear inner experience, but they had clear experiences of sensory awareness and/or inner seeing. They had a high frequency of no clear inner experience or inner experience that was unclear in some way in the moment. They also had a low frequency of the coherent experience of feelings. Lastly, four participants experienced noteworthy perceptual experiences at a higher than average frequency as compared to the inner experience of individuals without a psychiatric diagnosis. This study highlights the importance of increasing efforts to explore the inner experience of individuals diagnosed with BD and/or other mental illnesses, and the utility of the DES method for investigating these individuals' inner experience.

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CHAPTER 1

INTRODUCTION

Bipolar disorder (BD) is a serious, chronic mental disorder characterized by intense emotional states that fluctuate between mania, depression, mixed episodes, and normal affect (Baldassano, 2005). Bipolar Disorder is associated with impairments in interpersonal relationships, occupational function, and academic functioning. Bipolar disorder affects about 2.6% of the national population; about 83% of these cases are serious and 17% are moderately severe (Kessler et al., 2005). Bipolar disorder has been associated with artistic creativity and high achievement, but individuals with bipolar disorder also experience impairments in executive functions, memory, attention, and overall diminished psychological well-being (Andreasen, 1987; Henin et al., 2009; McClure-Tone, 2009). The suicide rate for individuals with BD is the highest among all psychiatric conditions. Completed suicide rates are 12 to 15 times greater than the general population (Mitchell, Slade, & Andrews, 2004; Angst et al., 2002). Approximately 60% of individuals with BD attempt suicide and 4 to 19% of those individuals complete suicide (Goodwin & Jamison, 1990; Novick, Swartz, & Frank, 2010).

The heritability of BD 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). A genetic marker for BD has not been identified, and biological variables do not entirely explain individual differences in the presentation of BD over time. Environmental factors have also been suggested to influence the expression of vulnerability to BD.

Assessment of BD is conducted by reviewing the presence or absence of symptoms according to diagnostic criteria published in the *Diagnostic and Statistical Manual of Mental*

Disorders, Fifth Edition (DSM-5; APA, 2013). The Structured Clinical Interview for DSM Disorders (SCID; Spitzer et al., 1992) and the Schedule for Affective Disorders and Schizophrenia (SADS; Spitzer & Endicott, 1978) are the two most common semi-structured interviews used to determine the presence of symptoms of BD. 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 screeners for symptoms of BD. These assessments may confirm the presence or severity of symptoms but do not provide the possibility of studying the inner experience of individuals with BD both because of the unpredictable variation of presentation across populations and within individuals, and because these methods begin with the presumption that they know what the relevant forms of inner experience are, namely the symptoms listed in the DSM (APA, 1994; Suppes et al, 2001).

To date, few studies have explored the subjective experience of bipolar disorder. Moreover, the studies conducted thus far aimed at understanding the lived experience of BD have suffered from methodological limitations. Asking individuals to report on their internal and external experiences has intrinsic challenges; therefore, standard assessment tools, such as the SCID, SADS, GBI, and MDQ, and experience sampling methods such as ESM and EMA may present an incomplete depiction of the inner experience of individuals with BD.

To avoid the pitfalls of other structured interview, qualitative, and experience sampling methods, the present study will utilize the Descriptive Experience Sampling method developed by Hurlburt (DES; 1990, 1993, 2011) to explore the inner experience of six individuals with bipolar disorder. DES is centrally concerned with obtaining high-fidelity accounts of pristine inner-experience. Inner experience refers to anything present in an individual's awareness, including but not limited to thoughts, feelings, images, sensations, etc. DES is an introspective,

descriptive, bottom-up technique that involves faithfully describing a single experience; then, the collection of multiple single experiences may provide a characteristic profile of the inner experience of an individual. In these studies, the DES method is used for idiographic purposes to describe the unique characteristics of a unique individual (Hurlburt & Akhter, 2006). Other DES studies explore a collection of participants who share a common feature, such as a psychiatric diagnosis (e.g., schizophrenia, depression, Asperger's syndrome, etc.). In such studies, the investigator first apprehends each individual's experiences ideographically and then nomothetically examines if any salient characteristics emerge across the collection of participants as a whole (Hurlburt & Akhter, 2006).

DES is an ecologically valid and reliable method for studying inner experience. DES is also an iterative procedure. Most participants are not skilled observers of their inner experiences and are usually unprepared for the investigators' direct and specific questioning about their inner experiences. Therefore, the first day of sampling is considered training in the method and will not be included in data analyses (Hurlburt & Heavey, 2006).

The present study used DES to explore the inner experience of participants diagnosed with BD as they went about their daily lives. This study was a replication and extension of a study that explored the inner experience of four individuals using the DES method (Kang, 2013). The purpose of the present study was to further observe and describe the inner experience of these participants and examine if any salient characteristics emerged across the participants. Moreover, we examined if any salient characteristics emerged that corresponded to the salient characteristics found in the previous study. Participants were given a device that randomly emits a beep through an earphone. Participants were asked to turn on the beeper as they went about their regular activities during a time of their choosing. At the moment of each beep, participants

were asked to take a moment and take notice of their inner experience at the last undisturbed moment (i.e., split second) before the beep sounded – the last moment caught in flight by the beep. Participants were asked to jot down notes about their inner experience in a small notebook, reset the beeper, re-continue their daily activities, and repeat this procedure until they collect six beeps, which took approximately three hours.

Within 24 hours of collecting the moments of experience, participants came into the UNLV DES lab and participated in an interview with the investigators where moments of sampled inner experience was discussed. The interview aimed to develop a faithful apprehension of pristine inner experience at each sampled moment.

CHAPTER 2

DEFINITIONS OF BIPOLAR DISORDER

History of Bipolar Disorder

Our current conception of bipolar disorder is rooted in the classical period where Greek physicians described two human complaints, "mania" and "melancholia" (Berrios 1996; Marneros & Angst, 2000). Hippocrates started the first scientific and systematic study of mania and melancholia through careful observations and longitudinal studies (Marneros & Angst, 2000). Hippocrates described melancholia as resulting from prolonged episodes of anxiety and moodiness. He also differentiated between the clinical mood disorder, "nosos melancholicé" and a non-clinical personality style, "typos melancholicós."

Aretaeus of Cappadocia was influenced by Hippocrates' work and further studied the symptoms of melancholia and mania. He described melancholics as being quiet, dysphoric, sad or apathetic, and manics as being cheerful, laughing, playing and sometimes dancing or flying into a rage, often without sleeping for long periods (Marneros, 1999). Aretaeus of Cappadocia differentiated between melancholia, a biologically caused condition, and reactive depression, a psychologically caused condition. Moreover, Aretaeus of Cappadocia conceptualized melancholia and mania as two discrete spectrums of the same disease and thus became the originator of the idea of bipolar disorder.

American conceptualizations of bipolar disorder found in both the DSM-I and II (APA, 1952, 1968) reflected the predominant psychodynamic view of mental illness of the time. Affective and manic-depressive reactions were categorized as disorders of psychogenic origin without a clearly defined physical cause of structural change in the brain. The DSM-III (APA, 1980) came into existence during a time when behavior therapy was emerging, and the push

toward more scientific research was emphasized (Mayes & Horwitz, 2005). The DSM-III (APA, 1980) replaced the term 'manic-depressive reactions' with 'bipolar disorder' to highlight the nature of mood polarity. The DSM-III-R, DSM-IV, and DSM-IV-TR (APA, 1987, 1994, 2000) refined bipolar disorder's definition with the development of nuanced subtypes. In 2013, the DSM-5 (APA, 2013) further refined bipolar disorder's definition with additional specifiers and conditions.

Current Diagnostic Features

Bipolar disorder is characterized by the diagnosis of recurring mood episode(s) (APA, 2013). Moreover, schizophrenia spectrum disorders, substance use, or general medical conditions cannot account for the mood episodes. A manic episode, as defined by the DSM-5, is a period of elevated, expansive, or irritable mood lasting a minimum of one week (or requires hospitalization) including symptoms of 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 marked functional impairment in an individual's social, occupational, or interpersonal activities. A hypomanic episode is less severe than a manic episode but still represents a change from normal mood functioning. 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.

A major depressive episode is 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, sleep disturbance, appetite

disturbance, psychomotor agitation or retardation, fatigue, feelings of worthlessness, diminished ability to think, and suicidal thoughts or attempts.

The American Psychological Association (2013) includes four BD subtypes: bipolar I disorder, bipolar II disorder, cyclothymic disorder, and unspecified bipolar and related disorder. A diagnosis of bipolar I disorder requires one manic episode; episodes of depression or hypomania may frequently precede the manic episode, but are not required for diagnosis (APA, 2013). Bipolar II disorder requires both a hypomanic and major depressive episode to differentiate it from bipolar I disorder and unipolar depression. Cyclothymic disorder requires the presence of both hypomanic and depressive symptoms that do not meet full criteria for hypomanic episode or major depressive episode, respectively. 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. Unspecified bipolar and relate disorder was created to include clinical presentations that have bipolar features causing clinically significant functional impairment yet fail to meet the strict diagnostic criteria for the other bipolar disorder subtypes.

Assessment

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

An informal review of symptoms is common in clinical practice to diagnose bipolar disorder; however, practitioners who use unstructured diagnostic interviews miss up to half of all

comorbid conditions (Zimmerman & Mattia, 1999). Furthermore, most practitioners do not routinely screen for bipolar disorder among people with a history of major depression despite the likely reality that many of these individuals will meet diagnostic criteria for bipolar disorder (Brickman, LoPiccolo, & Johnson, 2002). These complications of differential diagnosis may consequently contribute to the average 8-year interval between onset of symptoms and receiving an accurate, formal diagnosis (Miller, Johnson, & Eisner, 2009).

Structured interviews and self-report strategies have been commonly used to diagnose and measure bipolar disorder. The Structured Clinical Interview for DSM Disorders (SCID; Spitzer, Williams, Gibbon, & First, 1992) and the Schedule for Affective Disorders and Schizophrenia (SADS; Endicott & Spitzer, 1978) are commonly used structured interviews. Self-report measures are not diagnostic, but have been developed as screeners to aid in identifying individuals with a potential diagnosis of bipolar disorder. The General Behavior Inventory (GBI; Depue et al., 1981; Depue & Klein, 1988) and the Mood Disorder Questionnaire (MDQ; Hirschfeld et al., 2000) have demonstrated utility as screening tools to identify individuals who would most likely meet criteria for bipolar disorder and therefore warrant further assessment.

The DSM-5 offers "emerging measures" to assess the presence and/or severity of manic or depressive symptoms (APA, 2013). The Level 2-Depression-Adult scale, also known as, the PROMIS Emotional Distress – Depression – Short Form measures the severity of depressive symptoms. Individuals are asked to rate the severity of problems over the past seven days on a five-point rating scale from 1 (*Never*) to 5 (*Always*). The Level 2-Mania-Adult scale, also known as, the Altman Self-Rating Mania Scale (ASRM) is a 5-item self-report questionnaire that asks individuals to rate the presence and/or severity of manic symptoms. The Severity Measure for Depression-Adult scale was adapted from the Patient Health Questionnaire-9 (PHQ-9). The

Severity Measure for Depression – Adult scale asks individuals to rate over the last 7 days, how often they have been bothered by any of the following depressive symptoms on a four point rating scale ranging from 0 (*not at all*) to 3 (*nearly every day*). The APA advises these measures be used to enhance clinical decision-making and not be used as the sole basis for a clinical diagnosis.

CHAPTER 3

NATURE OF BIPOLAR DISORDER

Epidemiology

Lifetime prevalence rates for bipolar disorder range from 0.3% to 1.5% percent worldwide, and approximately 2.6% percent in the United States (Robins & Regier, 1991; Kessler et al., 2005). A study that reviewed lifetime prevalence of BD in 11 countries including Americas, Europe, and Asia found lifetime prevalence for bipolar I disorder of 0.6%, and 0.4% for bipolar II disorder (Merikangas, Jin, He, Kessler, Lee, Sampson, et al., 2011). The prevalence rates for BD may actually be higher than these figures because BD is often misdiagnosed as major depressive disorder (Angst, Azorin, Bowden, Perugi, Vieta, Gamma, & Young, 2011). For example, approximately 10% - 15% of adolescents diagnosed with major depressive disorder will go on to develop BD (APA, 2000). The female-to-male ratio for BD is not clear. Some studies have demonstrated that bipolar I disorder affects males and females equally while Perry and colleagues (1999) found that this gender ratio is as high as 2:1, in favor of females. Gender differences in symptoms have also been demonstrated. For example, females are also more likely to experience a predominance of depressive symptoms (Lish et al., 1994).

The mean age of onset of bipolar disorder varies among studies due to the criteria used, and is confounded by mostly unreliable retrospective recall. A study by Goodwin and Jamison (1990) identified the most common age of onset period for bipolar disorder between 15 and 19 years of age; however, the Epidemiologic Catchment Area study found a slightly later mean age of onset of bipolar disorders at 21 years (Wiessman et al., 1991). Adams and Sutker (2004) found that most first psychiatric hospital admissions for BD occur between ages 20 and 29. Early onset bipolar often indicates poorer outcome (Yatham et al., 2009). This may be attributed to

early onset being associated with several factors indicative of more severe bipolar disorder 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 substance abuse, and multiple comorbidities (Suppes et al., 2001; Yatham et al., 2009).

Long delays between symptom onset, treatment seeking, and receipt of a correct diagnosis of bipolar disorder are common and therefore problematic to efficient treatment (Lish et al., 1994). The National Depressive and Manic-depressive Association (1993, 1994) found that over half of their patients with BD sought treatment five years after first experiencing symptoms and thirty-six percent sought treatment after ten years. Moreover, patients received a correct diagnosis an average of eight years after first seeking treatment.

Mortality is a significant and common consequence of bipolar disorder. The high risk of mortality is attributed to fluctuating mood episodes, comorbid medical conditions and psychiatric disorders, and elevated suicide rates (Hilty, 1999). Individuals with bipolar disorder have higher mortality rates from general medical conditions including: 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 a twofold higher risk for individuals with bipolar disorder to die from natural causes like cardiovascular disease, which they were twice as likely to contract than a non-affective-disordered comparison group. Individuals with bipolar are also more likely to experience chronic stress due to their fluctuating mood episodes (Cassidy, Ritchie, & Carroll, 1998) and engage in harmful 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 bipolar disorder can also be due to accidental deaths (Tsuang & Woolson 1978) and homicide (Hoyer et al., 2000).

Suicide is another significant concern in bipolar disorder. Up to 60% of individuals with bipolar disorder will attempt suicide and at least 19% will be successful in their attempts (Novick, Swartz, & Frank, 2010). Angst and colleagues (2002) conducted a follow-up study of hospitalized patients with affective disorder, whose psychopathology was assessed between 1959 and 1963. The researchers contacted the patients by telephone in 1963, 1965, 1970, 1975, 1980, 1985, 1991, and 1997. A high rate of general mortality among the patients was found to mostly be attributable to elevated rates of suicide. Suicidal behavior is commonly associated with depressive episodes, which often occur in the early stages of bipolar disorder (Tondo, Isacsson, & Baldessarini, 2003; APA, 2010). The actual suicide mortality rate may be even higher because suicidal acts commonly occur in such early stages of bipolar disorder, even before a correct diagnosis is given (Angst et al., 2002).

Natural History and Course

Onset of bipolar disorder can involve a manic, hypomanic, mixed or depressive first episode (Hilty, Brady & Hales, 1999). Both men and women are more likely to experience a first episode of depression, but men are more likely than women to have a first episode of mania (APA, 2010). In a sample of fifty-three patients from the Systematic Treatment Optimization Program for Early Mania (STOP-EM; Yatham et al., 2009) approximately half of the patients in a treatment program reported they experienced an initial depressive episode whereas about one-third experienced an initial manic episode. Depressive onset is associated with greater morbidity than manic onset. Furthermore, individuals who experience initial depressive episodes tend to

experience earlier age of onset, more depressive episodes throughout the disorder, higher suicidality, and more rapid cycling between episodes than individuals with manic onset. (Forty et al., 2009; Kassem et al., 2006). Conversely, individuals who experience an initial manic episode tend to have shorter hospitalizations and less frequent recurrence during treatment than individuals with depressive onset (Prien, Klett, & Caffey, 1974; Hilty, Brady, & Hales, 1999).

Relapse, or periods in which symptoms intensify after brief asymptomatic periods, is an enduring characteristic of bipolar disorder with relapse rates as high as 80% (Martinez-Aran et al., 2008; Goodwin & Jamison, 1990). Recurrence, or periods of symptom intensification following longer asymptomatic periods, is also a persistent trait of bipolar disorder with recurrence rates as high as 90% (Tohen, Waternaux, & Tsuang, 1990). The risk of recurrence may persist ten to forty years after symptoms remit (Lavori, 1996). Comorbidity, especially with substance abuse and psychosis, has been associated with a higher rate of recurrence (Hilty, Brady & Hales, 1999).

Studies conducted prior to the development of effective treatments were able to observe the natural length of affective episodes. Manic episodes may have a median duration of 5-6 months, and a mean episode length of 6-8 months (Mendel, 1881; Kraepelin, 1913). Moreover, manic episodes may systematically lengthen over time (Rennie, 1942). This pattern is not observed for depressive episodes (Kinkelin, 1954). The first cycle (i.e., depression to mania, or vice-versa) tends to be longer than subsequent cycles that may be attributed to psychopharmacological treatments (Angst & Sellarno, 2000; Soloman et al., 2010).

Since the conceptualization of bipolar disorder, the outcome has been poor. This is attributable to high rates of relapse, recurrence, chronicity of symptoms, and increased morbidity from suicide and other medical disorders (Angst & Sellarno, 2000; Kraepelin, 1913; Stephens &

McHugh, 1991). In a comparison of unipolar depressed and unipolar manic patients to bipolar patients at the Phipps Clinic, bipolar patients demonstrated the poorest outcome (Stephens & McHugh, 1991). The development of psychopharmacological treatments appears to have a slightly better effect on prognosis. In a study conducted by Angst and Preisig (1995), 219 patients with bipolar disorder were followed 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

The definitive etiology of bipolar disorder remains unknown, but the disorder seems to be heavily attributed to genetic factors (Potash, & DePaulo 2000; Presig, 2006; Tsuang & Faraone, 2000). Heritability of bipolar disorder has been estimated to be as high as 80%, which is higher than other psychiatric disorders (Daly, 1997; Vehmanen, Kaprio, & Loennqvist, 1995). Family studies present strong evidence for a familial link for bipolar disorder. These have found that risk for first-degree relatives of bipolar participants is substantially increased as compared to healthy controls (Craddock, 1995; Gershon et. al., 1982; Weissman et. al., 1984; Sadovnick et al., 1994). Relative risk for bipolar I disorder and bipolar II disorder in first-degree relatives is estimated to be seven times greater than the population.

Twin and adoption studies aimed at elucidating the relative contributions of genetic and environmental factors to the etiology of bipolar disorder have demonstrated a larger role for genetics. Twin studies of bipolar disorder found a monozygotic twin of a bipolar I proband was sixty times more likely than the population to have the disorder also (Craddock, 1995). These results provide more evidence for the elevated heritability of bipolar disorder (Vehmanen, Kaprio, & Loennqvist, 1995; Kieseppa et. al., 2004). Adoption studies have found bipolar

disorder is more prevalent among biological parents than adoptive parents of bipolar adoptees (Mendlewicz & Rainer, 1977; Wender et al., 1986).

Although the studies of the genetics of bipolar disorder 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 bipolar disorder. The results from studies investigating environmental risk are not as influential as the results from studies investigating the genetic risk of bipolar disorder because of the limited number of studies and prevalence of methodological flaws. These results have provided suggestions for future research regarding potential environmental risk factors. Tsuchiya and colleagues (2003) suggest 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 bipolar disorder. 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 probable environmental risk factors for bipolar disorder. An understanding of etiology is important because it has the potential to enhance our knowledge of assessment, phenomenology, and treatment of bipolar disorder.

Comorbidity

More than sixty-six percent of individuals with bipolar disorder have at least one additional diagnosis and more than half of individuals with bipolar disorder have two or more additional diagnoses (Goldberg, 2009; McElroy et al., 2001). Substance abuse, personality disorders, and anxiety are commonly comorbid with bipolar disorder with lifetime estimates approximately 50, 50, and 60 percent, respectively (Brown et al., 2001; Goodwin & Hoven,

2002; Uecok et al., 1998). Comorbidity may complicate diagnosis and possibly contribute to the typical 8-year delay between onset and accurate diagnosis among individuals with bipolar disorder (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 to a poorer course over time with shorter time to relapse, longer time to recovery, an increased number of hospitalizations, poor adherence to pharmacological treatment, and increased suicidality (APA, 2000; Dunayevich, Sax, Keck, McElroy, Sorter, McConville, et al., 2000; Frangou, 2002; & Vieta, Colom, Corbella, Martinex, Reinares, Bernabarre, et al., 2001).

CHAPTER 4

CONSEQUENCES OF BIPOLAR DISORDER

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

Impairments in Social Relationships

Individuals with bipolar disorder commonly have difficulties across the range of social relationships including marriage, parenting, and friendships. These social relationships are likely to be negatively affected because the consequences experienced by the individual with bipolar disorder also affect family members and society (Hammen & Cohen, 2004). Moreover, affected individuals experience less social support than non-affected individuals (Romans & McPherson, 1992). These social difficulties persist across affective changes and are not directly related to specific symptoms of mood episodes (Goldberg, Harrow, & Grossman, 1995).

The Stanley Foundation Bipolar Treatment Outcome Network (Suppes et al., 2001) found that almost half of outpatient with bipolar disorder had a history of divorce. In addition to high divorce rates, marriage quality for individuals with bipolar disorder may be poor. Individuals with bipolar disorder may experience significant difficulty adjusting to marriage (Radke-Yarrow, 1998). Spouses of affected individuals have been shown to experience lower marital satisfaction (Levokovitz et al., 2000). Marital impairments may also vary depending on the affective episode.

Hammen and Cohen (2004) found that 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, but most spouses felt their relationship was good when the patient was in remission (Hammen & Cohen, 2004).

Research on parental functioning by individuals with bipolar disorder is limited, but the data suggest that impairments in parental functioning are associated with depression (Beardslee, Versage, & Gladstone, 1998). Depressive symptoms particularly impact a parent's ability to be patient, remain calm, and maintain a positive attitude with a child (Hammen & Cohen, 2004). These impairments in parental functioning associated with depression may be a result of (1) the depressive symptoms themselves; (2) the stressful conditions that are the background of most depressive experiences; or (3) a preexisting vulnerability to interpersonal deficiencies that are triggered during depressive episodes (Hammen, Shih, & Brennan, 2003). A majority of mothers with bipolar disorder demonstrate poor parenting skills that entail poor boundary setting, impulsivity, and unpredictable enthusiasm in interactions with their children (Radke-Yarrow, 1998). Parental functioning of individuals with bipolar disorder is an important psychosocial issue because the affected parent's disturbances between episodes have been shown to be a strong predictor of the child's adjustment (Hammen, 1991). Hammen and Cohen (2004) found that children who experienced more disturbed interactions with their mother were less well-adjusted across a variety of roles (Hammen & Cohen, 2004).

Individuals with bipolar disorder consistently indicate a dearth of friendships, confiding relationships, and social contact (Hammen & Cohen, 2004). A longitudinal study of social functioning in outpatients with bipolar disorder found 60% of outpatients only occasionally engaged in social activities or did not socialize at all (Gitlin et al., 1995). This lack of social

relationships is influenced by several variables. Affected individuals also tend to experience lower quality of friendships (Romans & Mc Pherson, 1992), avoidance of social contact (Hammen & Cohen, 2004), and dissatisfaction in relationships (Johnson et al., 2000) that contribute to their social dysfunction.

Family members of affected individuals most often become primary sources of social support (Johnson & Meyer, 2004), but the responsibility of caring for their relatives regularly creates a feeling of burden among family members. Perlick and colleagues (1999) found that the feelings of burden family members experience are influenced by their beliefs about the illness such as, awareness of bipolar disorder, and how much control over the disorder they perceive themselves and the affected individual to have. Social support for bipolar disorder varies throughout the course of the disorder. People with a history of manic episodes have less support, whereas people with hypomanic symptoms had increased social and sexual activity (Romans & McPherson, 1992; Greenhouse, 2002). Lack of social support has been associated with poorer course of the disorder including higher frequency of relapse (Johnson et al., 2000).

Occupational Impairment

Individuals with bipolar disorder demonstrate occupational 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 of outpatients with bipolar disorder identified only 33% worked full-time, 9% worked part-time, and 21% reported they were unable to work. Thirty-six percent of outpatients with bipolar disorder 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. Remission does not appear to improve these occupational impairments (Hammen & Cohen, 2004).

Cognitive Impairment

Cognitive deficits are present across all affective episodes of bipolar disorder. It is difficult to determine if subjective cognitive complaints are: a) intrinsic aspects of bipolar disorder; 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). Research suggests that intrinsic cognitive deficits of bipolar disorder implicate attention, verbal memory, executive function, and working memory (Ferrier, et al., 2004; Clark, Sarna, & Goodwin, 2005; Allen et al., 2010). Attentional impairments involve difficulty with selective attention, poor sustained attention, and difficulty shifting attention (Clark, Iversen, & Goodwin, 2002). Verbal impairments affect verbal planning, verbal memory, and perservation – the repetition of a response, such as a word or phrase (Clark, Iversen, & Goodwin, 2002). Executive dysfunction typically involves slower processing speed, deficient inhibitory control, poor strategic thinking, and visual working memory deficits (Dixon et al., 2004). These executive function deficits may also serve as general marker for bipolar disorder (Allen et al., 2010). Overall, the pattern of cognitive deficits are considered to be manifestations of bipolar disorder because of their enduring nature even during periods of euthymia and their transmittance across generations of family members (Martinez-Aran et al., 2004).

Lack of Insight

Insight – the awareness of an illness – is negatively impacted in individuals with bipolar disorder. Amador and colleagues (1994) described insight as the affected individual's ability to make judgments about perceptual experiences in different aspects of their illness as pathological

that were congruent with the treating clinician's judgments. Dell'Osso and colleagues (2002) found patients with bipolar disorder had poor insight into their illness as compared with patients with unipolar depression; 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. In addition to insight, affected individuals' ability for self-restraint and self-esteem are diminished.

Impulsivity

Barrat (1993) suggests impulsivity consists of three independent behavioral factors: (1) nonplanning; (2) motor impulsiveness; and (3) attentional impulsiveness. These behavioral factors lead to failures to: (1) delay gratification; (2) inhibit dominant (but detrimental) responses; and (3) maintain attention. Strakowski and colleagues (2010) measured impulsivity using laboratory tests of various aspects of impulsivity and the Barratt Impulsiveness Scale (BIS-II). They found that when mania normalized with recovery, there were deficits in impulsivity; however impulsivity as measured by the BIS-II remained constant throughout affective changes. Thus, impulsivity is a multidimensional feature that is both affective-state dependent and a persistent trait of bipolar disorder.

Sleep Disturbance

Sleep-wake cycle disturbance is a central symptom of bipolar disorder that has dramatic effects on the course of the disorder. According to diagnostic criteria for manic and hypomanic episodes, there is a reduced need for sleep (APA, 2013). Serretti and Olgiatti (2005) conducted a sleep study and found that 99% of patients in a manic episode reported both a reduced need for sleep and longer periods of sleep onset latency. The diagnostic criteria for a depressive episode, indicates that individuals experience either insomnia or hypersomnia, although an individual may

experience both. The frequency of depressed patients experiencing insomnia has been shown to be 100% (Winokur, Clayton, & Reich, 1969). The frequency of hypersomnia has been found to be approximately 78% (Detre et al., 1972). Regardless of insomnia or hypersomnia, individuals in a depressive episode experienced longer periods of sleep onset latency and REM disturbances.

Sleep disturbance in bipolar disorder is significant because poor sleep negatively impacts quality of life, affect regulation, and cognitive functioning. (Ancoli-Israel & Roth, 1999, Pilcher & Huffcutt, 1996; Drake et. al., 2001; Yoo et. al., 2007; Spiegel et al., 2004). With regards to cognitive functioning; encoding and consolidating memories is negatively affected (Harvey, Talbot, & Gershon, 2009). Sleep disturbance can also contribute to impulsivity and relapse in bipolar disorder (Harvey, Talbot, & Gershon, 2009; Killgore, Balkin, & Wesenten, 2006).

CHAPTER 5

METHODS OF STUDYING THE EXPERIENCE OF BIPOLAR DISORDER

Various methods ranging from personal accounts to systematic exploration of specific moments of experience have been used to study the experience of bipolar disorder. These studies commonly aimed to study specific aspects of the experience of bipolar disorder.

First-Person Accounts

Many personal accounts have been written to describe one's struggles with bipolar disorder. These memoirs provide vivid descriptions of living with bipolar disorder. 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).

A memoir written by successful mental health professional, described her personal experience of living with bipolar disorder (Licinio, 2005). The writer, who chose not to disclose her name, documented a personal history that included feeling overstimulated, self-medicating with drugs and alcohol, bulimic behaviors, multiple hospitalizations, and suicidality. The author also described experiencing depression where she felt so slow that even the most mundane tasks required too much effort. She cried intensely for days and switched to periods of hypomania where she felt reckless and impulsive. The author concluded her story by describing finding a treatment that worked for her and creating a new self-image separate from bipolar disorder.

Documentaries and fictional movies have portrayed the experiences of individuals' bipolar disorder. My Friend Paul (1999) is a documentary that provides an account of having a friend with bipolar disorder. Bipolar disorder, and its functional impairments, has also been portrayed in fictional movies. For example, in *Silver Linings Playbook* (2012) Bradley Cooper portrays the difficulties maintaining and developing relationships after being released from a psychiatric hospital. Another fictional movie about an individual with bipolar disorder is Mr. Jones (1993), where Richard Gere portrays the struggles of living with and receiving treatment for bipolar disorder.

Strengths and Weaknesses of First-Person Accounts. First-person accounts provide personal insights into the individual's lived experience of bipolar disorder. These stories tend to be inspirational and entertaining, and they can describe decades of experience. Sometimes these first-person accounts may be exceedingly broad. They also are subjected to the writer's, editor's, director's, etc. bias. There are also 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 distort the actual experience of bipolar disorder by overemphasizing certain experiences, and some experiences may not be mentioned at all.

Interviews

Interview studies employ semi-structured or open-ended interviews to qualitatively examine the experience of bipolar disorder. Semi-structured interviews have been 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) have also been conducted. Interview studies typically focus on a specific aspect of the experience of life with bipolar disorder. Then, transcripts of these interviews are analyzed using

qualitative approaches such as, 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) studied the subjective experiences of twenty-six participants recently diagnosed with bipolar disorder. For eight weeks the participants sent emails regarding their subjective experiences, difficulties, and issues of concern about bipolar disorder to trained supporters who had effectively managed their condition for at least two years. The supporters also emailed participants at least one email per week providing responses including advice on how they had dealt with the issues raised by participants. The researchers found seven major themes in the participant's emails. First, participants expressed ambivalence about taking medication because of the negative side-effects such as weight-gain, loss of energy, and diminished creativity. Second, participants had persistent concern for managing highs and lows. Third, participants expressed both positive (e.g., relief at finally having a diagnosis) and negative (e.g., disbelief, anger) reactions to their recent diagnosis. Fourth, participants reported difficulty identifying and understanding their triggers. Fifth, questions of identity were prevalent. Sixth, participants shared concerns about the uncertainty of their future regarding employment, relationships, and whether it was possible to ever lead a normal life. Last, participants discussed feeling fear, stress, and frustration at the stigma associated with the bipolar label.

A study conducted by Rusner and colleagues (2009) aimed to understand how life with bipolar disorder is experienced. The researchers conducted five unstructured interviews with each of their ten participants by asking only one question, "Would you like to tell me about your experience of living with bipolar disorder?" The researchers concluded that life with bipolar disorder involves experiencing extra dimensions of magnitude (i.e., the tension and

simultaneousness) and complexity (i.e., the always present struggle to keep contact with oneself because the illness is always present) in all aspects of life. They also found that participants had difficulty communicating the intricacies of their lived experiences because their language skills were insufficient in describing the nature of the magnitude and complexity in their lives.

A study conducted by Iner and colleagues (2008) explored the impact of bipolar disorder on the development of self. This study used discussions in actual therapy; therapist asked questions about the impact of bipolar disorder on the affected individual's sense of self. The researchers found four themes regarding the participants' psychosocial development. First, bipolar disorder negatively impacted the participants' relationships. Second, bipolar disorder changed how others perceived them; specifically, participants reported feeling judged because they were seen as a bipolar person rather than as themselves as an individual. Third, participants reported experiencing functional impairments in education, employment, and career development. Lastly, participants stated they struggled to differentiate themselves and their experiences from their illness only during affective episodes and not during extended periods of mood stability.

Lim and colleagues (2004) conducted focus group discussions and individual interviews with 18 affected individuals to examine the psychosocial issues these individuals experienced. The researchers found 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 with lasting consequences that remain after the episode is gone. Participants also perceived themselves as having no self-efficacy regarding their ability to manage their illness. This lack of self-efficacy may contribute to their psychosocial difficulties because they do not believe they can influence their condition.

Strengths and Weaknesses of Interviews. Interview studies can provide powerful, vivid accounts of personal experience and interpretations of bipolar disorder. The aim of these studies is typically to identify broad themes regarding the impact of bipolar disorder on different parts of the participants' lives by asking general questions about their overall experience of bipolar disorder. Consequently, they are deficient in providing an in-depth, detailed account of the inner experience of bipolar disorder. Interviews may not capture the actual lived experience of BD because they aim to construct narratives. These glimpses into an individual's life with BD are also influenced by the problems associated with retrospective recall of events and experiences.

Experience Sampling Methods

The Experience Sampling Method (ESM) is a method used to systematically study the daily experiences of individuals in their natural settings (Csikszentmihaly & Larson, 1987). ESM uses a signaling device such as a wristwatch alarm to alert participants at quasi-random intervals. In response to the signal, participants report on his/her experience at that moment by completing a questionnaire called an experience sampling form (ESF). The ESF may differ in content based on the investigator's research interest, but it generally asks about aspects of their experience (affect, cognitions, current context, perceptions of that context, etc). The ESF may be completed by a paper-and-pencil or computerized format and takes approximately 2 minutes to complete.

The ESF collects a broad record of the participant's internal state and external context at each cued moment. Generally, the ESF includes open-ended questions and Likert scales about the participant's cognitions, location, time that the measure was completed, social context, affect, and level of activation, but the specific content of the questionnaire can be varied based on the researcher's interests. The ESF can potentially provide unique and complex data about

participants' experiences above and beyond the information standard psychological measures may provide (Klinger & Kroll-Mensing, 1995).

Myin-Germeys and colleagues (2003) conducted an ESM study on the emotional reactivity to daily life stress in patients with bipolar disorder, major depressive disorder, and a control group. Participants were cued ten times a day at unpredictable moments between 7:30 am and 10:30 pm on six consecutive days. The cue required participants filled out an ESF that assessed their mood and stress. The researchers found that individuals with bipolar disorder experienced significantly more activity-related stress than all other groups. The bipolar group additionally 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. The results suggest mood disturbance can impact an individual's emotional reactivity to daily life stressors.

Havermans, Nicolson and deVries (2007) employed ESM to explore daily experiences regarding hassles, uplifts, and time use with patients with remitted bipolar disorder and controls. Thirty-eight participants with a primary diagnosis of bipolar I or bipolar II disorder described what they were doing, which other individuals were present, where they were, and described an external positive or negative event that had occurred since the last ESF report. They also rated the valence, stressfulness and importance of these events on 7-point Likert scales from 1 (*not at all)* to 7 (*very*). The researchers found patients and controls experienced similar frequencies of hassles or uplifts. 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. Lastly,

patients spent significantly less time working and with colleagues and more time in leisure activities than controls.

ESM has also been used to study mood reactivity to daily events in patients with remitted bipolar disorder (Havermans et al., 2010). The results of this study replicated the above-mentioned findings of Havermans, Nicholson and deVries (2007) and Myin-Germey and colleagues (2003). This study also extended those findings by also asking patients about their mood. The patients were found to have elevated negative affect and lowered positive affect levels, especially in the patients experiencing current depressive symptoms. This study reported a smaller decrease in positive affect levels as compared to the study conducted by Myin-Germey and colleagues (2003). The researchers suggested that this difference may have resulted from different operational definitions of stressors. This study defined current stressors that occurred within the previous 1-2 hours since the last ESF, whereas the other study defined ongoing stressors and unpleasant situations.

ESM has also been used to examine momentary self-esteem, emotion, and coping styles in participants with bipolar disorder over six days (Bentall, Myin-Germeys, Smith, Knowles, Jones, Smith, et al., 2011). The researchers found that participants with bipolar disorder displayed higher fluctuations in self-esteem and used more dysfunctional coping styles, such as rumination and risk-taking, as compared to a control group. The participants with bipolar disorder also had more alcohol and substance abuse than controls.

Ecological Momentary Assessment (EMA; Stone & Shiffman, 1994) is another experience sampling method that closely resembles ESM. EMA, ESM, and ambulatory assessment are often used interchangeably, despite important distinctions among these methods. EMA collects data in specific real-world contexts by providing participants with a signaling

device such as a personalized data assistant (PDA) that allows for repeated sampling of their recent states and behaviors (Stone, Shiffman, & DeVries, 1999). The most notable difference between EMA from ESM is that data regarding physiological processes (e.g., heart rate, respiration) and audio or video recordings of behaviors can be collected. The method has three signaling schedules: time, event, and signal contingent (Wheeler & Reise, 1991). Time contingent signaling schedules prompt participants to report at predetermined intervals (e.g., daily at 5 pm or every 6 hours). Event contingent schedules prompt participants to report each time a target event occurs (e.g., social interaction, depression). Signal contingent schedules prompt participants to report every time the device emits a random signal that the researcher can choose to best suit the research question (Stone & Shiffman, 1994).

We could not find any EMA studies that examined the experience of individuals with bipolar disorder, but Ebner-Primer and Trull (2009) reviewed EMA studies on mood disorders and found six benefits studying mood disorders of using EMA. The researchers suggested that EMA may be beneficial to study the experience of bipolar disorder in several ways. First, a daily PDA assessment of hypomanic symptoms may provide more precise estimates of the duration of a hypomanic episode compared to retrospective recall. Second, a time-contingent EMA protocol may potentially provide specific data on the nature of symptoms that are thought to be relatively stable (e.g., depression). Third, EMA may assess participants' behavioral and situational influence on symptomatology (Havermans, Nicholson, & deVries, 2007).

Strengths and Weaknesses of Experience Sampling Methods. Overall, ESM and EMA have several advantages in studying inner experience of individuals. ESM and EMA's use of real-time assessments reduces retrospective bias because participants report their current experience at the moment of the signal, thus increasing accuracy of reports of experience (Husky

et al., 2010). ESM and EMA can yield idiographic results when used in single case studies, and also yield nomothetic results when used with a large number of individuals (Csikszentmihalyi & Larson, 1987).

ESM and EMA are ecologically valid methods that provide real-life contextual analysis of behavior; EMA can also provide audio or video recordings of these real-life situations. Sampling in the participants' natural environments may allow behaviors that are setting or context-specific to be identified, and increases generalizability of the results. Moreover, with EMA, real-time interactive feedback can be provided to the participant. ESM allows for information about participants' cognitions, behavior, and affect to be compared with situational variables (Hormuth, 1986). EMA also allows for multimodal assessments that can incorporate psychological, physiological, and behavioral data (Ebner-Primer and Trull, 2009).

ESM and EMA techniques also have several limitations. Larson and Csikszentmihalyi (1983) expressed concerns about biased samples. For example, because of the time-consuming and personal nature of these methods, participants who are willing to participate in ESM or EMA studies may differ in important ways from individuals who refuse to participate. Additionally, many participants prematurely drop-out of a study because of the lengthy nature of these methods.

Another limitation of ESM and EMA is related to the questionnaires that participants complete throughout the study. Although the ESF is designed to obtain as detailed information as desired about participants' external and internal experiences, it is impossible to create an exhaustive list of questions that address all possible situations a participant may experience. Participants may misunderstand or idiosyncratically interpret questions, and these procedures do not allow participants to provide further explanation of their answers. These studies are also

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

Diary Methods

Diary methods refer to the repeated use of self-report instruments to examine experiences and/or behaviors. Diary methods aim to: (1) examine phenomena over time; and (2) to explore specific phenomena (Bolger, Davis, & Rafaeli, 2003). Participants are instructed to maintain a diary of recorded thoughts, emotions, or behaviors about the target topic as it occurs within a specified time-frame (i.e., hours, days, weeks, or months); they are instructed not to write freely about a topic of (Bolger, Davis, & Rafaeli, 2003).

Diary studies may use one of three schedules including: interval-contingent, signal-contingent, and event-contingent methods (Bolger, Davis, & Rafaeli, 2003). Interval-contingent methods ask participants to report experiences at fixed intervals (e.g., every 6 hours, every day, etc). Signal contingent methods alert participants using signal devices to record diary entries at fixed, random, or a combination of fixed and random intervals. Event-contingent methods ask participants to record their experience each time a specified event occurs (e.g., every time they eat).

Similar to ESM and EMA techniques, diary studies can be used in both paper-and-pencil and electronic formats. Both formats have demonstrated approximately 86 percent compliance rate, but participants using the paper-and-pencil method are less likely than participants using the electronic format to complete all the daily entries (Green, Rafaeli, Bolger, Shrout, & Reis; 2006).

Diary studies have been frequently used to investigate observable behavior (e.g., sleep and activities) of individuals with BD (Gershon et al., 2012; Mullin, Harvey, & Hinshaw, 2011).

Diary studies have been used to investigate the inner experience of individuals with BD. Gershon and colleagues (2012) examined sleep and the presence of negative affect among individuals suffering from BD and controls. Participants were asked to maintain a diary of their sleep and affect. Participants with BD experienced longer sleep onset latency and higher negative affect as compared to the non-affective disordered control group.

Knowles, Tair, Jones, Highfield, Morriss, and Bentall (2007) examined the self-esteem and presence of positive or negative affect in individuals with BD in remission, as compared to controls and individuals with major depressive disorder. Participants completed a twice daily diary monitoring self-esteem and experienced positive and negative affect for two weeks. Individuals with BD, in remission had larger fluctuations in self-esteem and experienced a more pessimistic attributional style as compared to healthy controls and individuals with depression.

Strengths and Weaknesses of Diary Methods. Diary methods are beneficial because they reduce retrospective bias and allow for analyses of differences both within- and between-participants (Bolger, Davis, & Rafaeli, 2003). Concurrent reporting used in diary methods translate into a shorter reference period, such as at the moment of the signal, to remember events or situations.

Diary methods have several disadvantages such as participants having to receive detailed training sessions to ensure full understanding the diary protocols (Reis & Gabel, 2000). Additionally, little is known whether or how keeping a daily diary may alter experiences that are reported (Bolger, Davis, & Rafaeli, 2003). This is an important factor to consider when studying the experience of bipolar disorder because mood changes resulting from the method itself would complicate the interpretation of any research findings.

Diary methods, like ESM and EMA, determine questions prior to sampling that ultimately does not include all possible experiences. Therefore, diary methods may unknowingly miss important aspects of the experience of bipolar disorder. Lastly, diary methods do not provide opportunities for participants to receive feedback regarding their performance. This lack of dialogue between the investigator and participant fails to provide iterative instruction or opportunities to gain clarification of meaning.

Descriptive Experience Sampling

Descriptive Experience Sampling (DES; Hurlburt 1990, 1993) is a qualitative method used to obtain high-fidelity descriptions of the phenomena of pristine inner experience. Pristine inner experience is the experience of people in their everyday lives before any observation, planning, figuring out, and interpretation disturb it (Hurlburt & Akhter, 2006*)*. DES has demonstrated it is an ecologically valid and reliable method for studying inner experience (Hurlburt & Akhter, 2006). DES was developed to deal with the limitations of classical introspection, so the method aims to minimize retrospective bias, ask open-beginninged questions, allow for ample interaction between the experimenter and the participant as co-researchers in exploring the participant's inner experience, and iterate its method.

DES participants are asked to carry a pocket-sized random interval generator, a "beeper," in their natural environments while they carry out their everyday activities with the goal of obtaining experiences that occur in the participant's normal daily life. This also provides the DES method with external and ecological validity. Ecological validity is an important characteristic of DES because it is necessary to observe pristine experience where it occurs – in the participant's natural environment. DES avoids investigating experimentally contrived or otherwise manipulated experiences. Additionally, having no *a priori* focus is valued because it

aids the participant and investigators to bracket any presuppositions that may bias the participant's capture and recall and the investigator's understanding of inner experience.

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

Participants repeat the sampling procedure until six moments of experience have been collected, and then participate in an "expositional interview" with the investigators within 24 hours of collecting the moments. During the expositional interview, the investigators and participant explore the participant's experience and work collaboratively to obtain faithful descriptions (Hurlburt & Heavey, 2006; Heavey, Hurlburt, & Lefforge, 2010). Hurlburt and Heavey (2006) provide a detailed description of the instructions given to participants.

The expositional interview is an opportunity for the investigator and participant to collaboratively examine each moment of the participant's experience. The interviewers emphasize the participant's role as a co-investigator because the participant has his/her experience and the researcher has the tools to apprehend that experience. The interview aims to obtain as comprehensive and precise an apprehension of each sampled moment as possible (Hurlburt & Schwitzgebel, 2007). The central question asked is: "What was ongoing in your experience right at the moment the beep disturbed your awareness" (Hurlburt & Heavey, 2006,

p. 77)" This central question is an example of an "open-beginnined" question – a question that does not presume to know the content about which it asks (Hurlburt & Schwitzgebel, 2007). Asking non-leading, open-ended and "open-beginninged" questions regarding the nature of the experience (Hurlburt & Akhter, 2006) is one way for the investigator to suspend presuppositions about what the characteristics of the participant's experience may be, because it does not ask the respondent to discuss emotions, thoughts, sensations, or images specifically.

DES has been used in several studies to explore the inner experience of individuals with affective disorders. Hurlburt (1993) sampled with four individuals who experienced hypomania normal dysphoria, mild depression, and deeply depression, respectively. Three of the four individuals experienced mood fluctuations over the course of sampling. This provided an opportunity to observe mood related inner experience both within and between participants.

The first participant, John, experienced hypomania. During his hypomanic period his inner experience was dominated (95% of samples) by inner seeing. These inner seeings were recreations of scenes seen earlier in reality, and had clarity, color, rich visual detail, and movement. Moreover, the center of his inner seeing was clear with the periphery gradually degrading. John also experienced inner speech that occurred mostly while he was reading. John had difficulty with emotions; he could not distinguish how each emotional experience was present to him. John also sampled during a period of fatigue. During this period, his inner experience was also dominated by inner seeing, but the characteristics of these inner seeings differed from the inner seeings during his slightly hypomanic period. These inner seeings had abrupt edges, lacked motion, and had indeterminate visual details. Overall, John's inner experience became dramatically more unsymbolized when he was fatigued, 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. Her sampling during her period of normal mood included inner speech (61%), and feelings (43%). A few of Michelle's samples involved just paying attention to what she was doing without any cognitive process occurring in her awareness. Sampling during Michelle's period of dysphoria spanned 13 separate days and involved long, confusing discussions to try to clarify the characteristics of her inner experience. Inner speech, feelings, and inner seeing were commonly present during her period of dysphoria, but the experience in each of these forms lacked coherence. For example, Michelle was unable to clearly describe the verbal characteristics of her inner speech. Ultimately, her descriptions of her inner experience in her period of dysphoria were difficult understand and generally unclear. 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.

Susan's mood fluctuated from a period of mild depression, to a period of brighter affect, to a period of stronger depression. During the mildly depressed period, her inner experience was most often characterized by unsymbolized thinking (42%); she also experienced inner speech (12%), indeterminate inner seeing (5%) and sensory awareness (5%). Susan also experienced feelings that were sometimes directly in her awareness and sometimes brought into focus of awareness by the beep. During the period of brighter affect, Susan's inner experience became more complex. She reported multiple forms of inner experience such as unsymbolized thinking, sensory awareness, and words present at the same time. Inner speech became her most dominant form of inner experience. During her more depressed period, her inner experience was

dominated by unsymbolized thinking (72%). Sensory awareness and inner speech were in her inner experience, but these experiences were more unsymbolized and her awareness of these phenomena was more passive. Feelings were present in her inner experience as frequently during her mildly depressed period, but the feelings during her more depressed period were negative feelings of frustration, annoyance, anger, disgust, and perplexed.

Lastly, Diane experienced the most debilitating levels of depression compared with the other participants; 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. Inner seeing occurred in 10% of Diane's samples. 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 when she was depressed and involved 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 as levels of depression increased, unsymbolized nature of inner experience increased. All four participants experienced less clearly represented inner speech, inner seeing, and feelings when depressed. The participants also had a harder time apprehending and communicating the characteristics of their inner experience as the severity of their depression increased.

DES has also been used to explore the inner experience of three individuals with major depressive disorder and three individuals with BD (Mihelic, 2013). In this study, five out of the six participants struggled with capturing and conveying their inner experience. This lack of

clarity was especially apparent for experiences of thinking and feeling. Thinking was generally not clear, and few emotional experience rose to the level of a coherent feeling. Sensory awareness was the exception to these participants' struggle with apprehending coherent experience. Sensory awareness was the clearest feature of inner experience for five of the six participants. Moreover, all participants experienced few feelings and inner seeings. One participant was an outlier from the other participants because he experienced complex, detailed inner seeings in 100% of his sampled moments. This participant also did not experience the same struggle to capture and convey clear inner experience. The diversity in inner experience across these participants suggests that those with diagnoses of mood disorders may not be homogeneous, at least with regards to their inner experience.

DES has also been used to explore the inner experience of four individuals with bipolar disorder (Kang, 2013). All four participants sampled for at least eight sampling days. Across all participants there were three major findings. First, sensory awareness was the most common feature of inner experience for each participant. These moments of sensory awareness were strikingly clear and were often the most prominent or only characteristic of inner experience present. Second, the clarity and prominence of the experience of sensory awarenesses was in stark contrast to the persistent struggle of all participants to apprehend coherent inner experience. The majority of their sampled moments did not contain any clear inner experience. The participants often had multiple experiences at once and were sometimes overwhelmed by this multiplicity of experience. This sharp contrast in clarity of sensory awareness versus other sampled moments was observed by the interviewers but largely unrecognized by the participants. Third, all the participants had few sampled moments that involved a coherent feeling. They, instead, had more frequent experiences with some kind of emotional aspect despite no clear

feeling being experienced directly. Feelings were commonly so intertwined with thoughts it was difficult for participants to distinguish whether a thought or a feeling was present in their experience. In other moments, participants only experienced one piece of emotionality, such as the sad tone in their voice or a tingly sensation in their body that was not fully coordinated into a directly experienced feeling. The lack of coherent feelings was especially noteworthy given the centrality of feelings in the diagnosis of BD.

Taken together, these studies provide some insight into the inner experience of individuals with BD. These studies have found a lack of coordinated experience in individuals with disordered mood ranging from some to most of the sampling period. These studies also found participants were largely unaware of aspects of their inner experience. Lastly, these studies did not find clear presence of the features of experiences that the diagnostic criteria suggest would be present, such as persistent feelings of sadness, thoughts of worthlessness, or flight or ideas (APA, 2013).

Strengths and Weaknesses of DES. The DES interview provides an opportunity for the investigators and participant to have a face-to-face conversation within 24 hours after the collection of about six sampled moments. This interpersonal interaction between the researcher and the participant is a unique aspect of DES that is not a part of other sampling methods. Other sampling procedures typically require participants to complete questionnaires regarding their experiences and turn in the completed questionnaires at a specified later date. These procedures require minimal researcher supervision of the participant, but there is no way to ensure participants are filling out the forms as directed, if they shared the same understanding of terminology with the investigators, or if they are following other protocols that may potentially introduce sampling bias. DES also attempts to reduce the potential for sampling bias by

providing an in-person 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.

The interpersonal nature of the interview also allows the DES investigator to monitor the presence of biased and/or incomplete reporting and self-presentation bias in the participant's reports of their experience. Investigators may attend to the participant's use of "subjunctifiers," descriptions of inner experience that use subjunctive, non-declarative statements, and other non-content cues (Hulburt & Heavey, 2006). Participants typically do not expect the level of detail about inner experience the investigators ask for, and they may have difficulty answering many questions asked by the investigators. Thus, the first expositional interview provides the participant with examples of the kinds of details the investigators pursue. Over subsequent expositional interview days, participants typically become more skilled at observing 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, this is rarely achieved because participants, at the outset of sampling, are not likely to be adequately skilled at apprehending and then reporting pristine inner experience. This lack of skills is expected since the participant is not likely to be initially practiced in bracketing presuppositions about inner experience. Additionally, the interviewers and participant have not yet adjusted to each other's manner of questioning, meaning of terms, and reporting, which leads to only a rough approximation of faithful apprehension. The iterative nature of DES allows participants the opportunity to improve their

apprehension and reporting of their pristine experience with each successive sample/expositional-interview procedure. The objective is that the fidelity of the process improves on the next iteration.

Hurlburt and Heavey (2002) investigated the interobserver reliability of DES in a study where 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. The validity of DES has been supported by a study that connected DES findings to externally observable behavior (Hurlburt, Koch & Heavey, 2002). The researchers found that individuals with high-speech-rate had more complex inner experience than a comparison group.

DES shares some limitations with other qualitative methods. The time-consuming nature of DES limits the number of participants that can be used for each study, and may also result in sampling bias. Another limitation of DES research is lack of situational control because participants are asked to collect their sampled moments of experience during any time of their choosing. Some participants may collect their moments of experience while working, whereas other participants may collect their moments of experience while socializing with friends; some participants may only collect their moments of experience at particular times resulting in a non-typical representation of their inner experience.

The Present Study

The present study employed the DES method to explore the inner experience of six individuals with bipolar disorder. Participants who volunteered were instructed to observe their

inner experience when signaled by a random signal generator (beeper) and then describe their inner experience in an expositional interview following DES guidelines. Participants were asked to engage in approximately ten days of sampling scheduled over several weeks. Five participants completed ten sampling days and one participant completed five sampling days.

After each interview, the interviewers composed a summary of the participant's sampled moments. These written summaries were compiled to develop individual profiles of each participant's inner experience. Then, all participants' individual profiles were examined as a whole to determine the extent to which the participants shared or did not share common characteristics.

CHAPTER 6

METHOD

Participants

Six participants were recruited from the University of Nevada, Las Vegas (UNLV) Neuropsychology Lab from a database of previous research participants who gave consent to be contacted to participate in any future research studies. All volunteers were compensated $10 an hour with a bonus of $10 for completing a minimum of 10 interviews.

The average age of the participants was 44.80, with a range of 27 to 60. Four of the participants were male and two participants were female. Five of the participants were Caucasian, and one participant was biracial. The average highest level of educational attainment was 17.60 years, with a range of 12 to 19. Four of the participants had never been married and two participants were married at the time of sampling. Half of the participants were employed full-time and half of the participants were unemployed.

Apparatus

To sample random moments of inner experience, participants received a small, portable random-interval sounding device (beeper) created by Hurlburt (2007). The beeper is a small rectangular box that generates a 700 MHz tone at random intervals. The random intervals range between 0 and 60 minutes with a mean duration between signals of 30 minutes. The beep can be heard through an earpiece to minimize external interference and the volume can be adjusted with the on/off/volume dial. The beeper can be stopped and reset by pressing a button at the top of the beeper.

Participants were also provided with a 3 X 5 inch notebook for writing notes about their inner experience at the last undisturbed moment before the beep sounded.

Procedure

The primary researcher called previous research participants of the UNLV Neuropsychology research laboratory with a diagnosis of BD and asked them to volunteer to participate in a study of their inner experience. The study was explained and informed consent obtained. Participants were advised they would be compensated $10 for each expositional interview they completed and a $10 bonus for completing a minimum of 10 sampling interviews. Participants were made aware that they would be able to discontinue sampling at any time without penalty. Investigators encouraged participants to be open and honest about his/her inner experience. Participants were informed of their role as co-investigator in the expositional interviews. Participants were informed about their right to confidentiality and right to refuse discussion of any sensitive material (Hurlburt & Heavey, 2006). Lastly, they were informed that their interviews would be videotaped for the researchers' use. Participants who agreed to participate and provided consent met with Johanah Kang, the primary researcher, for an initial meeting in the Experience Sampling Lab on the UNLV campus.

The primary researcher obtained demographic data from their previous participation in a study conducted by the Neuropsychology research laboratory. Specifically, diagnostic information and information on lifetime depressive and manic episodes assessed by the SCID-I (First, Gibbon, Spitzer, & Williams, 1997), psychiatric hospitalizations, history of suicidal ideation and/or behaviors, highest level of education, and handedness were obtained from the Neuropsychology research laboratory data.

During the initial meeting, participants were asked to complete a demographic questionnaire, SCL-90, Level 2-Depression-Adult scale, and Level 2-Mania-Adult scale. They received the pocket-sized beeper and a 3 X 5 inch spiral notebook. Participants were taught how

use the beeper including: how to turn it on and off, adjust the volume, stop the beep, and how to reset it. They were instructed to use the earpiece with the beeper to minimize any potential external interference with hearing the beep. Participants were advised that they should write notes about their experience at each beep in the 3 X 5 inch spiral notebook to help them remember their experience at the moment of the beep when asked about it during the expositional interview. Participants were notified that their notes were solely to aid their recall of their inner experience and would not be collected or used otherwise. The investigator was careful not to give specific instructions regarding what to pay attention to at the moment of the beep besides asking them to pay attention to whatever was ongoing in experience. These details were left unclear because the investigator did not know what the participant would experience at the moment of the beep.

The investigator explained the DES procedure of sampling followed by an expositional interview within twenty-four hours, and the goal of obtaining high-fidelity accounts of pristine inner experience. Participants were instructed to wear the beeper during a time of their choosing within 24 hours of the next meeting. A second meeting was scheduled before the participant left the first meeting.

The successive meetings were hour-long expositional interviews conducted by the primary researcher and one or more faculty research advisors (i.e., Dr. Heavey and/or Dr. Hurlburt). The expositional interview aimed to develop a high-fidelity understanding of what was ongoing in the participant's experience at the moment of the beep. The expositional interview began with an 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 moments and then attempting to describe their inner experience to the investigators. Participants' reports of inner experience included a combinations of 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) experience(s) that occurred before the moment of the beep, e) ongoing experience(s) at the moment of the beep, f) experience(s) that occurred after the moment of the beep, and g) reasons for the experience(s) that occurred before, at, or after the moment of the beep. Of these, the aim of the expositional interview was to focus on only e) ongoing experience(s) at the moment of the beep.

The process of collecting samples and conducting an expositional interview was an iterative process. Participants were generally expected to become more skillful at apprehending and describing their inner experience over time; during each interview, the investigators' questions became more specific to obtain as comprehensive an apprehension of the details of participants' inner experience at each moment as possible. This specificity was aimed at aiding participants in focusing on their ongoing inner experience at the moment of the beep, which would also help them learn to observe and describe their inner experience more carefully. Moreover, the investigators also strived to aid the participant in suspending his/her presuppositions during the interview, which has typically led to clearer apprehension and description of inner experience.

Due to this iterative nature, the first expositional interview was considered a training exercise and therefore the data collected was not used except to provide additional support for certain observations. This process of participants collecting samples and then participating in an expositional interview was repeated ten times for all participants except one participant who

decided to discontinue participation after repeating the process five times. For all participants, the process was continued to the point where the investigators concluded they had gained a reasonably good apprehension of the participant's inner experience. After their final expositional interview participant were provided the opportunity to ask questions. Participants received a $10 bonus upon completion of at least 10 sampling days. At the end of each interview after the fifth sampling day, participants completed the Level 2-Depression-Adult scale and the Level 2-Mania-Adult scale.

Immediately after each interview the primary researcher and faculty advisor(s) present for the interview briefly discussed the progress of the interview and commented on any methodological issues related to improving subsequent interviews. Within a few hours of concluding the interview, the primary researcher typed written descriptions of the participant's inner experience at each moment. The written descriptions aimed to provide a faithful portrayal of what was ongoing in experience at the moment of the beep. Then the written descriptions were reviewed and revised by the investigators. This was a collaborative editing process. During this editing process, the investigators strived to have the written description convey all possible understandings of inner experience at each sampled moment. This was done to keep the understanding of that participant's experience as open as possible and to prevent any premature conclusions or presuppositions from contaminating subsequent interviews. The investigators also made tentative observations of that participant's inner experience and noted any novel characteristics of inner experience observed. Any discrepancies in the understanding of those experiences were clarified by reviewing the video recording of the moment.

Analysis of Data

After sampling was completed with each participant the investigators conducted an ideographic analysis of the inner experience of that participant. The investigators met and examined each participant's moments in detail for the characteristics of experience present (e.g., inner seeing, sensory awareness, feelings, etc.) in each moment. This included trying to identify any new or idiosyncratic phenomena. All of a participant's sampled moments of experience were reviewed in depth and an agreement of the phenomena present in each moment was reached. This included examining the presence or absence of "subjunctification," or any behavior or vocalization that indicated the participant had drifted from describing clear inner experience at the moment of the beep. When present, subjunctification indicated that the participant's descriptions of their experience should not be considered a straightforward description of clear inner experience (Hurlburt, 2011). When discrepancies in understanding of the participant's characteristics of inner experience were identified, the video recording of the sampled moment was re-watched to provide additional clarification. When a new experiential phenomenon was identified, all previously reviewed samples were reexamined to determine if there were additional instances of the newly identified phenomenon. Then, the investigators examined these characteristics across all of a participant's sampled moments for patterns and salient phenomena. Next, the primary researcher wrote up salient characteristic profiles for each participant. These ideographic profiles were reviewed and revised by the primary faculty advisor. This was another collaborative editing process.

The ideographic analysis was followed by making comparisons across individuals to determine the extent to which the participants shared or did not share common characteristics or phenomena. The nomothetic analysis examined all samples of inner experience from all participants for patterns and/or characteristics that emerged across participants. Then, the

primary researcher wrote up an across-participants comparison describing salient characteristics from the entire collection of sampled moments. The primary researcher and primary faculty advisor reviewed the nomothetic analysis. This was also a collaborative editing process. Additionally, any discrepancies in the understanding of experiences in the nomothetic analysis were clarified by reviewing any pertinent video recordings of the interview(s) in question.

CHAPTER 7

IDIOGRAPHIC DESCRIPTION OF JOSH'S EXPERIENCE

Chapters 7 through 12 present idiographic descriptions of each participant's inner experience as revealed during their days of descriptive experience sampling. The names of all participants in the study have been changed to protect confidentiality. The chapters are presented in order of highest pre-sampling SLC-90-R scores to lowest (so, because Josh had the highest score, his chapter is presented first, and because Trevor has the second highest score, his chapter is presented second, and so on). Table 1 (below) provides a summary of the most common salient characteristics of inner experience from all six participants in this study. Table 1 also provides mean values of the most common salient characteristics of inner experience from the current study's participants, from Kang's (2013) exploratory study on the inner experience of four individuals with BD, and from Heavey and Hurlburt's (2008) study on the salient phenomena of inner experience of individuals without a psychiatric diagnosis. Following these idiographic profiles, Chapter 13 reviews the similarities and differences of inner experience across all six participants, and presents a discussion of the results and implications for future research.

Table 1. Frequency of common phenomena of inner experience

Characteristic	Josh	Trevor	Evan	Karen	Jessica	Mark	Current Study Means	Kang, 2013	Heavey & Hurlburt, 2008
Inner Speech	10%	19%	8%	4%	18%	2%	9%	10%	26%
Inner Seeing (aka images)	15%	6%	14%	4%	82%	0%	12%	15%	34%
Unsymbolized Thinking	0%	23%	22%	18%	24%	8%	21%	8%	22%
Feeling	15%	0%	18%	0%	47%	0%	9%	5%	26%
Sensory Awareness	33%	15%	20%	24%	6%	63%	29%	49%	22%
Emotionally Relevant Samples	23%	42%	16%	24%	6%	35%	27%	28%	-
Noteworthy Perceptual Experiences	8%	0%	6%	0%	29%	15%	7%	8%	-

Josh is a 28-year-old, right-handed, Caucasian man who sampled with us from January through March of 2014. Josh met criteria for BD with psychosis as assessed for by the SCID-I (First, Gibbon, Spitzer, & Williams, 1997). He reported his age of onset was 22 for depressive and manic episodes, and 20 for mixed episode. He also described a psychotic experience where he thought of himself as Jesus. He had been hospitalized twice for suicide attempts, and he is prescribed Ambien and Depakote. Josh earned a Master's in Theological Studies and works as a missionary/intern at his church. He has never been married and lives with roommates.

Josh was given the SCL-90-R (Derogatis, Lipman, & Covi, 1973; Derogatis, 1994) both before and after sampling. His pretest and posttest Global Severity Index T-scores were 69 and 74, respectively, both suggesting the presence of severe psychological difficulties. He was given the DSM-5 Level-2-Depression-Adult measure both before and after sampling. His pretest T-

score was 56.2 indicating mild levels of depression and his posttest T-score was 51.2, indicating none to slight levels of depression. He was also given the DSM-5 Level-2-Mania-Adult measure both before and after sampling. His pretest and posttest raw scores were nine and five, respectively, both indicating a high probability of a manic or hypomanic condition.

Josh sampled on ten sampling days. He collected six samples for each of his ten sampling days, but we were only able to discuss 44 sampled moments during the interviews due to time limitations. Each expositional interview is scheduled for an hour, and we discussed only the samples that could be explored in that amount of time. The first day of sampling is typically considered training, so these first day samples will not be mentioned for most of our participants. We also skipped discussion of one beep because he was writing notes about a different beep. For Josh, this left 39 sampled moments that were reviewed for this study.

Josh's Sampling Experience

Across all ten sampling days, Josh appeared to struggle with understanding the DES task. We experienced a parallel struggle trying to convey the task of carefully apprehending and describing what was directly present in his experience at the precise moment of the beep. Thus his sampling was marked by significant struggle for all involved and, in the majority of samples discussed, including those near the end of the ten sampling days, we were not able to reach a clear understanding of what, if anything, was present in his experience. These difficulties are reflected in the relatively fewer number of samples discussed as compared to the other participants. We took much longer to discuss each beep because we struggled to understand Josh's inner experience. Despite these general difficulties, there were two types of experience that were generally clear: sensory awareness and inner seeing. Specifically, ten of thirteen

samples with sensory awareness and five of six samples with inner seeing were generally clear. Each of these characteristics will be described below.

Sensory Awareness

Sensory awareness was present in 13 (33%) of Josh's 39 samples. Josh had 10 (77%) believable and clear moments of sensory awareness, but he also had 3 (23%) moments when even sensory awareness was not clear. His moments of unclear sensory awareness occurred in the first half of his sampling and were unclear because these experiences seemed muddled with some other, indescribable characteristic. Josh's sensory awareness had a range of the kinds of sensory experiences. Five of the 13 sensory awareness instances focused on the visual characteristics of something in his external environment, three of these instances focused on tactile sensations from his external environment, two instances focused on bodily sensations, two focused on auditory characteristics of what he was hearing, one focused on the taste of what he was eating. One instance focused on multiple sensory aspects (visual and tactile) and one instance focused on two aspects of the same sensory experience (tactile). The following sample provided the first example of one of Josh's visual sensory awareness experiences.

> **Sample 2.1:** Josh was punching holes in a piece of leather, making a wallet. At the moment of the beep, he was intensely focused on the straightness of the line of new holes he was about to punch in alignment with the existing holes he had punched. He may have minimally felt the hole puncher in his left hand, but it was unclear if the sensation was present to him at the moment of the beep.

In this sample, Josh was focused on the sensory aspects of straightness and was not paying much attention to anything else. Compared to his majority of samples with no clear experience, this sample had a clear experience of a visual sensory awareness.

Josh's other visual sensory awarenesses focused on colors. For example:

Sample 7.3: Josh was lying on his back with his laptop on his lap playing a game where you move colored pieces of fruit to create groups of three fruits of the same color. At the moment of the beep, he was drawn to the orange, green, and purple colors [rather than the fruits] of the game.

In this sample, the only things in Josh's experience were the orange, green, and purple colors – the game's outcome or groupings were not of particular interest at that time.

Josh had one visual sensory awareness that was unclear.

Sample 3.2: At the moment of the beep, Josh was seeing beauty. As best we could determine what was central in his experience was beauty rather than the appearance of the clouds. That is, as best we could determine, he was seeing a cloud formation, seeing the silver and blue and pink and fluffy whiteness of the cloud, but his experience was of beauty, of seeing beauty, not of seeing clouds that were beautiful.

In this sample, Josh was unclear about if he was seeing any characteristic of the clouds (e.g., their blueness or pinkness or fluffiness) as beautiful or how the beauty was in his experience. As best we could understand, he was seeing beauty, not merely experience a visual sensory awareness.

Josh also had three instances focused on tactile sensations. For example:

Sample 8.5: Josh was sitting in a Greek restaurant with his friend Tom. At the moment of the beep, Josh was carefully lining up his tomato slices in his gyro in a straight line. Josh was seeing the straightness of the tomatoes and feeling the tomato in his fingers. He may have also been feeling the juiciness of the tomato in his fingers. About 60% of his experience of straightness was visual, while 40% was tactile. He also felt some

emotional/investment/careful concern about the tomato slices in the gyro he was about to enjoy as he ate it. This emotion/investment/careful concern was located outside himself.

This sample involved Josh focusing on the tactile experience of juiciness of tomatoes while also focused on a visual sensory awareness of colors. Another instance of tactile sensory awareness was in sample 10.2.

> **Sample 10.2:** Josh was lying in bed and pulling his sheet and comforter up from his knees to his waist. At the moment of the beep, he was feeling the softness of the sheets on the tops of his legs and in both his hands. He also felt the warmth in his legs as the comforter moved up.

In this sample, Josh had three separate tactile sensory awarenesses. He was focused on the softness on his legs, the softness in both hands, and the warmth on his legs.

Three of Josh's samples included sensory awareness focused on bodily sensations. He had one bodily sensory awareness that was unclear in sample 3.1.

> **Sample 3.1:** At the moment of the beep, Josh was taking in a deep breath, and perhaps was feeling the sensation of his chest expanding. But simultaneously, or perhaps instead, Josh was feeling that the breath he had taken had created space for him (or for his soul), and that space seemed somehow related to the deep breath in his chest. [Josh was walking and was not "looking up," a phrase that he used several times and which perhaps had some significance for him. By "looking up" he meant that he had been looking at the ground but now his eyes were aimed more or less straight ahead, but neither of those things (walking and seeing) were in his experience.]

In this sample, Josh was breathing deeply. It was unclear if this was a bodily sensory awareness or something other than that. It seemed unlikely to be a mundane sensory awareness of feeling the breath deep in his chest because of the way he described this experience.

Two of Josh's samples included sensory awareness focused on auditory aspects. For example:

> **Sample 10.1:** Josh was kneeling (but not praying) and at the moment of the beep, he was mostly remembering the feeling of oddness he had felt when he originally heard his 5-year-old friend Lucy's odd voice, though he wasn't actually experiencing the feeling at this moment. He innerly saw the inside of the back of a blue tent that was dimly lit with an outline of Lucy's body with no facial features kneeling to his left. [As far as he could tell, this was seen from the same perspective (himself kneeling) as he had been in six months prior, when this memory actually occurred.] He also heard Lucy's odd/weird/whiny tone of voice that was not like Lucy's usual voice, but he did not hear the words she was saying. [Six months prior during this event, he had wondered if it was the voice of the devil or something like that, but not in this moment.]

This sample involved focusing on auditory aspects in his internal environment. Josh was innerly hearing Lucy's voice. He was focused on the odd/weird/whiny tone of the innerly heard Lucy's voice, which was in contrast to Lucy's actual voice.

Josh was generally clearer and believable when describing moments of sensory awareness in comparison to when he described most of his other moments. However, he also had some moments when even his sensory awareness was not clear, consistent with having no clear inner experience more frequently. The variable clarity of his sensory awareness provides support for the understanding that Josh had the ability to describe clear sensory awareness when clear

sensory awareness was present, but his description was unclear when no clear sensory awareness was present.

Inner Seeing

Josh experienced inner seeing in 6 (15%) of his 39 samples. Josh had five apparently clear inner seeings, and one unclear inner seeing. He experienced these inner seeings in approximately his second half of sampling. Josh seemed to be confident about most of his inner seeings, and when he appeared confident his reports of inner seeing were as clear as his moments of clear sensory awareness. Similar to the clarity of his moments of sensory awareness, his inner seeing was generally clear, but sometimes unclear. His first mention of inner seeing occurred on his fourth sampling day.

> **Sample 4.1:** Josh was in a staff meeting. His pastor, Dave, was telling a story to the staff about a friend of Josh's named Frank. At the moment of the beep, Josh was innerly seeing Frank in the process of pulling a gun out of a holster he had attached to his lower right thigh. The scene Josh was seeing was dark. Josh could not see a lot of detail, perhaps because the scene was dark or perhaps because the detail was not present, but Josh could see the gun well enough to know it was a black or dark semiautomatic pistol. [What Josh was seeing was consistent with the story that his pastor was telling about Frank.] Although Josh was tracking the story, it was not clear if Josh was hearing the story in experience. If he was hearing the story, it was much less central in his experience than his inner seeing.

In this sample, Josh innerly saw his friend, Frank, centrally in his experience. This was his first mention of inner seeing, and it was mostly clear. Josh was able to describe details of the inner seeing, but part of the seeing was less clear because the seeing was dark.

Josh had another instance of clear inner seeing in sample 4.5.

Sample 4.5: Josh was sitting on a curb in the parking lot for his apartment. His friend Hugh was coming to visit him in about half an hour. At the moment of the beep, Josh was innerly seeing a scene from a month or so earlier when he had cut Hugh's hair. Josh was seeing this from a third person perspective about ten feet back and above so that he was looking down on it at about a 45-degree angle. Josh saw the back of Hugh and he saw himself from the back, to Hugh's right. He saw himself in the process of cutting Hugh's hair with both of his hands on Hugh's head. Josh also felt hopeful/connected; this was a spiritual feeling in approximately the center of his torso.

In this sample, Josh was again seeing someone from a past memory, his friend Hugh. Josh was able to clearly describe seeing the backs of both Hugh and himself while Josh cut Hugh's hair, and the perspective from which he saw the inner seeing. The perspective of seeing himself from behind is less commonly described in typical DES sampling.

Another example of a clear inner seeing was in his next sampling day.

Sample 5.2: Josh was lying in bed thinking of his calendar for the next few weeks. At the moment of the beep, he was innerly seeing five white blocks that were lined up in a row, representing March 17 through the 22, with the word, "HAWAII" written in each of the five blocks. "HAWAII" was in all capital letters and approximately the size of each block (the letters filled up about the entire block), in a print font like Times New Roman, and black. He did not see" March" or any of the numbers 17-22, but he understood what he was seeing corresponded to those dates.

Josh was clear about this experience of inner seeing to a greater degree than in sample 4.1. He was able to clearly describe how the word, Hawaii, was in his experience (e.g. in all capital

letters in Times New Roman font, black color, and the same size as the blocks of the calendar he was also seeing). He was also able to distinguish what was (e.g., blocks of the week) and was not (e.g., dates specifying the 17-22 or March) in his inner seeing.

In sample 10.1, discussed above in the Sensory Awareness section, Josh had a clear inner seeing. He innerly saw the inside of the back of a blue tent that was dimly lit with an outline of Lucy's body with no facial features kneeling to his left. [As far as he could tell, this was seen from the same perspective (himself kneeling) as he had been in six months prior, when this memory actually occurred]. This was a clear part of the experience in contrast to the unclear emotionally relevant sample.

One of his six samples with inner seeing that was somewhat unclear in sample 8.3.

Sample 8.3: Josh was at Morning Prayer standing in a circle with 15-20 people while Sarah was strumming the guitar and singing. About 10 other people were singing, including Josh. At the moment of the beep, Josh was hearing voices singing and, to a lesser extent, guitar. He may have heard Sarah's voice louder but was not sure; he was sure of hearing voices in unison. He also innerly saw a huge white room with walls so distant they could not be seen and a big, white, tall, obelisk-shaped throne in the center of the room, in front of Josh. This was a clear inner seeing, but the throne was not detailed; he saw the general square shape and edges of the throne but did not see the top of the throne. Both the room and the throne were white, but he could distinguish the edges and basic shape of the throne in the room. He also heard voices of people singing, but did not see people in the room. This was the same hearing he was hearing in the actual room he was in, but he was also hearing this same singing in his inner seeing. He also experienced a cleanness/pure/heavenly sense he described as similar to feeling like just getting out of

a bath – he felt both the room and he were spiritually clean. It was not clear if Josh was seeing heaven when he was seeing this room.

In this sample, Josh's inner seeing was clear, but the details of the throne of God were unclear. This sample of unclear aspects of inner seeing suggest that when the experience was unclear, Josh's descriptions of inner experience were unclear. However, when his experience were clear, his descriptions were clear. Josh's clarity of inner seeings was about as clear as his clear sensory awareness, and much clearer than the majority of his other sampled moments.

Clarity of Experience

Josh's ability to describe clear sensory awareness in 10 (77%) of 13 samples with sensory awareness and clear inner seeings in 5 (83%) of six samples with inner seeing demonstrates Josh was able to have some clear inner experiences. However, we were unable to determine if any clear experience was present in the remaining moments, which involved 24 of his 39 of his sampled moments. Several factors may have contributed to this. First, no clear experience may have been present at those moments. Second, the experience may have been something ineffable. Third, the experience may have been something that cannot be understood. Fourth, the experiencer may have been diffuse. Fifth, the complex interpersonal nature of the DES method may have contributed to the inability to describe and/or understand his inner experience. Lastly, some combination of these five factors may best explain the difficulty understanding Josh's inner experience. Each of these factors will be discussed in more detail in the sections below.

No Clear Experience

One possibility for our difficulty understanding Josh's experience throughout sampling may have been that he had no clear experience. For example:

Sample 2.2: Josh was demonstrating and describing how the wallet he made will work to his co-worker, Greg. He had slid his fingers into a card slot in the wallet. He wanted Greg to see how he envisioned the way the wallet would be used. At the moment of the beep, his experience was something like wanting Greg to understand/recognize what he's done with the design and function of the wallet. This was not a cognitive experience; it may have been an emotional experience. This may have involved looking at Greg's eyes for some sign of understanding/excitement. Josh may have also been feeling excited at this moment or have been disappointed about Greg not being as interested in the wallet as he was, but this is unclear. Josh was speaking at the moment of the beep, telling Greg about the wallet, but the speaking was outside of his experience—that is, his own speaking was just happening with no experiential sense of authorship or control. He had no sense of the words being spoken.

Josh had many instances of experience that was not clear in this sample. His experience of wanting Greg to understand/recognize what Josh did with the design and function of the wallet may have been a cognitive experience, an emotional experience, or some combination of the two. He was also unable to describe the valence of the potential emotion present. Excited and disappointed are oppositely valenced experiences that should be easy to distinguish from one another. However, Josh was unsure which was present, or if both were present. His experience of speaking was also not a clear experience. He had no sense of the words he spoke, and it seemed to be happening outside his awareness.

Two other examples of no clear experience may have occurred in samples on his sixth sampling day.

> **Sample 6.1:** Josh had been sitting in his bedroom singing out in prayer, "I belong to you." At the moment of the he was singing the word "belong." He was not sure if he was more into hearing his voice or into the creating of his voice, or into the general prayingness of his singing. As best he could tell, he was into all three of these aspects. He may have also been feeling safe/satisfied/secure, which may have been related to his experience of worshipping.

In this sample, Josh was not sure how singing was in his experience. He may have been singing or praying or some combination of these actions. He was also unsure if there was a distinguishable emotional experience in his inner experience at the moment of this beep. We were not convinced his experience of safe/satisfied/secure was an experience consistent with other experiences we call "feelings." Josh's experience of safe/satisfied/secure might have had metaphysical or spiritual significance, not emotional significance. Another possibility is this experience is a typical emotional feeling but Josh talks about them in a spiritual/metaphysical way. Another possibility is that we do not understand what he is talking about with this experience.

> **Sample 6.3:** Josh had been flipping through his old college's magazine, *The Liberty Journal*, while his roommates were talking in the kitchen making dinner. At the moment of the beep, he was seeing the faces on the magazine page and hearing Joseph's voice. He was unable to clearly say if he was hearing the tone of Joseph's voice and listening for a higher tone when he would say dinner was ready, or if he was expectantly hearing Joseph's voice. He was confident that he was not hearing with understanding—that is, the meaning of Joseph's talking did not penetrate Josh.

In this sample, Josh's experience of listening to his roommates was not a clear experience to him.

Josh also had other examples of no clear inner experience on his tenth sampling day. In sample 10.1 (blue tent) discussed previously, Josh had parts of his experience that were clear – the inner seeing of the back of a blue tent that was dimly lit with an outline of Lucy's body with no facial features kneeling to his left, and the sensory awareness of being focused on the whiney tone of Lucy's voice he was innerly hearing (both discussed above). However, the experience of remembering the feeling of oddness was not a clear experience. He was unable to clearly describe how remembering the feeling of oddness he had felt when he originally heard Lucy's odd voice was in his experience at the moment of the beep. He denied he was feeling the oddness at the moment of this beep but could not say more about this part of his experience. The fact that he had some parts of his experience that were clear suggests that he is able to have clear inner experience at times, and at other times, he had no clear experience for whatever reason.

> **Sample 10.4:** Josh was eating cereal and he had too much milk left in his bowl for the few remaining flakes. At the moment of the beep, he was seeing the milk in his bowl. He was also seeing the little bit of milk in the fridge located behind him and the cabinet with lots of cereal in the box remaining behind him towards his left side. He was not sure whether this was an imaginary seeing (what we would call inner seeing) or (an impossible) seeing of reality. That is, the milk and cereal were behind him, but it seemed he was seeing it. This (inner?) seeing was a thought/criticalness of the unbalanced proportions of milk and cereal. He may have also been minimally paying attention to the bland taste of the cereal.

In this sample, Josh was unsure how the experience of (inner?) seeing was in his experience. He was also unsure if this (inner?) seeing was an inner seeing/thought or an (inner?) seeing/feeling or an (inner?) seeing/thought/feeling.

Josh frequently had no clear experience. His difficulty with the DES task may have been due to having no clear experience to describe. He had several moments of experience where he was unsure how or what was exactly present. The frequency with which Josh had no clear experience is not seen in sampling with typical DES participants.

Incomprehensible Experiences

A second and third possibility for the struggle to understand Josh's experience may be that Josh's experience may have reflected something that could not be put into words or his experience may have reflected something that cannot be understood. Religious experiences, psychotic experiences, and other unusual experiences may be difficult to put into words and/or difficult, if not impossible, to understand.

Religious content was directly present in 18 (46%) of Josh's 39 samples. For example, in sample 8.3, discussed above, Josh was innerly seeing the throne of God, but the details of the throne were unclear. The throne of God is an imaginary idea described in the Bible and in Josh's religion, Christianity. The content of Josh's inner seeing was definite – the throne of God. He was less able to describe what he saw. His difficulty describing the details of this inner seeing may have reflected that seeing the throne of God is indescribable, or it may be an experience that he could not fully comprehend.

Josh had other moments of ambiguous experience with religious content on his ninth and tenth sampling days.

> **Sample 9.3:** Josh was praying for Timothy, feeling burdened, and he had just finished saying, "Please Abba." At the moment of the beep, he was sensing the presence of Timothy to his front right. Although it was clear this presence of Timothy was experienced as being to Josh's right, it was not clear how he experienced Timothy's

> presence. The present Timothy was smaller/weak/wounded and Josh was spiritually carrying Timothy to God. It was not clear how Josh experienced this or the other aspects of this moment. Josh also sensed God's presence all around and himself as walking with God. He was also feeling the presence of Timothy as burdensome. This feeling burdened may have also been expressed in the pleading way the words, "Please Abba" came out. "Please Abba" may have been spoken through Josh – that is, he was not the creator of the words; however, it was difficult to understand if he experienced himself as the creator of the words or an observer of the words. Josh described the speaking as "the cry of his heart."

In this sample, Josh had multiple instances of no clear experience. First, his experience of his friend, Timothy, was not clear. This may have been due to Josh experiencing Timothy in a religious way. Josh was praying for Timothy and experiencing his essence. Experiencing a person's essence might have been a common religious experience for Josh, but he was unable to clearly describe how Timothy's presence was in his experience. Second, sensing Timothy's presence as smaller/weaker/wounded and spiritually carrying Timothy to God was also not clear. This part of his experience may have been difficult to describe because the experience itself was not clear or because it was some religious experience that cannot be fully understood by human minds. Third, how Josh sensed God's presence was not clear and he was unable to describe the experience except to say that he was walking with God. Fourth, Josh's experience of speaking, "Please Abba," was not clear. Josh thought he was not the creator of these words and described this as a typical experience of praying for him. The religious experience of God speaking through a person during prayer may have not been a clear experience, and/or may have been difficult for Josh to describe, and/or the experience itself may have been impossible to understand. Josh had

multiple religious experiences in this sample that were difficult for him to describe and may have been difficult to fully understand due to their religious nature.

Two other moments with religious content occurred on the tenth sampling day. One was, like several others described above, difficult for us to understand. A second was clearer and more straightforward.

> **Sample 10.3:** Josh was sitting on a stool on his balcony, with a couch next to the stool. He was aware of God sitting next to him on the couch. At the moment of the beep, God said, "You can have as much as you want." Josh heard this as God's voice, which had the vocal characteristics of his own voice. The words were "breathed into" him – that is he heard the words all at once [and not the typical one word after another sequence of speech in reality]. He was also feeling the grace of God and God's words. This was a comfortable bodily sensation that moved from his head down to his toes.

Josh was unable to clearly describe how he experienced God's voice in this sample. Josh described it as having all the words breathed into him and heard simultaneously, unlike human experience of speaking and hearing speech. Hearing God's voice may be an experience that is indescribable and/or impossible to understand because it is fundamentally different from human speech. Josh was able to clearly describe his experience of feeling the grace of God as a bodily sensation of comfort with movement from his head to toes.

Josh did have a sample with clear inner seeing and inner hearing experiences related to religious content in sample 10.5.

> **Sample 10.5:** Josh had been praying in tongues for his old roommate, Devon, with whom he has just spoken and who has some tough decision to make. At the moment of the beep, Josh innerly saw a dark blue locker with a handle and a silver Master lock on it - the kind

> of lock you open with a key. The locker was seen against a dark background. He also heard God saying, "I will give him the keys." This was said in Josh's voice but he heard it as God's voice. He also saw the words in computer type font. The words were in black on a black background with some light coming through, making the letters distinguishable from the background.

In this sample, Josh heard God's voice; however, it was actually Josh's voice that he heard as God's voice. In comparison to sample 10.3, described previously where God's voice was "breathed into him," Josh was able to describe sample 10.5's experience of hearing Gods voice much clearer than he was able to describe sample 10.3's experience of hearing God's voice. In sample 10.3, God's voice seemed to be different or impossible to understand because it was a departure from the only way humans understand speech. In sample 10.5, God's voice had human characteristics in that the words were spoken in a sequence of one word after another in a human (i.e., Josh's) voice. When the experience was closer to experience humans typically understand, Josh was able to be clearer in his descriptions of experience.

Josh had seven (18%) moments when it was both difficult for us to apprehend his experience and his experience was thematically related to beauty or religion or some combination of these. His first example of this was seen in sample 3.2, discussed above, wehre Josh was seeing beauty rather than the appearance of the clouds. His experience was of seeing beauty, not of seeing clouds that were beautiful. During discussion of this beep, Josh did not talk about seeing clouds in a typical way that most DES participants would have talked about it. His way of talking was not merely linguistic style or carelessness, but seemed carefully aligned with something, possibly something religious.

He had another example of these samples related to beauty, or religion, or both in another sample from his third sampling day.

> **Sample 3.4:** [Josh had found the rooster he had heard crowing in 3.3.] At the moment of the beep, he was looking at the rooster and experiencing something like child-like joy. He also may have had a sense of being transported back to his childhood such that the rooster he was looking at was a rooster from his childhood and he was experiencing the joy as a child, but we could not be sure.

In this sample, Josh experienced a feeling related to *something*. He talked about joy in a way that seemed thematically different than the typical experience of joy. Again, Josh's description of his experience of joy seemed to be deliberately describing a different kind of joy that was related to something. We took his experience of joy to be experienced in a way that we did not understand, similar to the beauty he experienced in sample 3.2.

Josh had other kinds experiences related to beauty, religion, or both. For example:

> **Sample 5.3:** Josh was eating a dried fig in the kitchen. At the moment of the beep, he was enjoying the taste of the fig (approximately 80%) and feeling the crunch of the seeds on his teeth. He was mostly into the enjoyment of the taste. He could not say more about whether he was experiencing primarily the enjoyment or primarily the taste or a combination.

In this sample, Josh was experiencing a taste related to *something*. We had difficulty trying to understand his experience of enjoying the taste of this fig and fell into trying to understand his experience by making it mundane. We tried to see if his experience of enjoying the fig was a sensory experience or an emotion, but it is quite possible that his experience was not mundane and fit neither of these options. It was something else that we did not understand.

> **Sample 9.1:** Josh was kneeling in a bowed, prostrate posture while listening to a worship song playing from his iPod dock. At the moment of the beep, he was hearing the music and words, "Fire fall down on us as we pray." He was also aware of the bowed, prostrate posture. This was something like ("picturing" but he really seemed to have meant) knowing his body to be in this posture. He also had some experience of "surrender" or openness. He described this as if he were presenting himself as an offering, and seeking and receiving God's will. He could not say much about his direct experience of this surrender or openness or whatever it was. The posture and surrender may have both been parts of one, same experience.

In this sample, Josh's posture and surrender may have been the same experience that was related to God. He was not experiencing a mundane experience of noticing his posture or an emotion; he was opening himself up to God's will.

Josh's samples that involved religious components were all unclear. His samples related to beauty, religion, or both were also unclear and seemed to be different from mundane experience of sensory awareness, emotions, etc. The lack of clarity may have been because the experience itself was difficult or impossible to describe. It could also be that his belief system contaminated his report of clear inner experience because his observation system is affected by his strong beliefs. These samples suggested spirituality infuses Josh's experience in a way that makes it not concrete, mundane, easily accessible, or easy to comprehend.

Lack of Coordinated View of Self

A fourth possibility for Josh's relative lack of clear experience may be that the experiencer may have been uncoordinated or diffuse. Josh held a fundamental belief of himself as a servant of God and often referred to his physical self and soul as separate parts of Josh. His

first description of this phenomenon was in sample 3.1, discussed above, where Josh was breathing deeply. This sample seemed to be something besides a mundane experience of breathing. Josh described the experience of taking a deep breath as creating a space for his soul and being in a state of open receptivity for something. He had a sense of expectant waiting in this experience, of breathing for something to come into his soul (maybe from God).

On his second sampling day, Josh's descriptions of sampled moments made us suspect that he maybe held a presupposition of himself as a "good" person and avoided experiencing and/or describing experiences that might be seen as "negative." For example:

> **Sample 2.3:** Greg was giving instructions to Josh about paying the window guy who was coming to fix a broken window. Josh was holding a credit card in his hand. The beep came somewhere between Greg giving the instructions and Josh thinking he did not want to be dealing with this because he had leather work he wanted to do. Josh was not able to pinpoint the moment of the beep within this interaction with Greg, perhaps because he waited until the conversation was finished to write notes about his experience.

In this sample, Josh did not want to deal with having the credit card and the responsibilities that came with it. He preferred to work his leather, and Greg was going on too long about the instructions. This sample was in the vicinity of inner experience but not high fidelity. He was unable to be explicit about where the beep occurred or his cognitive experience at the moment of the beep. This lack of clarity may have been influenced by Josh's desire to not have "negative" experiences like not listening to Greg who was talking to him and/or being annoyed at Greg and having to pay the window guy when Josh wanted to work on his leather wallets.

The idea that Josh viewed himself as separate spiritual and physical parts of himself and that his physical parts were "good" was also evident in later sampling days, as in sample 5.4.

Sample 5.4: Just before the beep Josh was lying in bed and had unwelcomed visual experiences of a woman in two provocative/lustful positions. He did not see the woman clearly, mostly just her shape as a whitish presence, but her form or position was overtly sensual and provocative. He also heard God's/Holy Spirit's voice asking, in a gentle, firm tone. "What are you doing?" He then replied, "No, I will not entertain that thought." It was not clear if his response was innerly spoken or experienced in some other way. At the moment of the beep, the visual experience of the woman had passed and he was feeling a lustful presence/alluring spirit/memory of having seen the woman. This may have been located outside his body. He was also feeling something like filth, which may have been the same experience as the lustful presence or a related experience or a separate experience, but we did not have time to explore this further. He may have also been feeling on guard/trying to not give into what the alluring spirit was calling him to do, which may have been the same experience as the lustful presence or a related experience or a separate experience, but we did not have time to explore this further. [Josh could not identify any vocal characteristics of the Holy Spirit's voice speaking to him (whether it was masculine or feminine, whether it was deep, etc.), though the experience was said to involve hearing some type of voice.]

Prior to discussion of this beep, Josh stated he had thought about skipping discussion of this beep before the sampling interview, but was willing to discuss this beep during the interview. In this sample, Josh had a visual experience that he did not want to have because it was a lustful image and at the moment of the beep, he was feeling lustful. He also felt something like filth because he held a view of himself in accordance with the Christian values of purity before marriage. His discomfort with having the lustful visual experience and related feelings of lust may have

interfered with having clear experience because he was invested in not having an experience that was not congruent with his self-image.

Other examples that highlighted Josh's view of himself as good were seen in his seventh sampling day.

> **Sample 7.2:** Josh was facing Debbie who was in front of him picking out other things. At the moment of the beep, he was asking, "is there anything else we need?" This was asked with a curiosity/concern for what was on her mind. He was also seeing her face.

In this sample, Josh was asking Debbie if they needed anything else. While discussing this beep, Josh shared that Debbie was looking for personal stuff when their mission was to buy things for an upcoming retreat. We had the impression there was an impatience associated with this moment, but Josh denied this. Josh stated he was merely curious and concerned about getting all the things they had been tasked with getting without forgetting anything. Josh seemed to reframe the suspected impatience with Debbie as concern about making sure they did not forget anything.

Josh had a view of himself that seemed to be uncoordinated or diffuse, which is not usually seen in DES participants. He appeared to distinguish between his physical self and spiritual self or soul. These both existed but varied in terms of which part was most prominent in his experience. His distinction between different parts of himself may make it difficult to have clear experience. Josh also held presuppositions of himself as "good" likely related to his strong spiritual self. This often possibly led to him denying or avoiding experiencing things he viewed as "negative" or un-Christian.

The Sampling Process with Josh

A fifth possibility for the lack of clear inner experience across Josh's sampling may be that the difficulty in understanding Josh's experience arose from the fact that his experience was

obtained through a complex interpersonal interaction involving Josh, three interviewers, and the DES method. We will discuss each of these pieces involved in the interaction in further detail.

Josh was not our typical DES participant in terms of his level of religiosity. He had earned a master's in Theology, was employed by his church, seemed to spend additional time volunteering at his church, and appeared to socialize mostly with people in his church. His view of himself and behavior seemed to be strongly influenced by his religiosity. His view of himself was unique in that it involved acknowledging and distinguishing between his physical self and his soul, and his focus on acknowledging "good" experiences of himself rather than "negative experiences" that was previously discussed. In addition to his unique sense of self, Josh had a style of talking that made it difficult to understand his pristine inner experience. We were often unsure if he was speaking in metaphors, talking about experience after reflecting upon it after the moment of the beep, concretely describing his inner experience, or some combination of these things. Most of these difficult discussions occurred when trying to understand his experiences with religious content and sometimes in samples when he was noticing sensory aspects in his environment related to God and/or his religion.

Josh also struggled to pinpoint and focus on the moment of the beep. He could not precisely identify what was present before, at, or after the moment of the beep, or convincingly distinguish any of those from context. He reported that he experienced the beep as having a slow rise time and likely perceived the beep as a less salient and precise signal as typical DES participants have described the beep. During the interviews, Josh would describe what was happening much before the moment of the beep in addition to some experience at the desired moment of the beep. Throughout all ten sampling days we needed to clarify that we were interested only in his experience at the moment of the beep. Typical participants would not

require such clarification after approximately the second sampling day. It may be that the beep, being part of his external world, was not a salient signal given that he is more interested in his internal and spiritual world.

In addition to Josh's characteristics, each interviewer brought their own limitations to the DES interview. First, some of us may have begun sampling with Josh with a predisposition causing us to struggle with understanding the religious experiences Josh reported. Each researcher has his or her own level of religiosity. Moreover, it is certain that none of us ever experienced the kind of religiosity that Josh experiences. We may have come into sampling with Josh with our own presuppositions leading us to struggle with understanding religiosity. Second, DES is a highly interpersonal method and understanding a participant's experience is more enjoyable than misunderstanding or struggling with a participant's report of inner experience. Thus, we may have been more willing to suppose we understood him than to continue the arduous task of conveying our misunderstandings and disagreements. While it is often not necessary to have shared experiences to understand someone else's inner experience, the discrepancy in our religious experiences may have been too great to overcome. Third, we may have overemphasized the mundane aspects of this experience because his samples were difficult to apprehend. This is a potential limitation of us as humans in encountering things we do not understand.

Another piece of our interaction with Josh was the DES method, a method requiring Josh to describe in detail his experiences, which are likely details he has never examined so closely before. An example of this was our interview of the second beep on Josh's third day of sampling. Josh was describing seeing clouds, but we were unable to understand his experience of seeing these clouds, despite a long interview. For example, in sample 3.1, discussed above, where Josh

was taking in a deep breath, Josh tried to describe his experience of breathing as something different than a mundane experience of breathing. This interview was the first of his sampling to be so difficult. We spent ten minutes discussing this but still found it difficult to comprehend. We went back and forth, with us trying to clear up ambiguity by asking straightforward questions, but Josh could not provide straightforward answers, introducing even more ambiguity with each explanation or statement he made. We spent this discussion trying to understand if Josh was describing mundane experience or describing breathing as a metaphor for spirituality. For example, we asked him questions to see if his experience of breathing was something like a sensory awareness. Josh's reply to this line of questioning was highly subjunctified, which is suggestive of no clear experience present, even though he had a clear sensory awareness in his second sampling day. Josh's response to investigating if his experience was a sensory awareness was that the breath could have been somehow connected to or representative of a sense of relief and/or a letting go of pressure. The fact that he had been able to describe clear sensory awareness before this beep suggests that this experience was not a clear sensory awareness or that it was some other experience. Josh tried to describe his experience of taking in the breath to the best of his abilities by saying the breath may have been somehow expectantly waiting or in a state of open receptivity to God.

The resulting combination of these factors meant we often ran out of time in our sampling meetings and rarely discussed all six collected samples in the same interview. For example:

> **Sample 3.5:** Josh was walking and praying by speaking aloud in a manner some would call "speaking in tongues," although that label did not seem to be in accord with his sensibilities. At the moment of the beep, he was pouring out his soul, almost crying out to

> express his dissatisfaction and frustration with aspects of his life and situation. He was talking aloud but in no known language, although the language seemed to be constructed of words and sentences. He had some understanding of what he was saying (that home was important, that his apartment didn't seem like home, that he didn't know what God meant as home for Josh, etc.), though he did not understand [nor could anyone understand] the actual words he was saying. It seemed that there were potentially important and perhaps central aspects of this experience that we were not able to identify or understand.

We ran out of time before being able to fully explore this beep. Josh was unable to clearly describe his experience of praying and we were only able to understand it up to the point of speaking in tongues. Josh did not agree with this label but was unable to provide any further clarification of his experience. Josh was also unable to describe what he was praying as he had he was not speaking in a known language. He tried his best to describe his speaking experience. We were unable to understand the details of his experience, perhaps because we ran out of time or perhaps because they were incomprehensible. We were able to gather that there were potentially important and perhaps central aspects of this experience that we were not able to identify or understand.

DES involves a complex interpersonal relationship where a participant shares their inner experience with us, likely in a way they have never been asked to observe or describe. Our interactions with Josh were marked by ambiguity and a struggle to understand his experience. All three researchers and Josh contributed to this difficulty, but in what combinations and in what ways we do not know.

Summary

Josh was a motivated participant – at least as motivated as all other participants in this study. However, his motivation to participate did not correlate with his ability to describe his inner experience in a manner that we could understand. Sampling with Josh was laborious and we were often unsure we (or he) understood his experience. His progression of the DES skill was not linear and was slower than is typically seen. Josh struggled to limit himself to describing experience present at the moment of the beep. During the expositional interviews, he would often describe what was happening much before the moment of the beep, along with some experience at the desired moment of the beep. Therefore, we repeatedly provided clarification across all ten sampling days that we were only interested in the experience at the moment of the beep, and even then were only marginally successful.

There may have been several additional factors that contributed to Josh's difficulty with clear inner experience. Josh was extremely religious to a degree that is not typically seen in DES participants. His level of religiosity was reflected in religious components (46%) being the most common characteristic of in his 39 total samples. This characteristic may have been related to his frequent descriptions of no clear inner experience because these experiences were incomprehensible to us despite long, difficult discussions to understand his experience.

Morevover, Josh's difficulty in describing clear inner experience may have been due to Josh being experientially uncoordinated or diffuse. He held a view of himself that distinguished between his physical self and his spiritual self. He also focused on acknowledging "good" experiences that he perceived as congruent with his religiosity rather than "negative" experiences that he perceived as incongruent with his religiosity. Having this view of himself may have contributed to Josh's having no clear experience frequently, but we have no evidence in this regard; all we can say is that, try as we might, Josh did not have or at least could not describe

coherent inner experience. However, despite the majority of his experiences being unclear in some ways, Josh did have clear experiences on some occasions.

Josh had 10 of 13 sensory awarenesses that were generally clear (25% of his 39 total samples). Inner seeing was not a frequently occurring characteristic but 5 of 6 samples with inner seeing (13% of his 39 total samples) seemed experientially clear. No clear experience was much more frequent (62% of his 39 total samples) and may have contributed to his struggle in consistently providing high fidelity descriptions of his inner experience as would be expected in a participant who engages in ten sampling days. Since he was able to describe clear sensory awareness and inner seeings at times, his lack of clarity of experience was not likely due to an inability to clearly describe his inner experience.

The DES experience and complex social interaction between three researchers and Josh was less likely to have contributed to Josh's frequent no clear inner experience because we have worked with numerous other individuals and have been able to understand clear inner experience when it was present.

CHAPTER 8

IDIOGRAPHIC DESCRIPTION OF TREVOR'S EXPERIENCE

Trevor is a 60-year old, right-handed, Caucasian male who sampled with us from May 2 to 30, 2014. Trevor met criteria for BD-I with psychosis, recurrent, in full remission. He also had additional diagnoses of lifetime alcohol dependence and lifetime polysubstance abuse. At the time of participating in this study, he was taking his prescribed medications of Lithium and Seroquel. He stated his age of onset for major depressive episode without psychotic features was 13-years-old, and he had experienced a lifetime total of five major depressive episodes. He stated his age of onset for manic episode with psychotic features was 18-years-old, and he experienced a lifetime total of five manic episodes. He has been hospitalized three times; he was hospitalized in 1972 for a suicide attempt, and hospitalized in 1973 and 2011 for psychiatric issues. He completed 13 years of education. Trevor is married to his third wife and has one daughter from a previous marriage. His wife has one son from a previous marriage. He lives with his wife and cat, and will occasionally allow friends to stay with them. He has been unemployed for the past three years. His primary source of income has been his wife's social security disability income and their shared Bingo winnings.

Trevor was given the SCL-90-R (Derogatis, Lipman, & Covi, 1973; Derogatis, 1994) both before and after sampling. His pretest and posttest Global Severity Index T-scores were 68 and 67, respectively, both suggesting the presence of severe psychological difficulties. He was given the DSM-5 Level-2-Depression-Adult measure both before and after sampling. His pretest and posttest T-scores were 54.3 and 52.3, respectively, both indicating no to slight levels of depression. He was also given the DSM-5 Level-2-Mania-Adult measure both before and after

sampling. His pretest and posttest raw scores were ten and nine, respectively, both indicating a high probability of a manic or hypomanic condition.

Trevor sampled on ten separate occasions within the same month to accommodate the primary researcher's timeline for completing data collection before moving out-of-state. He collected a total of 58 samples. Discussion of one beep was skipped because he could not remember his experience. Because the first day of sampling is typically considered training, the beeps from that day will not be discussed, leaving a total of 53 samples.

No Clear Experience

Trevor appeared to struggle with describing coherent inner experience throughout his sampling. His difficulty with describing experience was mirrored by the researcher's struggle to obtain and understand coherent inner experience throughout his sampling. Trevor's struggle with the task on his first sampling day was typical of DES participants. However, his difficulty remained relatively constant throughout sampling. Trevor rarely gave descriptions that limited themselves to experience at the moment of the beep across all sampling days. Therefore, throughout sampling we tried to understand why it was difficult for him to be clear about his inner experience: was it because his inner experience itself is unclear? Was it merely a linguistic characteristic? Was it a procedural artifact? Our best understanding, after all was said and done, was that he did not have clear inner experience, and that this was a central theme of his sampling. For example, on the second day he had no samples when he could clearly describe what was in his experience.

> **Sample 2.1:** Trevor had just put some creamers into his coffee and was closing the lid. At the moment of the beep, he may have been imaginarily tasting the Irish Crème and French Vanilla taste. He may have also innerly saying something like, "This is going to

be so (or sooo) good." Trevor may have also felt a separate feeling of anticipation, or the anticipation may have been experienced as the imaginary tasting.

In this sample, Trevor's experiences seemed muddled with each other. Trevor reported being unsure if he was imaginarily tasting the Irish Crème and French Vanilla, or innerly speaking, or feeling anticipation, or feeling anticipation in the imaginary tasting.

Trevor also had a tendency to refer to putative generalizations and/or references to supposedly shared experience rather than cleaving to describing his own experience at the moment of the beep. Although we tried many times to explain that our own experience might be different from his experience, he continued to refer to such generalities in response to our queries about his inner experience. For example:

Sample 4.1: Trevor had shaken hands with someone with a strong handshake. At the moment of the beep, he was wondering something like, 'I hope my handshake was strong enough.' He may have also thought why is his grip so strong? Is he an ironworker? But this may have been before the beep.

In this sample, Trevor's wondering may have been unsymbolized but we were unable to be confident. It was challenging to narrow down to experience at the moment of the beep because at times in the interview it seemed like the beep included a thinking about the guy's strong handshake, or an image of the guy's hand. Trevor tried to describe his experience by comparing his experience of the handshake to our own (the interviewers') handshake experience. We re-iterated we were interested in his experience because our experience of handshakes may be different than his experience of handshakes, and his experience of handshakes in general may be different from his experience of this handshake at the moment of the beep. Despite this prompting, Trevor continued answering our questions about how he experienced the handshake

at this moment with comparisons to other handshake experiences. It was very difficult in the interview to disentangle experience at the moment of the beep from experience long ago.

Another example of unclear inner experience on his third day was in sample 3.4.

> **Sample 3.4:** Trevor was doing the dishes and going to fix breakfast for his wife while wearing the beeper. At the moment of the beep, he may have been wondering whether his wife would come help; or he may have been contemplating if he should go and ask her to help; or he may have also been thinking she likes her breakfast a certain way so she should come help. He may have also been thinking 'I'm doing the dishes, I'm cooking, and I've got the beeper on," [as a way of explaining why he needed help] but none of these thoughts were in words, and it was not clear whether the thoughts were experientially present at all.

In this sample, Trevor was unable to convincingly distinguish between thinking being present or nothing being present in his inner experience. Moreover, he was unable to accurately describe how (e.g., unsymbolized, worded) the thinking was present, if it was present at the moment of the beep.

On his sixth sampling day, Trevor tended to explain the situation he was in when asked to describe his experience in addition to frequently referring to generalizations when attempting to describe his inner experience. It was difficult to be confident about what was in his experience in all six samples from this sampling day. Trevor spontaneously shared he was taking Lithium as prescribed. He believed that it was having a major effect on him, which he characterized as "it's working." In four of six beeps from this sampling day, the presence of both unclear thinking and feeling made it difficult to be confident about what was in his experience, as in sample 6.1.

Sample 6.1: Trevor was struggling to tie his shoes since he has gained weight and bending over meant his suspenders may pop off. At the moment of the beep, he was thinking something like he should have gotten longer shoestrings. There did not appear to be any words present, but it was difficult to be certain. He may have also been feeling perturbed, which may have been experienced as his blood pressure rising.

In this sample, Trevor may have been primarily thinking about getting longer shoestrings with no experience of feeling perturbed, or primarily feeling perturbed that may have been experienced as a thought. Despite a long, arduous conversation to attempt to clarify his experience, we were left with little reason to be confident either way about the characteristics of his experience at this moment.

On his seventh sampling day, Trevor began discussing experience present before and after the beep, straying farther from the moment of the beep. Trevor spontaneously reported he was learning a lot from participating in this study including noticing something about his thoughts. However, we were unable to be sure what he meant. One researcher understood Trevor to say that he was actually thinking more in words than he had before participating in the study. The two other researchers understood Trevor to say that he noticed that he has more thoughts with words than he realized prior to participating. This interaction highlights the difficulties of understanding Trevor. All six samples from this sampling day were unclear, including sample 7.6.

Sample 7.6: Trevor had checked his points and saw he had enough to play Bingo for an additional game. At the moment of the beep, he was walking to the rewards center to redeem his points. He may have been doing this on autopilot or may have been somewhat aware of walking. He may have also been thinking something about, ‘I have enough for

$7 worth of Bingo' with no words, or something like, 'I'll use my points for Bingo.' He may have also been feeling pleasantness, but we were unable to determine if any of these things were directly present to him.

Trevor's experience on his ninth and tenth sampling day were the clearest of all his sampling days thus far, but this was confounded by the fact that only one interviewer was present. Furthermore, he still had a majority of samples with unclear experience. He had a clear visual sensory awareness in sample 9.1, and a clear feeling of being let down in sample 9.5.

Sample 9.1: Trevor was sitting at the bus stop and a drop of sweat had dropped onto his left hand (the corner where his thumb and forefinger connected). At the moment of the beep, he was seeing a clear, large drop of sweat on his left hand that reminded him of a clear lake. He was unable to say if he was into the clearness or the largeness in particular.

Sample 9.5: Trevor had needed O63 and the caller had called O69 and then someone had called Bingo. At the moment of the beep, Trevor was feeling let down. This was a physical feeling of deflatedness in his upper half of his body like a release of pent up anticipatory energy.

Trevor's sample 10.2 involved clear inner speaking and sample 10.4 involved clear bodily sensory awareness. Trevor had shared he was taking Seroquel as prescribed on his eighth sampling day; on his tenth sampling day he shared that taking Seroquel made him forgetful. His reported forgetfulness may make it difficult for him to remember clear inner experience.

Sample 10.2: Trevor had looked at his paper from the game that had just ended and was preparing for the next game. At the moment of the beep, he was innerly saying, "Next game." This was said in his voice like a command to get ready for the next game by tearing of the page for the game that had just ended. He may have also been feeling

anticipation/hope brewing, which was a thought/feeling of something like, 'I have just as good a chance as anyone else.'

Sample 10.4: Trevor was standing under an oak tree waiting for the bus. At the moment of the beep, he was feeling a physical sensation of coolness around his shoulders, back of his neck, temples, and armpits. He was enjoying the coolness, but we were unable to determine if the enjoyment was a separable experience from the physical sensation of coolness.

Trevor may have had 19 (36%) of his 53 samples that may have involved wanting or not wanting something to happen. Most of these samples involved unclear experience, consistent with the majority of his samples discussed thus far, and we could not be confident whether the wanting was actually in some way experientially present to Trevor. Certainly as a fact of Trevor's situation, he wanted something; the question was whether that wanting was a fact of Trevor's *experience*, and we were not (and we came to conclude that Trevor was not) capable of disentangling those two very different aspects.

Many of these samples that may have involved the experience of wanting something to happen were related to Bingo, which was a common pasttime. For example:

Sample 4.5: At the moment of the beep, Trevor may have been innerly saying "48 needs to come. I'm not having any luck." Or he might have said, "I need 48. No Luck." He was unsure of the specific words and said both options during the interview. This saying/thinking come from an unhappy/down place, but whether he feels down is questionable.

Clearly he wanted 48. But what if anything of that wanting was experientially present was difficult to say. Were there words? Maybe. Were there specific words? Maybe. Was there a feeling of downness? Maybe.

> **Sample 8.6:** Trevor was one number away from winning Bingo. At the moment of the beep, he was innerly saying, "B8, B8, B8, B8……." in a pleading/supplication way and looking for the blue ball to come up on the TV screen.

In these samples, Trevor wanted specific numbers to be called out in Bingo so he could win. He was able to recall the specific numbers, 48 in sample 4.5 and B8 in sample 8.6, which was somewhat clearer than some of his other samples.

Trevor also had experiences where he did not want something to happen. Two samples were related to not wanting something to happen during Bingo. For example, in sample 9.5, discussed above, Trevor had not wanted to lose and was feeling let down after someone had just called, "Bingo."

Trevor had one sample of not wanting something to happen that was not related to Bingo in sample 3.6.

> **Sample 3.6:** Heather was back in their house and Trevor had heard Heather scream for help. [This has happened 4-5 times before where Mario, a man whom she is sporadically acquainted with, would climb into the window of Heather's room and intimidate her and then she would scream and he would climb out the window.] Trevor had gone to Heather's room and was watching Mario climb out the window. At the moment of the beep, Trevor may have been feeling glad Mario was gone, or he may have been glad Mario was gone but didn't feel it at the moment of the beep. He denied being pissed at having to go check on Heather because this is exactly the kind of trouble he did not want.

In this sample, Trevor did not want to have to deal with getting Mario out of his house. But it was difficult or impossible to say whether this not wanting was present experientially at the moment of the beep.

Trevor's motivation to perform DES successfully was apparent across all our sampling interactions. Therefore, his unclarity should not be confused with disinterest or uncooperativeness. Despite his strong motivation and attempts to do DES, he struggled to describe his inner experience. One of the hallmarks of DES is its iterative nature that allows for unplanned opportunities to clarify the DES task. We had opportunities on each sampling day to clarify the nature of the DES task and tried to maximize the teaching of the task to Trevor. Even though Trevor continued to have unclear inner experience throughout all ten sampling days, his ninth and tenth sampling days contained the most credible accounts, albeit few, of clear inner experience across his sampling. It may be that Trevor's inner experience is fundamentally unclear and that no amount of training would change that. Another, less likely possibility may be that having all ten sampling days within one month was not sufficient time to allow Trevor to practice and improve his DES skill. Also, less likely is that Trevor's medications may contribute to Trevor's unclear inner experience and/or his inability to describe clear inner experience.

Trevor had some experiences that were consistent throughout his sampling despite his difficulty describing clear inner experience and our difficulty trying to figure out what was in his inner experience in most of his sampled moments. Each of these characteristics will be discussed in greater detail below.

Emotionally Relevant Samples

Trevor had 22 (42%) of his 53 samples that may have had some emotional relevance but which did not include feelings. Again, we use the term emotionally relevant sample because

Trevor was often unclear if a feeling was present. At times, he was unclear if a feeling was present, if a thought was present, or if a thought/feeling was present. Trevor had 12 samples that may have included an unclear experience of a thought/feeling of his 22 samples that may have been an emotionally relevant sample. His first sample that may have involved a thought/feeling was in sample 3.1.

> **Sample 3.1:** Trevor was watching, Leave it to Beaver, and saw the lunchboxes on the kitchen counter on the TV screen. At the moment of the beep, he said aloud "Lunchboxes!" [or perhaps that was slightly before the beep] and [perhaps simultaneously] was innerly seeing a lunchbox with some cartoon character on it. The lunch box was clearly seen but the details of the cartoon character were out of focus/shadowed. He saw this in black and white, slightly above (above where the lunchboxes on the TV screen were) and off to his right, with the length of it facing him. He may have also had a feeling of joy/good feeling/connection that may have been a mental feeling of enjoying the lunch boxes/being connected to the past.

In this sample, Trevor may have been feeling joy, but he was unable to say with confidence and clarity whether or how he experienced this feeling. He may have had a mental experience of feeling joy about the lunch boxes and being connected to his past. The fact is that the lunch box was connected to good times with his mother when he was a child; it was impossible for us to ascertain how and how much of that was experientially present at the moment of the beep.

Another example that may have included a thought/feeling was in sample 6.1, discussed above, where Trevor was struggling to tie his shoes. In that sample, Trevor may have been thinking he should have gotten longer shoestrings. He may have also been feeling perturbed. He was unclear if either the thought or the feeling was present, or if a thought was present which had

an emotional tone to it, or if there was primarily the thought with no experience of the emotion, or if it was primarily an emotion that might or might not be felt and that might or might not be thought, or something else. Neither he nor we could disentangle these disparate possibilities, despite careful attempts to do so. Other examples of a thought/feeling were equally unclear. For example:

> **Sample 6.5:** Trevor had dropped a creamer on the floor. At the moment of the beep, he was starting to pick up the creamer and said aloud, "Oh fuck!" He may have also been feeling upset/frustrated, but it was impossible to ascertain if the upset/frustration was one experience of saying, "Oh fuck," or a separable experience. There may have been some kind of a thinking experience that is separable from the "Oh fuck."

In this sample, the thought, "Oh fuck!" and feeling upset/frustrated may have both been present.

Trevor called a broader array of experiences feelings like anticipation instead of more commonly experienced feelings of happy, sad, anger, anxiety, etc. A feeling of anticipation may have been present in six of his samples. Trevor's experience of anticipation may have had both positive and negative valence. Anticipation that was positively valenced may have been observed in five of these six samples. For example:

> **Sample 3.2:** Trevor was turning the newspaper to page 7C to check the newspaper's predictions of the Saints' NFL draft picks. At the moment of the beep, he was eagerly anticipating/anxious. This was a mental experience.

In this sample, Trevor was excited to see who the newspaper predicted the Saints' picks for the NFL draft would be as he turned the page.

Trevor may have also had positively valenced experiences of anticipation that were often related to Bingo and may have been in three (60%) of the five samples with positively valenced anticipation. For example:

> **Sample 4.4:** Trevor was looking at the Bingo Board showing the options of winning Double Bingo. At the moment of the beep, he may have been feeling happy/anticipation/hopeful. This may have been a mental feeling of double Bingo being one of his favorite games and may have been "one step lower than chills in [his] head."
>
> **Sample 10.1:** Trevor was playing Bingo waiting for the next number to be called. At the moment of the beep, he may have been feeling anticipation/hopeful/anxious for the next number to be something he needed. This may have been like a mental, 'Please,' but no words were present. He may have also been seeing the color of the next number on the screen. He may have also been hearing the people he was playing with talking in the background. Or there may have been nothing in his experience.

In sample 4.4, Trevor may have been happy/anticipatory/hopeful that he would win Double Bingo while playing the Double Bingo game. In sample 10.1, Trevor may have been anticipatory/hopeful/anxious for a number he needed to be called out next while playing a Bingo game.

Trevor's unclear inner experience extended to an inability to say whether an experience had an emotion with a positive valence or a negative valence or both or neither. Trevor had three samples that may have had both positive and negative valence. For example:

> **Sample 5.4:** Trevor was playing Double Bingo, and he needed a B7 to complete a Bingo. At the moment of the beep, he was hearing them call B9 and seeing B9 on the screen; whether this is one experience or two was impossible to ascertain. [B9 was a

disappointment, because it was not the Bingo-completing B7, but it was also a number that he could play on one of his other cards (but which would not immediately generate a Bingo).] He may have also been feeling disappointed which may have been a mental experience, and he may have been feeling a that's-alright feeling (it could play elsewhere), but we could not ascertain that.

In this sample, Trevor may have been feeling disappointed and may have also been feeling that's-alright, or he may have had no feeling at all, but when called upon in the interview to report his experience, he reported two oppositely valenced aspects of his *situation* and referred to them in experiential terms.

Another experience that may have included positively and negatively valenced emotions was sample 8.5.

Sample 8.5: Trevor had counted only 24 people in the Bingo Hall. At the moment of the beep, Trevor may have been feeling happy/confident. He was may have been feeling disbelief, which was something like, 'I can't believe my luck/there's only 24 people.' The happy and disbelief were the most central aspect of his experience. He also may have been thinking of 24 people. The number 24 people may or may not have been present to him. He may also have had another thought of, 'I should win something,' which was not in words. He was least centrally looking around at people in the Bingo Hall making sure no other people were coming in.

In this sample he may have been feeling disbelief and may have also been feeling confident. In sample 9.2, discussed above where Trevor was seeing his video poker screen with three 6's, he may have been feeling a slightly good and may have been feeling disappointment. Inability to determine whether an experience had a positive or negative valence is rare, and even more rare

on the ninth sampling day. When having emotionally relevant samples, Trevor was unable to distinguish a thought from a feeling. He also had some instances where oppositely valenced emotional experiences may have simultaneously been present.

Seeing with Recognition

Trevor had eight (15%) of his 53 total samples that involved seeing things in his external world with some recognition component. This seeing with recognition occurred with seeing someone or something of interest to him. Trevor's first example of seeing with recognition was in sample 4.2.

> **Sample 4.2:** Trevor had loaned his dauber to a guy. At the moment of the beep, he was turning around and saw the guy he had loaned his dauber to. The seeing seemed to have some recognition that *there he is*, but whether or how that was in his experience was not clear. It was unclear if the turning was directly experienced or if that was merely what he was doing.

In this sample, his experience was not merely seeing the guy he had loaned his dauber to. His experience of seeing included recognizing the guy in some way. Trevor had one other sample where he saw someone of interest to him in sample 6.6.

> **Sample 6.6:** At the moment of the beep, Trevor was looking at a beautiful woman he had pointed out as beautiful to his wife before Bingo had started. He was enjoying seeing the beautiful woman, but it was unclear how this was present to him. It was unclear if he had a separable thought process about noticing her beauty.

In this sample, Trevor did not know this woman, but he was recognizing her as at beautiful woman he had noticed earlier.

Trevor also saw something of interest to him on his sixth sampling day in sample 6.4.

Sample 6.4: Trevor had looked into the empty Bingo room. At the moment of the beep, he was seeing the empty Bingo room which seeing may have conveyed that it was not time for Bingo yet or he may have been seeing the room and at the same time thinking that it wasn't time for Bingo yet.

In this sample, Trevor may have been seeing the empty Bingo room and recognizing that it was not time for Bingo yet. We were unable to determine what was directly present to him. Another example of seeing a Bingo room with recognition occurred in sample 8.5. In sample 8.5, discussed above, where Trevor had only counted 24 people in the Bingo Hall, he recognized that his odds of winning increased with such few number of people in attendance in the Bingo Hall.

Trevor had other samples that involved seeing things of interest to him. For example:

Sample 7.2: Trevor was outside smoking while he let his cat, Dog-faced Kitty, roam outside. At the moment of the beep, he was seeing Dog-faced kitty. This was probably the most central part of his experience. He may have also thought something like, 'she's 11 years old now and she's still going strong.' He may have also felt joy/happy. He may have also been seeing the blue sky in his peripheral vision.

Sample 10.6: Trevor was sitting on his porch. At the moment of the beep, he was watching a car slowly roll by. He may have been particularly drawn to the slowness of the car and/or the nice rims. He may have also been thinking something like, "That's a nice car." This thought may have been in words with an emphasis on the word nice.

In sample 7.2, Trevor was seeing Dog-faced Kitty while recognizing she's still healthy after 11 years. In sample 10.6, Trevor was seeing a car and may have been recognizing it was a nice car.

Seeing with recognition is a rare phenomena seen in typical DES sampling. Some of Trevor's seeings with recognition involved a sensory awareness (e.g., seeing the niceness of the

rims on the car) while some of his seeings seemed more perceptually oriented (e.g., thinking about Dog-faced kitty's health after 11 years.)

Summary

Trevor was a highly motivated participant who completed all ten sampling days within one month. Overall, he struggled to apprehend and convey clear inner experience across all sampling days. He was incrementally better at describing clear inner experience on his last few sampling days. Although there was no way to know with complete confidence the reason for his difficulties, his lack of clarity of experience may have been related to his inner experience being fundamentally unclear. Less likely, but also a possibility is that his medications may have interfered with his ability to apprehend and convey clear inner experience.

Trevor's sampling was notable for rare characteristics of inner experience including seeing someone or something with recognition, wanting something to happen, emotionally relevant samples involving anticipation, and experiencing both positive and negatively valenced experiences in the same sample.

CHAPTER 9

IDIOGRAPHIC DESCRIPTION OF EVAN'S EXPERIENCE

Evan is a 32-year-old, right-handed, Caucasian and Taiwanese male who sampled with us on ten separate occasions from March through April 2014. He met criteria for BD I with Psychosis, Recurrent, with psychosis in full remission as assessed for by the SCID-1 (First, Gibbon, Spitzer, & Williams, 1997). His first onset of a major depressive disorder occurred at age 25; age at first onset of manic episode with psychotic features was 24. He was hospitalized in 2006 and 2010 for psychiatric issues. He denied ever having suicidal ideation or suicide attempts.

Evan was given the SCL-90-R (Derogatis, Lipman, & Covi, 1973; Derogatis, 1994) both before and after sampling. His pretest and posttest Global Severity Index T-scores were 64 and 72, respectively, both suggesting the presence of severe psychological difficulties. He was given the DSM-5 Level-2-Depression-Adult measure both before and after sampling. His pretest T-score was 57.1 indicating mild levels of depression and his posttest T-score was 60.7, indicating moderate levels of depression. He was also given the DSM-5 Level-2-Mania-Adult measure both before and after sampling. His pretest and posttest raw scores were ten and eleven, respectively, both indicating a high probability of a manic or hypomanic condition.

Evan collected a total of 55 sampled moments across ten separate occasions. Samples from his first sampling day and other samples that were skipped because they were too close temporally to previous sampled moments will not be discussed. This leaves 49 sampled moments reviewed in this study. He was calm, pleasant, methodical, and somewhat slow in his speaking and behavior. Throughout all ten sampling days, his affect consistently appeared flattened but congruent with context. This may have been a result or side effect of his medications. He lives in

a group home for mental illness, but reported that he would be discharged soon because of his significant improvements in his day-to-day functioning. Evan reported he had been taking Invega 6mg and Zoloft 100mg for four years, and "the medications stopped his ups and downs but makes him sleepy." He has 14 years of education and an Associate's degree in general studies. He is unemployed and gets a stipend from the group home.

External Experiences

Almost all of Evan's randomly sampled moments were closely tied to his external experience (45 of 49 sampled moments; 92%). His inner experience varied in the kinds of phenomena, representing all five of the most frequent phenomena (e.g., inner seeing, unsymbolized thinking, inner hearing, inner speaking, and feelings) but it was almost always related to the mundane aspects of his present situation. For example:

> **Sample 2.3:** Evan was watching *Cougartown* on TV. At the moment of the beep, he was simply watching the show, in which, at the moment of the beep, one of main characters was talking.

In sample 2.3 Evan was just watching TV, being carried along by the dialogue. Other samples with experience closely tied to his external environment were slightly more complex, as in samples 3.5 and 4.5.

> **Sample 3.5:** Evan was looking at diluted cola in the bottom of an empty glass while Dan was reading out loud from the Bible. At the moment of the beep, he was drawn to the light brownness and small amount-ness of the cola in the glass. This was approximately 50% of his experience. The other half of his experience was listening and understanding what Derek was reading.

In this sample, Evan had two simultaneous experiences. He was into the sensory aspects of the remaining cola in the glass and into listening to Derek.

> **Sample 4.5:** Evan was writing a message, "what time is it?" to his sister on his Nintendo 3DS. At the moment of the beep, he was looking at the next letter he need to type and then tapping that letter with the stylus on the keyboard. He was on the 't' for 'time'. For example, he would see 't' and tap 't,' see 'i' and tap 'i,' etc. He was also innerly seeing "What time" with a square around each letter as they would appear on the screen.

In this sample, Evan was both into typing and the inner seeing. His experience being tied closely to his external environment was consistent into the last sampling day. For example:

> **Sample 10.4:** Evan had finished using the restroom and was pulling up his underwear. At the moment of the beep, Evan was pulling up his underwear. He was pulling, and feeling some elasticity of the elastic in his hands (approximately 45% of his experience). He was also feeling the cloth of the underwear on both legs around his knees (approximately 45% of his experience). He was also seeing the brown floor, but he was not particularly into the color of the floor.

Evan had multiple sensory awarenesses that were internal and external in this sample, but all his experiences had to do with what he was doing the moment the beep sounded. His extremely high percentage of samples with his inner experience so closely related to what was ongoing in his environment at the moment the beep occurred is not commonly seen in sampling with typical DES participants.

Imaginary Experiences

Evan only had four (8%) sampled moments where his experience was not closely related to his external experience. Three of these four moments involved innerly hearing music that was not in his external environment. For example:

Sample 4.3: At the moment of the beep, Evan was innerly hearing the song, *Overprotected* by Britney Spears. The lyric was "Do without my destiny" and he also heard the music of the song, He heard the song just like he would from the CD, but not as loud. He was more into the words than the music, and maybe somewhat how the words sounded than the meaning of the words.

Sample 6.1: Evan was driving. At the moment of the beep, he was innerly singing in Lorde's voice. That is, his experience was of producing the singing, but it was in Lorde's voice rather than his own. He was innerly singing, "we live in cities you'll never see on screen." He heard the singing as being less loud than it would have been had it been played on the radio, but neither the comparison nor a separate recognition that it was less loud were in his experience. He was also innerly hearing the accompaniment, but did not experience producing the accompaniment. It was similarly less loud than had the song been played on the radio. He was also feeling happy. He was also in the process of changing lanes and thinking of getting into the left lane. This thinking was a cognitive experience that had no words and was a general notion. The inner singing, happiness, and changing lanes were all approximately equally salient in his experience.

Sample 7.4: At the moment of the beep, Evan was hearing in his head the lyric, "These girls ain't lawyers." He heard the lyric sung by the original male singer's voice and the accompaniment like he would hear it had he been listening to the CD. [However, the actual lyric is, 'These girls ain't loyal." The word substitution was intentional—that is, he

had made this substitution before and now was doing it again.] He was more intently hearing the "lawyers" and having a sense of the humor of hearing the intentional replacement of the word. Evan was also looking at the rice in the rice cooker. He was seeing rice, and where he had already scooped rice and seeing where to scoop next.

These samples stood out in Evan's sampling as the rare occasions he had an imaginary experience. In sample 4.3, Evan was innerly hearing a song as he would hear it on the radio. Samples 6.1 and 7.4 had an extra layer of imagination on top of the imaginary experience. In sample 6.1, he was innerly singing a song in the song's actual singer's voice – not his own voice. Moreover, although he experienced himself as the producer of the lyrics, he was not the producer of the accompaniment. This separation between experiences is not commonly seen in the experience of typical DES participants. In sample 7.4, Evan was innerly hearing a lyric; however, he was purposefully innerly hearing the wrong word, 'lawyers,' in a louder volume and with a sense of humor that he did not hear with rest of the lyric. These imaginary experiences were unique in Evan's entire sampling, and most of these imaginary experiences were related to music.

Emotionally Relevant Samples and Feelings

Evan experienced a feeling in 9 (18%) of his 49 sampled moments. Other than feelings, 8 (16%) of his 49 sampled moments had some emotional relevance. Despite the frequency of feelings or emotional relevance present across sampling days, his feelings had six noteworthy characteristics: simultaneously experiencing oppositely valenced emotions, clearly demarcated experience of emotions, emotions experienced outside himself, ongoing bodily processes related to emotions that Evan did not himself relate to emotion until reflecting on his experience after the moment of the beep, the occurrence of experience where thinking could not be distinguished

from feeling (thought/feelings), and the active manipulation of the expression of emotion (the doing of an expression of emotion).

First, on one occasion, Evan experienced two oppositely valenced emotions simultaneously.

> **Sample 8.4:** The phone had rung and the machine was picking up the message that they could hear was from his Uncle. At the moment of the beep, Evan was alarmed. This feeling involved a sensation of adrenaline/tenseness in a diffuse area approximately the size of a grapefruit in his chest. This was approximately 80% of his experience. Related to the alarm were three other experiences. First, he was hearing his Grandmother yelling, "Get it! Get it!" and experiencing the urgent meaning to answer the phone of her yelling. Second, he was also trying to listen to what his Uncle was saying on the phone that the machine had picked up. He heard the first part of what his Uncle was saying and then his Uncle's voice was drowned out by his Grandmother's yelling. Third, he was seeing his sister near the phone; this was a looking to see if she was going to answer the phone. Evan was also feeling relief, which was a mental experience and a bodily experience of diminishing alarm. The relief was approximately 20% of his experience. Evan was confident that the relief was a separate mental feeling that was calming or reducing his feeling of alarm.

Evan unequivocally reported feeling both alarm and relief in this moment. He experienced two clearly demarcated feelings simultaneously. The alarm and relief both had physical components and Evan experienced both of them in his body that were clearly distinguishable from each other.

Second, Evan sometimes had clearly demarcated experiences of feelings, as in samples 6.2 and 6.3.

Sample 6.2: Evan was still driving. At the moment of the beep, he was worried that the smoothie coupon on the floor would blow out the window. This was one thinking/feeling experience of worry/smoothie coupon might fly out the window. The worried was also experienced as two separate sensations: 1) an uncomfortable sensation in the middle of his abdomen that was a clearly demarcated (with clearly experienced borders) oblong approximately grapefruit-sized area; and 2) feeling the fastness of his heart (he said approximately 80-85 bpm) in the middle of his chest in a clearly demarcated area. The thinking/feeling worry about the coupon and its parts were approximately 90% of his experience. He was also driving and seeing the road in front of him. This doing/visual experience was approximately 10% of his experience.

Evan described feeling worried as a very defined area in his stomach with clear borders between the experience of worry and the rest of his body.

Sample 6.3: Evan was outside the grocery store about to head in. At the moment of the beep, he was feeling a tightness in his belly, which was clearly demarcated in the front and sides of his belly, and not demarcated on the back side of his belly. He also had a separate thought with no words of, 'I need to lose weight.' He also felt reluctant, which was experienced as a mental 'I don't want to shop' and a physical slight heaviness in his heart. The heaviness was the size of a softball but heart shaped area that felt weighty/droopy.

In this sample, Evan clearly experienced reluctance in his heart in a softball-sized area while also having another clearly demarcated bodily sensation of tightness unrelated to an emotional experience.

Third, Evan experienced feelings outside of himself or outside of his experience. For example:

> **Sample 2.2:** Evan was still at Jack-in-the-Box and his mom was talking to him about when she used to be in a cult. At the moment of the beep, Evan was feeling embarrassed because his mom was talking loudly. This embarrassment had three components. First, he had a mostly mental uncomfortableness, which was experienced as a slight tension felt equally in and around the outside of his head (he gestured about a 1-ft diameter around his head). Second, he had a physical uncomfortably sensitive feeling throughout his body, only on the inside, and mostly in his arms and chest. Third, he wondered what the people at the table behind him to the right would think. This was experienced as trying to listen to what those people were saying. He could not hear specific words, but he was listening for laughter and markers that they were finding Evan's mother's conversation odd. [He was not detecting any signs that they had noticed his mother's loud talking.] Evan was also listening to his mom and paying attention to what she was saying. He was looking at her face but mostly seeing her eyes and eyebrows. He was also tired, which he experienced as a dull ache in his frontal lobe and around his eyes and "hanging in the air" out around the front of his head.

In this sample, Evan felt embarrassed both inside and outside of his head. The dull ache in the area around the front of his head was part of his experience of embarrassed, which is not a characteristic of experience typically seen in DES participants.

Fourth, Evan had four moments where he experienced ongoing bodily processes related to emotions but did not relate these processes to the feeling until reflecting on his experience

after the moment of the beep, as in samples 9.4 and 10.5. These are possibly examples where Evan has not integrated the difference facets of his emotional experience.

> **Sample 9.4:** Evan was watching the movie. At the moment of the beep, he was feeling excited/wondering if Mark Wahlberg's character will find out his friend betrayed him. The excitement/wondering was one experience that was approximately 60% of his experience. There were no characteristics of feeling excited present at the moment of the beep, [but upon reflection after the beep, Evan described the excitement as a tightness in his chest]. The wondering did not have any words or pictures.
>
> **Sample 10.5:** Evan was sitting in the bed of a pick-up truck as it drove through the residential neighborhood. At the moment of the beep, he was seeing his neighbor Kevin's smile and the rest of Kevin's face. Evan was noticing the smile for its meaning – that Kevin was happy to see Evan. Evan was also happy. There were no characteristics of the happiness in his experience at the moment of the beep, [but upon reflection after the beep, Evan reported the happiness was present as lightness in his arms and torso]. Evan was also intentionally amplifying the smile that he had been smiling to Kevin. Evan felt his muscles making the smile. The smiling was in his experience at the moment of the beep, and was different from the smiling of 10.1 in that 10.5 is an intentional amplification whereas 10.1 the noticing of a natural smile. All three things were equally salient in his experience, but feeling happy and smiling were related though separable.

Evan had bodily processes (i.e., tightness in his torso, and lightness in his arms and torso, respectively) related to experiencing emotions during these beeps, but these sensations were not in his inner experience until after the beep. That is, they were part of the welter of his experience but he was not attending to it at the moment of the beep. He was able to identify these sensations

as related to his experience of emotion after the moment of the beep when he reflected back on his experience.

Fifth, Evan also had experiences emotion and cognition were indistinguishable from each other or intertwined with each other, a phenomenon DES calls thought/feelings. For example:

> **Sample 5.3:** Evan was reading his search history. He had read "Ronald McDonald," and was reading another headline. At the moment of the beep, he was reading, "Mom jailed," which was part of the headline, "Mom jailed [for breastfeeding while drinking.]" He had a thought/feeling of surprise/curiosity of 'what could she have been jailed for?' He also innerly saw golden McDonald's arches with a red background [but not building or anything else]. This seeing was in his forehead area. This inner seeing was left over from reading, "Ronald McDonald." This seeing was his experience of a general idea of McDonald's restaurants.

In this sample, Evan was feeling surprise and curiosity that was intertwined with the thought, "what could she have been jailed for?" Another example of a thought/feeling was seen in sample 6.3 discussed above. In this sample, Evan was feeling reluctant. This was experienced as a thought of "I don't want to shop" along with a physical sensation of heaviness in his heart. The thought and sensation together was his experience of reluctance.

Sixth, Evan had one sample where he was purposefully manipulating his experience of emotion in sample 10.5, discussed above where Evan was intentionally amplifying the smile that he had been smiling to Kevin instead of a natural smile.

Evan's experience of feelings was different from typically seen experiences of feelings. He had moments where he simultaneously experienced oppositely valenced emotions, moments

with clearly demarcated experience of emotions, moments where he experienced emotions experienced outside himself, and a moment where he was doing the expression of an emotion.

Paying Attention to Others

Evan's experience often involved others' reactions. Twenty-two (45%) of his 49 sampled moments involved intentionally listening to another person. For example:

> **Sample 3.2:** Evan's mother was leaning in and speaking in a hushed tone/softly about how there were two new people in their small group. At the moment of the beep, Evan was listening closely to what his mom was saying.
>
> **Sample 8.6:** Evan was walking towards the linen closet listening to his sister talking. At the moment of the beep, he was hearing her with understanding and paying attention to what she was saying.

In these samples, Evan was listening and nothing else was in his experience.

In addition to intentionally listening, Evan sometimes listened to others with sensitivity to their responses, as in sample 3.6.

> **Sample 3.6:** Evan was leaving the small group with his mother, and she had loudly asked another woman what year her car was. Evan had turned to look at the woman. At the moment of the beep, he was alertly waiting expectantly to see what she would respond. The alertness of his experience was a sensation of a little bit of adrenaline in his chest area, physical brain, and heightened mental acuity.

In this sample, Evan was listening while also expectantly waiting with an emotional relevance of alertness to the woman's response. Evan would also listen with some expectancy of hearing some emotion or reaction in a response. For example in sample 2.2 discussed earlier, Evan's

mom was telling him a story about the time she was in a cult and he was listening for laughter and markers that others sitting in Jack-In-The-Box were finding Evan's mom's conversation odd. In this sample, Evan was listening to his mother while also simultaneously listening for laughter from others near him. Evan was often engaged in intentionally listening, which was his entire experience.

Evan appeared to pay particular attention to the faces of people he interacted with and/or was listening to. Evan looked at other's faces while listening in 7 (14%) of his 40 total samples, as in sample 3.4, discussed earlier, where Evan was listening to Derek speaking to the church group while looking at Derek's face. In three of these seven samples where he was looking at faces, he looked at other's faces to read their reactions, and at other times, he was just seeing their faces. For example:

> **Sample 9.3:** Evan was watching the movie, Contraband, on TV. At the moment of the beep, he was watching the movie/being carried along by the plot – the male character had just invited the female character to stay at his house. He was particularly focusing on the male character's face, [looking for signs of his intentions]. Watching the movie was approximately 75% of his experience. He was also wondering (25%) if he [the male character] was trying to sleep with her, and less saliently wondering if she [the female character] was thinking he was trying to sleep with her. This wondering did not have symbols or other features.

In this sample, Evan was not merely seeing the character's face; he was purposefully looking at the character's face to gather information about his intentions. Another example of looking at another person's face was in sample 10.1.

Sample 10.1: Evan had asked Alex, a worker at the group home, if he could have the unwanted potatoes and Alex had replied, "No." Evan had been surprised Alex had said, "No." At the moment of the beep, he was amused. The amused feeling had three related experiences. First, was amused, which was a good feeling, mentally. Second, he was sensing his mouth open and feeling the muscles in his mouth making a smile. Third, he was looking at Frank's facial expression to see if he was smiling/amused also. This was a visual experience, looking for a smile, rather than a cognitive experience of wondering if he was smiling.

In this sample, Evan was purposefully looking at Frank's facial expression to see if he was joking or if he was serious about not allowing Evan to have more potatoes. Sample 2.2 of Evan's mom discussing her past participation in a cult was another example of Evan paying particular attention to faces. Evan was looking at his mother's eyes and eyebrows to purposefully gather information about how she was feeling while telling the story. Given Evan's lack of integration of feelings, his purposeful observation of others' faces in order to interpret their feelings may be related to his previously noted difficulty with feelings. That is, he wants to be sure to accurately identify others' feelings as he interacts with them, or these two characteristics of his experience may not be related at all.

Experience of Thinking

Evan experienced thinking in various ways (e.g., inner seeing, in 7 of 49 sampled moments, 14%; worded thinking in one moment, 2%). However, his thoughts were most commonly unsymbolized thoughts (11 of 49 sampled moments, 22%). An example of inner seeing occurred in sample 8.2.

Sample 8.2: Evan was sitting in his car and had just finished writing a note in his memo pad. At the moment of the beep, he was seeing the symbol (three silhouettes from the chest up) that he had drawn to represent Miiverse. He was also innerly seeing the actual Miiverse symbol, a green symbol with outlines of three people from their chest up. He saw this as if it were approximately two feet out in front of him. This seeing of the symbol he had drawn and the simultaneous inner seeing of the actual symbol was a thought about how the symbol he drew represents the Miiverse symbol.

Consistent with all of Evan's experience, most of his thoughts, no matter the characteristic of experience, were very closely tied to his external experience. Six of seven inner seeings were closely tied to his external experience, and 11 of 13 (85%) of his unsymbolized thinkings involved wondering about things directly tied to his external experience, as in samples 7.3, and 10.3.

Sample 7.3: Evan was watching a Nintendo Direct video on YouTube. The video had asked a trivia question and now had posted the answer on the screen. At the moment of the beep, he was wondering, Should I post the answer on twitter/they already told the answer/should I forget about it? This was a wondering without words, and was approximately 90% of his experience. He was also (approximately 10%) reading and comprehending the answer on the screen.

Sample 10.3: At the moment of the beep, Evan was thinking, Should I pick up her lighter and light it [the lighter]? This was a thought with no words or images, and was approximately 80% of his experience. He was also tasting the apple, which was an enjoyable experience (approximately 20% of his experience).

Evan's thinking in these samples did not have images or words; his thoughts were closely tied to his external experience. Overall, Evan's experience of thinking tended to be unsymbolized and mundane.

Sensory Awareness

Evan had sensory awareness present in 10 (20%) of his 49 sampled moments. After unsymbolized thinking, sensory awareness was his second most frequently occurring characteristic of sampling. Sensory awareness was a clear and believable characteristic of his inner experience. His first experience of sensory awareness was on his third sampling day, in sample 3.3.

> Sample 3.3: Evan was eating spaghetti. At the moment of the beep, he was feeling the spaghetti's warmth, its taste, and the texture of the ground up meat and noodles on his tongue (mostly in the center of his tongue). [There was ongoing conversation at the table, but he was not attending to it; his senses were "fully overwhelmed" by the spaghetti he was eating, that was enjoyable, but the enjoyment was not in his experience at this moment.]

In this sample, Evan was completely taken by tasting the spaghetti. Evan had two other moments where he was focused on the taste of food. He also had visual sensory awareness in two samples. For example:

> Sample 6.4: Evan was at Game Stop looking at a demo video of Super Mario 3D. At the moment of the beep, he was noticing the cat ears and tails on the Bullet Bills. (The Bullet Bills did not have these black cat ears and tails before).

In this sample, Evan was into the ears and tails of what he was seeing on the screen. He was not focused on the colors or meaning of the ears and tails.

Evan experienced multiple bodily sensory awarenesses in 2 of his 10 samples with sensory awareness, as in sample 9.2.

> Sample 9.2: Evan was unbuckling his belt to urinate. At the moment of the beep, he was unbuckling his belt (approximately 40% of his experience). He was also feeling the tightness of his belt, which was a sensation of tightness around the front of his body in the belt area (30%). He also felt a sensation of needing to urinate, which was a pressure/feeling of a full bladder in the lower abdomen area with no more specificity of size or shape (30%). He also saw the corner of the bathroom and part of the toilet (10%).

In this sample, Evan was focused on two sensations: tightness and pressure. In addition to multiple bodily sensory awarenesses, Evan had clearly demarcated bodily sensory awareness in sample 6.3, discussed above, where he was feeling a tightness in his belly. This tightness was clearly demarcated in the front and sides of his belly, and not demarcated on the back side of his belly.

Evan's experiences of sensory awareness were clear and believable characteristics in his sampling. His sensory awarenesses included taste, visual, multiple bodily, and hyperclear bodily sensory awarenesses.

Overlapping Experiences

Evan had several moments with overlapping simultaneities. He had multiple experiences happening at once, but not precisely simultaneously – that is, the experiences overlapped each other. For example:

> **Sample 6.6:** Evan was talking. At the moment of the beep, he was thinking about what he was trying to say and saying it. He was innerly speaking in his voice with a curious tone, "Why isn't he ready for an SLA?" ["SLA" refers to "supported living

arrangement," a form of residential treatment for those with mental health issues.] This was approximately 65% of his experience. He was also saying aloud, "Why isn't he ready for an SLA?" He was about half way through the inner speaking and just starting the speaking aloud at the beep—that is, the inner and outer speakings overlapped. The inner speaking was about 65% of his experience and the speaking aloud was about 35% of his experience. [He spoke aloud in a louder volume than he innerly said it, but this was not in his experience.]

In this sample, Evan had two experiences of something he was trying to verbally communicate. He was thinking about what to say that was experienced as inner speaking while starting to speak aloud part of what he was innerly speaking. Although he was able to describe the overlapping nature of these simultaneous experiences, he also had a moment where he was unable to describe the exact overlapping nature of simultaneous experiences in sample 4.1.

Sample 4.1: Evan was looking at his notes app on his Nintendo 3DS screen. At the moment of the beep, he had two thoughts that may have overlapped somewhat: 1) Should I leave this note or move it to my paper notepad? And 2) Should I move the other ones too? The first thought had no words or pictures, but just the idea of whether he should leave it or move it. The second thought was experienced as an unsymbolized idea accompanied by inner seeing of four notes with writing on them on his screen. The notes app shows a 4 x 4 grid of notes, but he was only seeing the four notes he was thinking of moving to if he moved the other note. The four notes were throughout the 4 x 4 grid, and were a fuzzy seeing, not clearly seen.

In this sample, Evan was unsure how his thoughts overlapped in his experience. He did not experience a clear demarcation between the end of one thought and the start of the other, but they

did not seem to be starting and ending at the same time. These samples indicated that his experiences sometimes seemed to be differentiated from each other and sometimes able to be clearly differentiated temporally. Moreover, his experience sometimes seems to have several distinct experiences that seem to happen around the same time, but do not seem to be one, integrated experience.

Summary

Evan's experience was most often directly related to his external experience. His experience of images and thinking especially seemed closely tied to his external experience. The one exception to mundane experience was imaginarily hearing music. Evan had frequent experiences of feelings; however, his emotionally relevant samples were atypical experiences of emotion in sampling with typical DES participants. Evan sometimes had clearly demarcated experiences of feelings. He even had several clearly demarcated experiences of a feeling simultaneously. More often, Evan had unintegrated feelings. He often experienced feelings mentally at the moment of the beep without any other characteristics in his experience, but he had ongoing bodily processes related to the feeling that were not in his experience until he reflected on his experience after the moment of the beep. Evan also experienced thought/feelings.

Evan's experience often involved paying attention to other's reactions. He was often intentionally listening to another person. Moreover, Evan sometimes intentionally listened to others with sensitivity to their emotion or potential reaction. Evan would listen with some expectancy of hearing some characteristic of the response. He also frequently looked at other's faces to read their reactions.

Additionally, Evan had frequent experiences of thinking, especially unsymoblized thinking that was generally mundane. Sensory awareness was less frequent than thinking, and it was generally clear. He had sensory awareness across modalities including: taste, visual, and bodily. Lastly, Evan had several moments with multiple experiences that overlapped each other.

CHAPTER 10

IDIOGRAPHIC DESCRIPTION OF KAREN'S EXPERIENCE

Karen is a 50-year-old, right-handed, Caucasian woman who sampled with us from May to July of 2014. Karen met criteria for BD-I, recurrent, with psychosis as assessed by the SCID-I (First, Gibbon, Spitzer, & Williams, 1997). At the time of participating in this study, she was taking medications prescribed by a prescriber. We did not know what medications she was taking, but during sampling, Karen shared she was not taking them regularly. She stated her age of onset was 21 for depressive episode with lifetime total of two episodes. She stated her age of onset was 40 for manic episode with lifetime total five episodes, all with psychotic features. Karen had one psychiatric hospitalization in June 2013. She completed 16 years of education and has been a homemaker for 20 years. She is active in her Latter-day Saints (LDS) faith, is married and has four children.

She was given the SCL-90-R (Derogatis, Lipman, & Covi, 1973; Derogatis, 1994) both before and after sampling. Her pretest Global Severity Index T-score was 64, suggesting the presence of severe psychological difficulties. Her posttest Global Severity Index T-Score was 58, suggesting the presence of moderate psychological difficulties. She was given the DSM-5 Level-2-Depression-Adult measure both before and after sampling. Her pretest T-score was 64.4 indicating moderate levels of depression and her posttest T-score was 63.5, also indicating moderate levels of depression. She was also given the DSM-5 Level-2-Mania-Adult measure both before and after sampling. Her pretest and posttest raw scores were eight and five, respectively, both indicating a high probability of a manic or hypomanic condition.

Karen sampled on ten separate occasions and collected a total of 57 samples. However, samples from the first interview are typically considered training and will not be included in her total samples. Thus, Karen had a total of 51 samples that will be the focus of this chapter.

Karen appeared to be a motivated participant who enjoyed learning about how to do the DES task. She seemed to try her best to do the DES task to the highest fidelity. Karen also had strongly held presuppositions about what inner experience was and was not, and we worked diligently to help her keep an open mind and observe her inner experience without bias. Karen struggled to convey coherent inner experience through her final day of sampling. Her ability fluctuated across days but generally became quite good, although not great, towards the last few days of sampling. We will begin by discussing Karen's progression of DES skill throughout sampling. Other phenomena (i.e., sensory awareness, experiences of thinking/unsymbolized thinking, and emotionally relevant samples) of inner experience will then be discussed in order of their overall clarity throughout sampling.

Progression of DES Skill

Karen had difficulty with the DES task. Despite being a diligent participant, it took her substantially longer than is typical before she could or would perform the task of providing credible reports of her inner experience. She did describe clear sensory awarenesses and a few unsymbolized thinkings on occasions in the last half of sampling, but otherwise her experience remained unclear or nonexistent. For example:

> **Sample 5.2:** Karen was at the dinner table with her family. At the moment of the beep, she was seeing the green-ness of the trees and (less so) noticing the movement of the leaves outside her window. This was approximately 60% of her experience. She was also (approximately 40%) hearing her daughter tell a story about a perception experiment. She

was zoned in on the tree and "zoned out" on listening to her daughter, but was still tracking what she was saying.

On this fifth day of sampling, Karen appeared to be much better at distinguishing how and to what extent something was in her inner experience in comparison to her first few days of sampling. She was able to distinguish three things in her inner experience in this sample. She was able to say that she was mostly seeing the green-ness of the trees, seeing the movement of the leaves to a lesser degree, and hearing her daughter to an even lesser degree.

Karen's DES skill improved over time, with some fluctuation between samples on some sampling days, so we will discuss her progression chronologically. On the first sampling day, Karen seemed overly concerned that her experience was "not interesting" and asked if and how her experience was helping our research. Like most first sampling days, we worked at helping Karen identify the moment of the beep, and learning the details of her experiences.

On her second sampling day, Karen had not yet mastered the task of sampling and thus it was hard to be confident in her reports of her experience. We continued to help Karen identify the moment of the beep. For example:

Sample 2.1: Karen was reading a book about marriage and thinking about partnership. She would read and then think about partnership and then go back to reading, and sometimes the reading and thinking may have overlapped. Karen was not sure where exactly the beep occurred in this, but as best she could tell she was reading. She could not say more about how the reading was in her experience except that she was into the reading.

In this sample, Karen had difficulty figuring out when the beep came while reading. We also continued to bring awareness to any potential presuppositions Karen held. She strongly seemed

to believe that she does not think in words or images, despite our encouragement to keep a curious mind and be a careful observer of her inner experience.

Karen seemed to have mostly unclear experience on her third sampling day. For example:

Sample 3.2: At the moment of the beep, Karen may have been innerly commanding herself, "Just get going." This may have been said in her voice in a softly commanding tone.

In this sample, we could never be clear of what she was innerly speaking, thus giving us reason to be very skeptical about whether the inner speaking was ongoing at the moment of the beep or ever. Her description of the inner speaking was always subjunctified. Karen's words varied from occasion to occasion in her descriptions of the possible inner speaking. The notion of inner speaking occurred only late in the interview, raising questions about whether inner speaking was present. When asked about her experience at the moment of the beep, she said, "That's what I wrote down" rather than something more confident, such as "that's what was happening."

On Karen's fourth sampling day, it became clear she seemed to have a presupposition that what she should be doing for the DES task was paying attention to what she was thinking. We again worked at helping increase awareness of her presuppositions and prevent them from biasing her report of inner experience, and helped her understand the task of sampling better. She stated that she avoided wearing the beeper while reading or watching TV because it was difficult to pay attention to her thoughts while doing these activities. We reminded her that we wanted her to go about her normal daily activities and to report whatever was ongoing in her experience when the beep sounded. Karen also mentioned she had not been using the earphone with the beeper as she had been instructed to do. We reminded her to wear the earphone so she could more easily identify the onset of the beep. Karen's report of all six samples on her fourth

sampling day continued to be highly subjunctified and thus we were rarely confident what, if anything was in her experience at the moment of the beep. For example:

> **Sample 4.2:** Karen was reading the label on the beeper "Russell T Hurlburt, Ph.D." At the moment of the beep, she may have been innerly speaking those words. She may also have been innerly pronouncing,"Hurlburt" as it is a difficult word to pronounce. She may have also been thinking Ph.D. is quite the task/lots of school.

In this sample, she was not sure of what was present in her experience (i.e., Hurlburt and/or Ph.D.) and she was not sure of how it was present in her experience (i.e., innerly speaking and/or as unsymbolized thinking). On this fourth sampling day, it seemed that Karen had a general sense of what was ongoing when the beep sounded, but not how or whether it was directly present in her experience. Her reports on this sampling day were broadly consistent with the notion that she had little or no inner experience. It is possible that her difficulty relaying her inner experience was due to not wearing the earphone and misunderstanding the task.

Karen reported she used the earphones while collecting her samples on her fifth sampling day. She stated she collected three beeps in three hours and wondered whether the beeper was broken. The beeper appeared to be working fine but we replaced it with another beeper just in case. We asked her to aim for six beeps in the future. Her three samples generally contained clear experience but her reports of inner experience were still subjunctified at times. For example:

> **Sample 5.1:** At the moment of the beep, Karen was wondering when Barry (her husband) would wake up from his nap / He's been sleeping for a long time. This thought had no words or images.

In this sample, Karen seemed to have a clear unsymbolized thinking. However, she was highly subjunctified in describing what thought was present in her inner experience. We hypothesized

that her subjunctified description was probably related to Karen's misunderstanding or being resistant to the nature of unsymbolized thinking. In another sample, Karen's report was not subjunctified.

In sample 5.2 discussed above, Karen was at the dinner table seeing the green-ness of the trees and (less so) noticing the movement of the leaves outside her window. She was also hearing her daughter tell a story about a perception experiment. This was Karen's most clearly described inner experience thus far. She did not appear to engage in subjunctification and was clearly able to distinguish between two visual aspects of a sensory awareness simultaneously present.

On her sixth sampling day, Karen still seemed to have a presupposition that we were interested in thinking. We addressed this several times during this interview as well. Most of her descriptions continued to be highly subjunctified. She would commonly refer to what she wrote or her presuppositions about the way things must be; we understood this behavior as an indication that often she answered questions by inference rather than by observation. The one exception to this on this sampling day was her report of sensory awareness in beep 6.3.

> **Sample 6.3:** Karen was pouring Dr. Pepper in a glass of ice. At the moment of the beep, she was paying attention to the burgundy-ness of the Dr. Pepper can and, to a lesser extent, the green-ness of the glass.

In this sample, Karen described her experience with minimal or no subjunctification and this was her most believable description of sensory awareness thus far.

On her seventh sampling day, Karen had multiple credible reports of moments of experience as well as several reports of moments of experience about which we were less confident. An example of a credible report of inner experience was in sample 7.2.

Sample 7.2: At the moment of the beep, Karen was thinking she needed to put the blanket in the dryer. There were no words or images present, but the thought was specific: she was thinking that she needed to put the blanket in the dryer, not merely that she needed to put the laundry in the dryer.

In this sample, Karen was able to describe a specific thought and was confident in reporting this thought did not have associated words or images.

An example of a less credible report of inner experience was in sample 7.3.

Sample 7.3: Karen was cleaning her kids' bathroom and had thrown a toilet-paper tube and missed the garbage can. At the moment of the beep, she may have been feeling frustration or thinking something like, 'Dang! [I missed the garbage can].' She may have also innerly heard, "Dang!" but was unable to say she experienced a voice.

In this sample, we were unable to be confident how the word, "dang" was in her experience. During discussion of this beep, Karen reported her experience and then retreated from that description. She began her exposition by saying "What I wrote down was…" which is often an indication that her upcoming description would be problematic in some way. She originally said that she was innerly hearing her own voice say "Dang! I missed the garbage can!" but later retreated from the inner hearing aspect and also from the worded aspect except that the word "Dang!" seemed somehow present. Our best guess based on her behavior was that her experience was something like an unsymbolized thinking in the direction of a worded thinking with the word "dang" being the closest to her realization of missing the garbage can. Evidence from her samples across seven sampling days suggested that she was sometimes able to have clear unsymbolized thinking; however, her experience of thinking seemed less clear when a feeling may also have been present.

Karen did describe clear sensory awarenesses and a few unsymbolized thinkings on occasions in the last half of sampling, but otherwise her experience remained unclear or nonexistent. On her eighth sampling day, Karen reported that after beep 8.3 she turned off the beeper because there were no thoughts in 8.3 and she was afraid that would happen again. We reiterated we were not particularly interest in looking for thoughts in her experience but interested in any experience present at the moment of the beep. She also voiced her opinion that thinking must be taking place in certain situations. For example:

> **Sample 8.1:** At the moment of the beep, Karen was, perhaps in some way thinking she [a baby she had seen hours before] was so cute. This may have been experienced with images (comparing the baby she saw in real life to the picture of the baby she had seen previously), may have been experienced in words such as "so cute," or both of these or neither; perhaps just the idea of *she was so cute* was present.

In this sample, Karen stated she *must have been* thinking that the child was cute. We also helped broaden her sense of the range of inner possibilities by explaining that no experience could have been present at the moment of that beep, and that would have been fine with us. We explained if she was just into doing something (e.g., watching TV) to observe what was in her experience, if anything. We stressed that we did not want her to infer but rather to observe. We noted it was possible to have thoughts without words, or with words without images or with images, etc. It seemed evident that Karen was trying hard to get the sampling task right, but also that she struggled with keeping her presuppositions about the DES task from influencing her. This was Karen's eighth sampling day, and such instructions are not typically required after the second day.

Karen appeared to be a more skilled reporter on her ninth sampling day. She also stated she had originally thought we were interested in thinking and had learned we were also interested in what was going on in her external environment, if that happened to be in her experience. Her discussions of this sampling day's beeps were less subjunctified. She did have one example of thinking on day 9:

> **Sample 9.6:** At the moment of the beep, Karen was thinking, *would I love an adopted child more than a child I carried in my womb*? This was not experienced in words or images.

Karen's tenth sampling day was in line with the clarity seen in her ninth sampling day. Karen had multiple clear sensory awareness experiences (samples 10.4 and 10.5) and a clear unsymbolized thinking (sample 10.2), but emotionally relevant samples continued to be unclear (samples 10.1, 10.3, and 10.6). Each of these phenomena of experience and these specific samples will be described in their respective sections below.

Sensory Awareness

Sensory awareness was present in 12 (24%) of her 51 total samples. Sensory awareness was her clearest experience and occurred only in the latter half of sampling. Most (7 of 12) of her sensory awarenesses were visual.

Karen's first experience of clear sensory awareness did not occur until her fifth sampling day in sample 5.2, discussed above where she was seeing the green-ness of the trees while also into seeing the movement of the leaves. Like in sample 5.2, Karen's visual sensory awareness mostly involved being focused on seeing colors. For example:

Sample 7.5: At the moment of the beep, Karen was seeing the whiteness of the Payless Shoes sign and the spirals on the sign. She also had a separable thought that the white sign with no other colors was different from other Payless Shoes signs.

Sample 10.4: At the moment of the beep, Karen was seeing the lime green color and different colors of plates and sandals, respectively on a Kohl's add. She was more interested/involved/drawn to the colors than to the plates and sandals.

In sample 7.5, she was focused on the whiteness and the spirals of the Payless Shoes sign. She was not focused on the other colors (e.g., black, yellow, orange on the sign) or other design characteristics of the sign. In sample 10.4, Karen was absorbed in the lime green color of things in a paper advertisement she was viewing. In sample 6.3, discussed above, Karen was drawn to two colors: the burgundy-ness of the Dr. Pepper can and the green-ness of the glass she was pouring the soda into. The clarity and frequency of visual sensory awareness in Karen's samples suggested she tends to be drawn to colors in her external environment.

Karen also experienced auditory sensory awareness in 4 of her 11 samples with sensory awareness. For example:

Sample 8.4: At the moment of the beep, Karen was hearing the back and forth of birds chirping outside (approximately 60% of her experience) and hearing, feeling, and seeing the ceiling fans going strong (approximately 40% of her experience).

In this sample, Karen had two auditory sensory awarenesses. She was into hearing the birds chirping back and forth with each other while also hearing the strength of her ceiling fans as they circled. In sample 9.3, Karen had auditory sensory awareness of multiple cooking sounds.

Karen had one sample of her 12 samples with sensory awareness with a bodily sensory awareness in sample 8.2.

Sample 8.2: At the moment of the beep, Karen was drinking water and enjoying the refreshingness of the water, which was a good sensation all over her body but mostly in her chest area.

Karen's experiences of sensory awareness were the clearest and most believable characteristics of inner experience in her sampling. Karen had many sensory awarenesses including visual, auditory, and bodily sensory awarenesses. She also had multiple ongoing sensory awarenesses like a cascade of sensory awarenesses.

Unsymbolized Thinking

Unsymbolized thinking occurred in 9 of her 51 samples (18%), making the second most frequent and the second clearest phenomena of inner experience behind sensory awareness discussed previously.

Sample 6.5 was an example of an experience of thinking.

Sample 6.5: Karen was washing dishes. At the moment of the beep, she was thinking something like, I need a maid to do my dishes / it would be nice to have a maid.

In this sample, when Karen was asked about how she experienced this thinking, she provided highly subjunctified descriptions. We understood her thinking about having a maid to be an experience of unsymbolized thinking, and understood the subjunctification as a way for Karen to indicate that her thought was not in words, but could be put into words if asked to. Thus, she provided multiple options of words to express her unsymbolized thinking and was never able to stick with one way of wording because her thinking at the moment of the beep had not been in words.

Karen's most clearly apprehended moment of thinking came on Day 5 of sampling. In sample 5.1, discussed above, Karen was wondering when Barry (her husband) would wake up

from his nap / He's been sleeping for a long time. In this sample, Karen was wondering without words or images associated with it; it was a general experience of wondering and her first clear experience of unsymbolized thinking. Notably, this example of clear unsymbolized thinking occurred on her fifth sampling day, and we just discussed unclear, highly subjunctified experience of thinking on the following sampling day in sample 6.5. This demonstrates Karen had the apprehending skill, however, her experience may have lacked clarity at times, making it difficult for her to clearly describe those inner experiences with confidence.

Karen had other moments with clear unsymbolized thinking.

Sample 7.6: At the moment of the beep, Karen was thinking she was going to use the gift card [to the spa] tomorrow and give the rest back to Darla (the person who gave the gift card to her).

Sample 10.2: At the moment of the beep, Karen was thinking she was really stupid for staying up past midnight to finish reading her book [which is why she was tired]. This thought was not in words or images.

In sample 7.6, Karen was thinking about an entire plan, without specific words or images present. In sample 10.2, Karen was thinking a self-critical thought without words or images.

The experience of thinking was Karen's second most commonly experienced characteristic of inner experience. At times, it was difficult for Karen to distinguish between one experience of thinking and multiple experiences of thinking. At other times, it was difficult for her to confidently describe her experience of thinking without becoming highly subjunctified. Despite these difficulties, Karen was able to describe unsymbolized thinking clearly on some occasions, particularly in the last half of sampling, although she continued to have some unclear experience of thinking during the last half of sampling also. The fact that she could and would

describe clear unsymbolized thinking on some occasions makes it more likely that the occasions where her experience was not so clear were the result of a lack of clarity of inner experience rather than a lack of apprehending skill on Karen's part.

Emotionally Relevant Samples

Karen had no clearly experienced feelings. In 12 (24%) of her 51 samples there was some emotional relevance, but it was impossible for us (and apparently for her) to disentangle any emotional experience for other aspects of experience, most often from thinking. Here are examples of thought/feelings:

> **Sample 7.1:** At the moment of the beep, Karen was looking at her right foot. She was seeing her whole right foot, maybe especially her toenails. She was also innerly seeing the end of a foot, focused particularly on the yellow of the toenails. [She had had her toenails painted yellow for a wedding in the past and the yellow she was seeing corresponded to what her toes looked like at that time, but experientially she was seeing yellow toenails rather than her yellow toenails from that previous time]. She may have also been feeling something like she didn't want to get her toes done.

In this sample, the not wanting to get her toes done has a negative valence but is not really a feeling—it more describe a preference instead of an emotion. At best, she expressed the not wanting to get her toes done had a feelingness to it without any further details.

> **Sample 7.4:** At the moment of the beep, Karen was feeling restless/caged in/ready to get out of her house. This may have been a mental feeling or a thought of *I want to go for a ride* [in the car.]

In this sample, Karen may have been feeling restless or caged in or ready to get out of her house. This feeling seemed to be highly enmeshed with her thinking. Moreover, her experience of

thinking/feeling restless/caged in/ready to get out of her house is a broader feeling experience than the more typically acknowledged feelings like sad, happy, angry, etc. Being caged in is something that happens and the resulting feeling may be something like feeling claustrophobic or constricted. Her broad inclusion of experiences as feelings may have once again contributed to her lack of clarity of this experience in this sample with an emotional relevance.

Other examples of thought/feelings were in sample 3.1and 3.3.

> **Sample 3.1:** At the moment of the beep, Karen may have been thinking or feeling something like, I just can't get going today.' It was unclear if this was a negative thought or feeling of frustration/blasé or something else, like a thought/feeling, etc. She was also staring out the kitchen window, which occupied about half her experience.

In this sample, Karen reported she was experiencing thinking or feeling that may have been blasé. She was unable to distinguish thinking about feeling blasé from feeling blasé.

> **Sample 3.3:** At the moment of the beep, Karen was sending a text about how she had made too much food. It was unclear if sending the text was in her experience. She may have also been thinking about the leftovers and maybe something like too much food in the fridge that wouldn't get eaten in time for her leaving on Friday for Utah. She may have also been feeling concerned.

Similar to the other examples of thought/feelings, Karen's feeling of concern was difficult to de-fuse with her thinking about the leftovers that would not get eaten before leaving for a long weekend. We worked hard at trying to discern if parts of her experience (i.e., feeling versus a thought) were more salient than others, but had no success in trying to help clarify her feelings into an emotional experience and her thinking into an experience of thinking.

Karen's difficulty with distinguishing thoughts and feelings continued into her last sampling day as observed in sampling 10.1.

> **Sample 10.1:** At the moment of the beep, Karen was thinking/feeling about Nicky, her daughter's sister-in-law, who has postpartum depression. Karen was thinking/feeling about the situation, a stew or mix that, if forced to separate things out, might include the ideas that Nicki had taken medication that had made her worse, she had told the kids to reach out to her because Nicky wouldn't reach out, that Nicky could be lonely, that Karen herself had felt like that, etc. These thought/feelings were not in words or images and were apparently not separable. She was also been thinking/feeling worried/sad, which may have been a physical experience, and may or may not have been a different aspect from the "thought/feelings" described above, but she could not say more.

This sample illustrates again how thinking and feeling were inseparable experiences. No aspect of her experience was clearly a thought or clearly a feeling, but was in a mix of experience.

When Karen had an emotion present, the emotions were nearly all (11 of 12, 92%) negative. One example with a negatively valenced emotional experience was in sample 4.4.

> **Sample 4.4:** At the moment of the beep, Karen may have been thinking maybe this device needs movement to go. She may have also been feeling a negative feeling of something like, 'maybe I'm doing something wrong.' Both the thought and feeling may have been present.

In this sample, Karen was not even able to label her feeling but she was able to identify it as negatively valenced. Other examples of negatively valenced emotional experiences were in samples 3.6 and 10.6.

Sample 3.6: At the moment of the beep, Karen may have been feeling stressed, which may have been experienced as a heaviness/emptiness/mourning in her heart. She may have been thinking about seeing her Dad, who is ill and weighs 130 lbs, and this may be the last time she sees her dad. She was texting her brother Sam that she will be in Utah Friday, but we were not sure if this was in her experience, if it was, maybe minimally so.

Sample 10. 6: At the moment of the beep, Karen may have been feeling sorry for herself/lonely/sad, which may have been a bodily emotion experienced primarily in her chest. [There did see to be something chesty about it, but that was not necessarily clear or the primary aspect of the experience.]

In sample 3.6, Karen was experiencing something like stress and/or mourning that may have been experienced as thought/feeling and may have had a bodily sensation associated with the thought/feeling. In sample 10.6, Karen may have been feeling sorry for herself/lonely. This emotionally relevant sample may have been experienced as a bodily sensation located in her chest.

Karen's one experience of a neutrally valenced emotion was in sample 10.3.

Sample 10.3: Karen was texting Barry to find out when he was going to be home. At the moment of the beep, she was wondering/feeling if he was coming home/hoping he would come home earlier, or stay late.

In this sample, Karen was hoping her husband would come home earlier or stay out later while she texted him about when he was coming home. This hoping was experienced as a thought/feeling as the emotional experience was intertwined with her wondering. Karen never had coherent experiences of feelings. She rarely had emotionally relevant samples, but when present, they were often thought/feelings and negatively valenced.

Summary

Karen struggled to grasp the DES task. On Day 4, we began to hypothesize whether factors related to the logistics of sampling (e.g., wearing the earphone) played a role in her reports of unclear inner experience or whether her difficulties stemmed from having little or no clear inner experience present. Even as late as her eighth sampling day, she still had a serious misunderstanding that we were looking for thoughts. On this same sampling day, she also seemed to be able to apprehend clear inner experience during many, though still not all, sampled moments. On her final (tenth) sampling day, we speculated her inner experience was not present or not well defined, particularly early in sampling. Her increased clarity across sampling days may have reflected improvement in clarity of experience, cyclical clarity of experience, or merely sampling skill. We are unable to know which of these contributed to her overall sampling. Additionally, we speculated that her presuppositions may have made it difficult for her to recognize what turned out to be her primary forms of inner experience (i.e., sensory awareness and unsymbolized thinking) as inner experience. This may have contributed to her frequent unclear inner experience early on in sampling.

Karen's clearest experiences were sensory awarenesses. These became clearer and frequent in the latter half of sampling, particularly after her eighth sampling day. The increase in sensory awarenesses was likely due to Karen understanding the notion of sensory awareness and avoiding her presuppositions of what she assumed inner experience was supposed to look like. When sensory awarenesses were present they were mostly related to seeing colors and hearing multiple sounds. She also tended to experience multiple, ongoing sensory awarenesses.

Karen's most frequent experiences were thinking/unsymbolized thinking; however, this high frequency of thinking/unsymbolized thinking may be attributed to her bias to over report

thinking/unsymbolized thinking experiences. Her ability to describe clear unsymbolized thinking fluctuated across sampling days, leading use to believe that her inability to describe clear unsymbolized thinking on some occasions was due to the lack of clarity of her experience of thinking and not due to a lack of apprehending skill.

Karen's most unclear characteristic of inner experience was relevant to emotion. She never had coherent experiences of feelings. Her emotionally relevant samples had included broad experiences like feeling restless/caged in/ready to get out of her house instead of more narrowly and commonly defined feelings like happy or sad. Her emotional experiences were often so tangled with a cognitive experience that it was impossible to differentiate a feeling from a thought. Her emotions, when present, were almost all negative.

On her eighth sampling day, Karen spontaneously shared she found it surprising that her experiences were neutral or positive despite her feeling down in general all the time. Karen stated, "Another thing that really surprises me is that I haven't really had a lot of negative thoughts but I've been really down lately and so I would think that would reflect, but it really hasn't." We also shared that we similarly noticed her moment-by-moment experiences did not reflect her overall sense of being depressed. Even though the majority of her emotionally relevant samples were negatively valenced, these experiences rarely occurred across her sampling.

At the end of sampling Karen stated she found participating in the DES task was useful and it seemed valuable to be able to analyze her own experience. It seemed useful for her to know her experiences varied from one moment to the other despite theories of depression suggesting that sadness spirals downward. She appeared grateful to have gained this new knowledge that her overall experiences did not fit with these theories.

CHAPTER 11

IDIOGRAPHIC DESCRIPTION OF JESSICA'S EXPERIENCE

Jessica is a 27-year old, right-handed, Caucasian female who sampled with us from March 2014 to April 2014. She met criteria for BD-I, recurrent, without psychosis in full remission as assessed by the SCID-I (First, Gibbon, Spitzer, & Williams, 1997). Onset of major depressive episodes occurred at age 13 with a lifetime total of 45 depressive episodes. Onset of manic episodes occurred at age 15 with a lifetime total of 10 manic episodes. She also met criteria for Alcohol dependence in partial remission. She had been hospitalized three times in 2003, 2004, and 2005, respectively, for suicide attempts. She has 14 years of education. She was not taking any medications during sampling. She has never been married and lives with her partner, Grace. She works as a mechanic.

Jessica received a Global Severity Index T-score of 63 on the SCL-90-R (Derogatis, Lipman, & Covi, 1973; Derogatis, 1994), suggesting the presence of severe psychological difficulties. She was given the DSM-5 Level-2-Depression-Adult measure before sampling. Her T-score was 62.5 indicating moderate levels of depression. She was also given the DSM-5 Level-2-Mania-Adult measure before sampling. Her raw score was 20, indicating a high probability of a manic or hypomanic condition.

Jessica sampled on five separate occasions, collecting six samples per day following the DES procedure, but we were only able to discuss a total of 22 sampled moments across five expositional interviews due to time constraints. Without the samples from her first sampling day, this left 17 total sampled moments. She was friendly and seemed motivated to engage in this project, but a change in her employment made scheduling sampling interviews difficult, so she was only able to complete five days of sampling. Because her experience across all five sampling

days was broadly consistent, we believe we can say something about the salient characteristics of her inner experience with moderate confidence. Although the first sampling day samples are not usually discussed because they are considered training, Jessica's description of samples from the first day will be discussed throughout this chapter because her experiences described were consistent with her experiences on subsequent sampling days. The consistency of her sample descriptions across all five sampling days suggests that she was able to grasp the DES more quickly than most DES participants. Despite her ability to quickly grasp the task, her inner experience varied along the continuum of highly complex to undifferentiated.

Overview of Jessica's Sampling

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

> **Sample 2.1:** Jessica was making dinner with her partner, Grace. Jessica leaned in to kiss Grace's forehead, but Grace lifted her chin to kiss Jessica back. At the moment of the beep, Jessica was remembering previous times Grace had done this. This was experienced as innerly seeing three to four instances of Grace lifting her chin. These seeings were in rapid succession and all seen from a third person point of view from the left side and from above. These seeings also had action in them. In one scene, Jessica saw herself and Grace standing facing each other in the hallway in front of the bathroom with Jessica leaning in and Grace lifting her chin. In another seeing, Jessica saw herself and Grace outside their car. She knew this scene was occurring in a parking lot, but she didn't see any of the parking lot. Jessica also may have had a mildly disapproving feeling about Grace doing this frequently; this was said to be present in all the seen scenes as well as at the moment of the beep.

Sample 2.2: Jessica was looking at the steak she had cooked and comparing it to Chef Ramsay's steak. At the moment at the beep, she said “this is absolutely repulsive” out loud, but this may have been happening on autopilot—the words just coming out without being experienced. She also felt disgusted, a self-loathing emotion aimed at herself that was experienced as an uncomfortable bodily sensation that started in her core of her stomach area and radiated outward. This was felt in a well-defined circular region about the size of an orange or grapefruit. She also felt disappointed, which was a mental feeling something like, ‘I let myself down/what’s going on here?’ with no words present. That is, whereas the disgust was bodily and stronger (60-40), the disappointment was mental.

Sample 2.4: Jessica was playing a game called Dots on Grace's phone. Grace had said, “The goal of the game is to get bigger squares.” At the moment of the beep, Jessica was feeling inadequate or perhaps was cognitively noticing her inadequacy; this was a cognitive experience with the three or four phrases, “I don't get it; I am not going to reach her level; I’m probably not going to get it; it's not going to change” being innerly spoken simultaneously in her own voice with each statement somewhat overlapping.

These experiences were all multiple. In sample 2.1, Jessica had multiple complex inner seeings that involved many details and had action in them and a feeling. In sample 2.2, Jessica differentiated multiple feelings (disgusted and disappointed) experienced in different ways (bodily vs. mentally). . In sample 2.4, Jessica had multiple inner sayings overlapping. However, she was unable to believably describe her experience of feeling inadequate; her description jumbled emotional and cognitive experiences together and she was unable to differentiate them in her experience.

Jessica's experiences on the first two sampling days ranged from skilled observations, as in samples 2.1 and 2.2, to difficulty describing parts of her inner experience, as in sample 2.4. Day 1 of sampling was similar in terms of the array of inner experience characteristics observed. Sampling days three through five were also similar in terms of the array of inner experience characteristics observed. Jessica's initial skill was different from the struggle our other DES participants with BD had with observing and describing their inner experience. However, her skill did not remain constant. It appeared to vary across sampling days and across characteristics of her experience, possibly corresponding to changes in her mood or possibly corresponding to other unknown factors.

Jessica's overall pattern of inner experience was most often multiple, complex experience that overlapped. For example:

> **Sample 4.4:** Jessica had been asked, "Do you know how to drive stick?" At the moment of the beep, she was innerly seeing herself from first-person perspective as the driver of her '67 Mustang. She saw her side of the fender, windshield, window, and shifter in focus, and the rest of the car was not in focus. Simultaneously she also saw related inner seeings of 3-4 cars. She saw the general body style of the entire cars, but they were not in focus. All seeings were in vivid color. The separate seeings of cars were other cars she may have to drive stick for. Jessica also felt panic. This was experienced as a mental, 'deer caught in the headlights look.' She also felt the panic in her body in her shoulders up, and in her hands, but could not describe the details of the sensation. She also felt embarrassed/stupid. This was experienced as warmth in throughout the top half of her body. The embarrassment was also experienced as two inner seeings of herself stalling, but she could not recall the details of the specific locations she had stalled. Jessica also

had a thought like, “I don’t want to feel like that again.” This thought was located in the front of her head. She had a visual sense of these specific words, but did not see any words or letters. She saw the thought flash in her head like a warning flash.

This sample highlights Jessica’s highly complex inner experience. She was simultaneously attending to seven inner seeings, two feelings, and one thought that was somehow seen without words themselves being seen. This level of complexity is not commonly seen in sampling with typical DES participants. The salient characteristics of experience described in this beep (a range of completeness of inner seeings, a range of coherence of emotional experiences, and a range of articulation of thinking) were consistent with the characteristics of experience Jessica described throughout sampling.

Inner Seeing

Inner seeing was present across all five sampling days, with 14 (82%) of Jessica’s 17 total sampled experiences involving inner seeing. However, her ability to experience clear imagery fluctuated across sampling days.

Jessica’s inner seeing ranged with regards to articulation of inner seeings from vivid, hyper clear inner seeings, to multiple inner seeings in rapid succession, to muted details, to unfinished details, to imageless seeing. An example of a vivid, hyper clear image was sample 5.1.

Sample 5.1: Jessica was working on a motor for a convertible top. At the moment of the beep, she was innerly seeing two blue and red wires coming out from both sides of the motor, extending through the doors and to the engine compartment. She saw the wires clearly and they were realistic. She saw the wires extending from the motor she was seeing, that is, the motor she was looking at was in her inner seeing. She saw the metal

back piece, the 8-inch long circular motor, two relays on the side, and light blue, yellow, orange, and black wires coming out from the relays. She also saw an unclear outline sketch of the vehicle; the outline sketch of the vehicle had no color.

In this sample, Jessica's image of the wires and motor had vivid details like color and looking as it really did.

Jessica had sampled moments with inner seeing at the low end of the articulation or clarity continuum, as in samples 4.1, 4.2, and 5.2.

Sample 4.1: Jessica had heard the sound of a power probe and it had reminded her of a memory. At the moment of the beep, she was innerly seeing a memory, but the thing seen was not present. She was seeing from a first person point of view, and she had a sense that this memory was from eight months ago; it was in Terrible's garage, and she was not with Grace at the time, they had been separated for 2-3 months. She was actively trying to produce a visual experience, but the experience did not happen, so she tried again and again. This inner seeing without images was located inside her head. She was also feeling a related feeling of uncertainty/annoyed, which was a mental experience with no words or inner seeings.

Sample 4.2: Grace had texted Jessica a picture of how the time clock at her work was not operating correctly, so it looked like Grace was not working despite clocking in. At the moment of the beep, Jessica was feeling enraged (approximately 60% of her experience)– a warm heat that began in an orange-sized area in her stomach and immediately radiated out to her entire body. She also innerly saw Grace's boss (approximately 40% of her experience), from the shoulders up, how he typically looks, and herself, from the waist up, standing in front of the boss. Jessica saw this from the perspective of standing right

next to innerly seen Jessica's left. This inner seeing represented Jessica making her presence known to him and that he better fix this or she will wring his neck. This inner seeing was in faded/muted colors but not in grey scale.

Sample 5.2: Jessica's co-worker had just quit. At the moment of the beep, Jessica was replaying a scene from last night. Jessica saw herself lying in bed, reading her horoscope on her phone. This was a still inner seeing with the reading happening in the inner seeing, despite the inner seeing being a still frame. She saw the scene on her lower left. The scene was in color, but the colors were muted. She also had a general notion of her horoscope saying she will have to step her game up/you know you have to step your game up/there's expectations to fulfill. This notion was encompassed in her inner seeing, that is it was not separate from her inner seeing. The inner seeing and the accompanying horoscope notion was approximately 90% of her experience. She also felt panic, which was experienced as a slight tingling and slight warmth from the shoulders up to her head.

In sample 4.1, Jessica may have been unable to fully access her inner seeing or the inner seeing was not yet created or available to her. Instead, she had a sense of the image she was trying to see. Jessica had been able to access vivid inner seeing prior to this sampling day. Thus, her inability to access her inner seeing as not due to a general inability to have inner seeing. It may be that Jessica is sometimes or often a passive recipient of her experience instead of actively creating it. So in sample 4.1 when she wanted to innerly see a memory triggered by hearing the sound of a power probe she was unable to. Other examples of less than fully created or elaborated inner seeings include sample 4.2 when Jessica innerly saw her boss in faded/muted colors and sample 5.2 when Jessica was seeing herself in bed in faded or muted colors. A similar comparison to fully articulated inner seeing could be made with these samples with muted color

in that Jessica was able to have inner seeing in vibrant color both before and after these inner seeings.

The lowest end of the continuum of clarity is imageless seeing, the experience of innerly seeing but with no presentation of the thing seen. Two instances in Jessica's samples involved imageless seeing. Sample 4.1 was discussed above where she was seeing a memory without innerly seeing anything. Her second sample with imageless seeing occurred on her final sampling day in sample 5.3.

> **Sample 5.3:** A porn star had come into the shop with her Escalade, and she had asked Jessica if the shop's trike was Jessica's. At the moment of the beep, Jessica was looking at the porn star and her escalade. She was drawn to the shininess of the car and rims, the pearl white and black color of the car, and the 28-inch ness of the rims. She also had a related imagining of the porn star's other vehicles and house. This was an inner seeing without images; that is, she was experiencing herself as seeing, and she knew the seeing was of generic vintage vehicles and a Kardashian-like house, but she did not actually innerly see the vehicles or the house. She had another related inner speaking of, "Why the fuck would she like this [the trike]?" This was asked in her voice, in her head, with a questioning tone and normal volume. She had another related idea of 'pretty girl, ugly taste' that was not in words. These experiences were approximately 90% of her experience. Jessica was also laughing inside. This was experienced in her head and was a roaring laughter she was producing (10% of her experience).

In this sample, Jessica was experiencing inner seeing of vintage cars and a mansion without seeing anything. During the interview, she did not appear to be disturbed by her experience of imageless seeing. Imageless seeing may be at one end of the continuum of articulation of inner

seeings with vivid seeing at the other end and incomplete seeing somewhere between these two end points.

Jessica had experiences of multiple inner seeings with varying levels of articulation that occurred in rapid succession. In sample 4.4, discussed above, Jessica had seven inner seeings: 1) herself driving the ’67 Mustang in vivid color; 2) a car in vivid color but not in focus; 3) another related inner seeing of a car in vivid color but not in focus; 4) a third related inner seeing of a car in vivid color but not in focus; 5) a fourth related inner seeing of a car in vivid color but not in focus; 6) herself stalling; and 7) another experience of herself stalling. The first inner seeing (Jessica driving the ’67 Mustang) had parts of the inner seeing that were in focus or clearly seen (i.e., her side of the fender, windshield, window and shifter) and other parts of the same image were not in focus (i.e., the rest of the car). Images 2 through 5 were not in focus but were seen in rapid succession. Images 6 and 7 were less clear but were also seen in rapid succession.

If Jessica does in fact vacillate between having complex and impoverished periods of inner experiences, this incomplete experience (imageless seeing) might occur during transitions between those more “extreme” states. Her inner seeing varied along a continuum of articulation. Overall, Jessica was able to have hyper clear and vivid imagery at times, and at other times, she was unable to access or create fully articulated seeings or even any seeing at all; this variability may possibly be related to changes in mood, or changes in other unknown aspects.

Emotionally Relevant Samples and Feelings

Jessica had a feeling in 8 (47%) and 2 (6%) emotionally relevant samples in her 17 total sampled moments. To review, feelings are defined as direct experiences of emotion. Emotionally relevant samples are defined as moments that contained an emotional aspect despite no feeling being experienced directly. These emotionally relevant samples include thought/feelings, the

doing of emotion, and a broader inclusion of experiences as feelings than typical feelings like happy and sad. Jessica's experience of feelings ranged in coherence and articulation of feelings, from undifferentiated thought/feelings, to doing of an emotion, to clearly demarcated feelings.

Jessica had difficulty distinguishing her emotions/feelings from her cognitive process(es) and it was impossible to label the experience as either feeling or thinking, so the experience may have been a combined thought/feeling. Jessica had one sample that involved a thought/feeling. In sample 2.4, described above, she was playing a game and having some experience of being inadequate. Jessica was not sure if she was feeling inadequate or cognitively noticing her inadequacy with the words, "I don't get it; I am not going to reach her level; I'm probably not going to get it; it's not going to change" being innerly spoken in her own voice in a somewhat overlapping temporal sequence. Sample 2.4 demonstrates Jessica's difficulty with distinguishing thoughts and feelings.

Jessica had one sample that involved a doing of a feeling:

Sample 3.4: Jessica was looking at a photo on Instagram and deciding whether to delete or keep the picture. At the moment of the beep, she was innerly seeing the original event. She saw herself, Bobby, and another guy at a bar from a third person point of view – the angle from which the picture had been taken. [The other two guys were store managers at jobs where she had previously worked.] She also had two related experiences: (1) wanting to keep the picture and (2) not wanting to keep the picture. In the first experience, Jessica thought about how she could use the picture to show/as proof of the fact that Bobby and the other guy hang out all the time and there is a double standard regarding hanging out outside of work. She experienced this thinking as slightly elevated and to the right of the inner seeing. She did not see this experience, but knew it to be

there. Jessica also remembered feeling bored/uncomfortable, which was experienced as a slight sickness in her stomach, and not wanting to remember the feeling. This was a remembering of a feeling rather than a re-feeling of the original feeling. This thinking-about-feeling was understood to be below the thinking-about-double-standard (and to the right of the inner seeing).

In this sample, the doing of the feeling was Jessica's not wanting to remember the feeling. This experience thus not a feeling; it was the remembering of a feeling (not a re-feeling of it) with a simultaneous not wanting to remember the feeling.

Jessica had eight samples that involved a feeling. For example, in sample 4.2, described above, Jessica had received a text containing a picture of the broken time clock at work that made it look like Grace was not working despite clocking in. Jessica was feeling enraged. She felt a warm heat that began in an orange sized area in her stomach that immediately radiated out to her entire body. In this sample, Jessica was feeling heat throughout her body that was not a clearly demarcated experience of enraged.

Another example of a feeling was seen in sample 5.2, which was discussed earlier. At the moment of that beep, Jessica's co-worker had just quit and she was replaying a scene from last night. She also felt panic, which was experienced as a slight tingling and slight warmth from the shoulders up to her head. The panic was minimally experienced (10%) in comparison to the inner seeing.

Jessica's only experience of a positive emotion involved feeling excitement in sample 4.3.

Sample 4.3: Jessica was walking across the street to pick up the '65 Mustang. At the moment of the beep, she was innerly seeing two seeings: 1) herself in the car and the

entire left side of the car driving down the empty Torrey Pines road - seen from third person perspective; and 2) all the windshield, dash, shifter, and driving down a short amount of empty Torrey Pines road – seen from herself as the driver's point of view. She saw the first inner seeing first and then the second inner seeing, but could not say how quickly they inner seeings changed. She also experienced a related excitement that was experienced as feeling a rapidness/fluttering inside the middle of her chest; a fizziness (like an Alka-Seltzer) above her stomach and below her upper chest in the front part of her body that stopped at her sides; and a sensation of cheek muscles being used as she smiled.

She experienced the excitement in this sample throughout her body in a clearly demarcated area.

Experience of Thinking/Unsymbolized Thinking

Four (24%) of Jessica's 17 samples included an experience of thinking. Despite the infrequency with which thinking occurred, Jessica's experiences of thinking ranged from unsymbolized thinking to worded thought to clear inner speaking. An example of unsymbolized thinking was seen in sample 5.4.

Sample 5.4: Grace had just told Jessica the person she interviewed with looked like Bernie Mac. At the moment of the beep, Jessica was innerly seeing Bernie Mac form the shoulders up. This seeing was in color and located in front of her – slightly elevated and to her right. She was also wondering without words or imagery if they'd get along because Grace is a quarter black and he's black.

This sample was a clear example of unsymbolized thinking as the thought was a wondering and did not have accompanying words or inner seeings. Jessica also had unsymbolized thinking with a specific location in sample 3.4, discussed above. In this sample, Jessica's unsymbolized

thinking of how she could use the picture to show/ there is a double standard regarding hanging out outside of work was clearly located in her head, just above her inner seeing. Additionally the unsymbolized thinking had a clear, separable location from the demarcated feelings also present at the moment of this beep.

Jessica had one sample of thinking probably in words with movement in sample 2.3.

Sample 2.3: Jessica had a bloody nose and was looking at herself in the mirror. At the moment of the beep, she was thinking, "Why do I do this? It's because I use nasal allergy medications. Do I want to stop? No, because I want to breathe?" She was not sure if there were specific words present, but she experienced having a sense of words. These thought started from the left side of the inside of her forehead and horizontally scrolled to the right side of her forehead, more or less like the line of stock information at the bottom of TV screens during the news. There were multiple moving thoughts, either all at once, one for each thought, or at least overlapping. The words in her head were approximately 85% of her inner experience while seeing herself in the mirror was about 15% of experience.

In this sample, Jessica had a sense of words present, although she was not sure of specific words that moved from the left to right side of her head. These multiple thoughts were moving at a somewhat overlapping or simultaneous rate.

Jessica had one experience of thinking that involved inner speaking without words, in sample 5.5 discussed previously. In this sample, Jessica innerly spoke, 'you need to go to UNLV,' but no words were present. Inner speech without words, like imageless seeing, may be at the end point of the continuum of articulation with fully articulated experience of thinking at the other end of the continuum with incomplete thinking experiences somewhere between these end points. If Jessica does in fact vacillate between having complex and impoverished periods of

inner experiences, these incomplete experiences (e.g., imageless seeing and inner speech without words) might occur during transitions between those more "extreme" states.

Jessica had infrequent experience of thinking compared to her frequent experience of inner seeing. Her experience of thinking ranged in completeness: there was unsymbolized thinking, clearly demarcated unsymbolized thinking, multiple overlapping and moving worded thoughts, and inner speaking without words.

Doing of Experience and Happening of Experience

Jessica had three (18%) of her 17 samples that included a doing of experience. These intentional manipulations of her experience all occurred on her third sampling day, which also was the only sampling day without a feeling. Two doing of experience samples (samples 3.3 and 3.5) involved the doing of inner seeing.

> **Sample 3.3:** Jessica was on the phone with her manager. He was speaking to her about her job schedule. At the moment of the beep, Jessica was not hearing what he was saying but instead was innerly seeing a calendar with the days of the first week in the first row of the calendar moving. She saw the blocks for some day moving to other days (e.g., Wednesday moved to Sunday block). Jessica was intentionally moving the blocks to rearrange her schedule, not merely watching the blocks move.
>
> **Sample 3.5:** Jessica was washing her hands. At the moment of the beep, she was replaying a conversation that had happened earlier with a customer. Jessica heard the lady's questions/statements and Jessica innerly spoke her responses (the same responses she gave earlier) but the delivery was intentionally more excited/elevated than when it had actually occurred. She also innerly saw the lady from the perspective she had seen

the lady at earlier, but this seeing was unelaborated/unclear (as if unimportant by comparison to the conversation).

In sample 3.3, Jessica was purposefully manipulating her inner seeing of a calendar according to her work schedule. In sample 3.5, Jessica was purposefully manipulating the speaking in the inner seeing to have a more excited tone.

Jessica had one experience of the doing of feelings in sample 3.4, discussed above. Jessica was looking at a photo of herself and old co-workers at a bar. In this sample, Jessica was recalling the bored/uncomfortable feeling she had felt at the time of the memory she was thinking of. She was not experiencing an emotion about feeling uncomfortable in the past nor was she feeling uncomfortable in the present.

Jessica had one sample that involved the happening of experience, where the experience was happening and Jessica was observing – that is, Jessica was not the driver of the experience. The happening of experience is generally rare in DES. In sample 2.2, discussed above, Jessica was looking at the steak she had cooked and comparing it to Chef Ramsay's steak. At the moment of the beep, she said, "this is absolutely repulsive" out loud, but this may have been happening on autopilot – the words just coming out without being experienced. In this sample, Jessica was merely the observer of the experience of speaking.

Summary

Jessica was a motivated participant who worked to observe and report her inner experience to the best of her ability. Although she was unable to complete sampling, her experience was generally consistent across her five sampling days. Jessica's experience ranged in coherence and ranged from complete experiences to incomplete/partial experiences to rare experiences. Jessica's clearest experience tended to be inner seeing. However, even her clearest

experiences ranged in articulation. Jessica's inner seeing ranged from clear, vivid inner seeing, to multiple moving, rapidly changing inner seeings, to muted color inner seeings, to waiting for an image, to imageless seeing. She was able to have lots of vivid inner seeings but at times had less seeing, likely corresponding to lower mood, or some other unknown variable.

Jessica's experience of emotions was less frequent and less clear than her inner seeing. Her experience mostly involved negative emotions. Her experience of emotions ranged in coherence from undifferentiated thought/feelings, to the doing of an emotion, to clearly demarcated experiences of feelings. Jessica's experience of thinking was also less frequent than her inner seeing. Jessica's experiences of thinking ranged from unsymbolized thinking, to inner speaking without words, to worded thought, to clear inner speaking. When taking a look at her patterns of characteristics of experience, it may be that when Jessica's feelings were high, her inner seeings were low or incomplete or not articulated. Overall, it may be that when her mood was somewhere between depressed and expansive mood her experiences were coordinated, but when her mood was depressed or expansive, her experiences were less coordinated.

CHAPTER 12

IDIOGRAPHIC DESCRIPTION OF MARK'S EXPRIENCE

Mark is a 27-year old, right-handed, Caucasian male who sampled with us from February through May of 2014. Mark met criteria for BD without psychosis, in full remission, as assessed by the SCID-I (First, Gibbon, Spitzer, & Williams, 1997). At the time of participating in this study, he was taking Lamotrigine prescribed by his psychiatrist to manage his symptoms of BD. He stated his age of onset was 23 for depressive episode and 23 for manic episode. He was hospitalized once in 2009 for his manic episode. He endorsed having suicidal ideation in the past, but no suicide attempts and denied current suicidal ideation. He completed 16 years of education. Mark has never been married and has a girlfriend; he lived with his family, but moved to his own apartment during our sampling period. He is a software developer and works full time.

Mark was given the SCL-90-R (Derogatis, Lipman, & Covi, 1973; Derogatis, 1994) both before and after sampling. His pretest and posttest Global Severity Index T-scores were 52 and 34, respectively, both suggesting the absence of significant psychological difficulties. He was given the DSM-5 Level-2-Depression-Adult measure both before and after sampling. His pretest and posttest T-scores were 37.1 indicating no to slight levels of depression. He was also given the DSM-5 Level-2-Mania-Adult measure both before and after sampling. His pretest and posttest raw scores were five, indicating an unlikely association with significant symptoms of mania.

Mark sampled on ten separate sessions, collecting a total of 54 samples. Samples from the first interview are typically considered training and will not be discussed, and he had three

beeps that were not discussed because he could not recall the details of those moments, leaving a total of 48 samples.

Mark appeared to be a motivated participant who tried his best to do the DES task. Participants usually struggle to understand or adequately master the task of describing their inner experience on the first day, but Mark's struggles to convey coherent inner experience continued into his second day. He appeared to adequately understand the task by his third day of sampling. He seemed to be able to distinguish between what was and was not present in his inner experience at the moment of the beep with confidence. He often stayed up late to collect samples. Mark's inner experience often had nothing ongoing or little experience present. A majority of his sampled moments included sensory awareness. The experience of doing something was present to a lesser degree than his sensory awareness. This chapter will describe these and other salient phenomena of Mark's experience.

Sensory Awareness

Sensory awareness was present in 30 (63%) of Mark's 48 samples. His sensory awarenesses were often bodily and/or visual, were often multiple, and were generally clear when compared with his other moments of experience. He also had some instances of multiple sensory awarenesses experienced at a low level and accompanied by mostly nothing. His sensory awarenesses were sometimes related to each other but not integrated together.

Mark's sensory awarenesses were usually bodily and clear; he experienced at least one bodily sensory awareness in 19 of his 30 instances of sensory awareness. For example:

> **Sample 2.3:** Mark was on the computer reading something. At the moment of the beep, he was feeling an awe/surprise (approximately 70% of his experience) that was a mental

experience of ‘Oh, that’s really interesting,’ but no words were present. He was also feeling his eyebrows raised (30% of his experience).

In this sample, he was paying attention to the clear bodily sensation of the raised feeling of his eyebrow.

Mark also experienced multiple simultaneous bodily awarenesses, as in samples 3.4, 6.6, and 9.6.

Sample 3.4: Mark was eating a margherita pizza. He was holding the plate on his left hand while he reached for a diced piece of tomato to put back on his pizza. At the moment of the beep, he was pinching his fingers to grab a tomato. He felt the tomato between his thumb and forefinger; he also saw his fingers pinching. He was also feeling and/or thinking oddness. He had one thought, without words, but something like, ‘this is odd/why am I doing this/what am I doing/this is weird.’ This was also an emotional experience, not just a thought, but he could not say more about the emotion. He was also feeling his left fingers separated to hold the plate on top of his fingers, and feeling his bicep flexed holding the plate up. He also, but minimally in his experience, heard the TV on in the background.

Sample 6.6: Mark’s right leg was curled around the back of his left leg, scratching the left leg with the top of his right foot. At the moment of the beep, Mark was feeling the scratching on the left side of his lower left calf in an area about 3 inches around. He also felt the strangeness of his right quads flexing to move his right leg up and down. The itching was approximately 80% of his experience. He was also feeling his right thumb and forefinger on the right side of his face near his jaw and temple, respectively, and feeling the pressure in his hand (palm area) holding his face up.

Sample 9.6: Mark was eating Cheerios from a coffee mug because he does not have bowls in his new apartment. At the moment of the beep, he needed to breathe (his nose was stuffed and he was chewing so he was not able to breathe). The needing to breathe was (as best he could describe because it was not too clear to Mark how this was present) a feeling in his brain and lungs, but mostly his brain feeling like it needed oxygen. This was approximately 60% of his experience. He was also feeling the cup on his left hand fingertips (approximately 30% of his experience). He also felt the chewing motion in his jaw (approximately 10% of his experience).

In sample 3.4, Mark was paying attention to three simultaneous sensory awarenesses in his body: 1) feeling the tomato between his thumb and forefinger, 2) feeling the separation of his left fingers underneath the plate he was holding up, and 3) feeling the flex in his bicep. Thus he was paying attention to two distinct sensations in his left arm–his fingers and his bicep. In sample 6.6, Mark had four experiences of bodily sensory awareness: 1) feeling the scratching on his left calf, 2) feeling the strange flexing in his right quad, 3) feeling his fingers on his face, and 4) feeling the pressure in his palm. Again, Mark felt two distinct sensations in different parts of the same anatomy (i.e., separately the fingers and palm of his right hand). In sample 9.6, two bodily sensory awarenesses in different body parts were present: 1) feeling the fingertips on the cup, and 2) feeling the chewing motion in his jaw.

Sensory awareness was sometimes experienced at a low level and accompanied by mostly nothing, as in samples 4.4 and 5.5.

Sample 4.4: Mark was playing a computer game with his friend. He was not engaged in the game. At the moment of the beep, he was seeing what was happening on the screen –

slightly more into the bright colors of the cards than their shape, but only minimally paying attention to these characteristics.

Sample 5.5: Mark was unengaged/doing nothing but watching a YouTube clip of Nancy Grace. He was seeing Nancy Grace debating with Nancy Grace on a split screen. At the moment of the beep, he was mostly (approximately 80% of his experience) unengaged/passive/nothing in his experience. Approximately 20% of his experience, he was paying attention to her weird/unusual head movements and loud/unusual tone of voice.

In these samples, Mark had mostly nothing in his experience, and yet distinguished low level of sensory awareness(es). In sample 4.4, he was minimally paying attention to visual sensory awareness in the brightness and shape of the cards on the computer screen. In sample 5.5, Mark was minimally paying attention to two different types of sensory awareness – visually noticing the weirdness/unusualness of his girlfriend's head movements and auditorily noticing the loudness/unusualness of the tone of her voice.

Nothing/Mostly Nothing in Awareness

Nothing was present in two (4%) of Mark's 48 samples. Mostly nothing was present in 11 (23%) of his total samples. Thus 13 (27%) of Mark's 48 samples contained no experience or mostly no experience. For example:

Sample 4.6: Mark was on the Internet. His eyes were open but he was zoned out and may have been starting to doze off. There was nothing in his experience at the moment of this beep.

In this sample, he was on the Internet but this was not in his experience. There was no ongoing experience at the moment of the beep.

Mark differentiated between moments where nothing was present from moments where "mostly" nothing was present at the moment of the beep. Samples 4.3, 8.5, and 10.6 are examples of mostly nothing.

> **Sample 4.3:** Mark was installing something on his computer. At the moment of the beep, he was zoned out. That is, about 90% of his experience capability was not engaged at the moment of the beep. He was also looking at the pretty blue color of the blue progress bar (approximately 6%) and the progress-ness of the bar (4%).

In sample 4.3, Mark's experience contained mostly nothing, but even so, he made distinctions between the less salient parts of his experience.

> **Sample 8.5:** Mark was FaceTiming with his girlfriend on his computer and there was a pause in the conversation. At the moment of the beep, there was mostly nothing going on in his inner experience (approximately 90% of his experience). The other 10% of his experience was seeing his girlfriend on the screen.

Again, in this sample, Mark recognized that mostly nothing was ongoing in his experience, but that the minority of his experience was of seeing his girlfriend on the computer screen in front of him.

> **Sample 10.6:** At the moment of the beep, mostly nothing was in his experience (approximately 70%). He was also watching the movie (approximately 20%). Mark was also thinking he was worried about having to collect more beeps/it was weird that beeps 10.4 and 10.5 were so close. He described this as a thought, not a feeling, and he was slightly more thinking/worried about having to do more than thinking about how weird it was the beeps were so close.

In sample 10.6, Mark made a distinction between the majority of his experience (nothing) and the minority of his experience (watching the movie and thinking about having to collect more beeps).

These samples describe Mark's ability to quantify how much of his experience was nothing (e.g., some majority percentage of his total experience); he was also able to quantify the minimal aspects of his experience when there was mostly nothing present. This low level experience of some phenomena appears to be a salient characteristic of Mark's inner experience. Moreover, the frequency of Mark's experience of nothing or mostly nothing ongoing was much higher when compared o the fairly rare frequency of the baseline of this phenomena seen in sampling with DES participants without a psychiatric diagnosis.

The Doing of Experience

The doing of experience is a statement used to describe a phenomenon seen in Mark's experience where he purposefully manipulated his experience. The doing of an experience was present in seven (15%) of his 48 total samples. Mark demonstrated doing of sensory awareness, doing of the expression of emotions, doing of thinking, and doing of behavior. Mark had one doing of an unsymbolized thinking.

> **Sample 6.2:** Mark was still watching House of Cards and had just told his girlfriend that he thought the two girls on the screen were going to kiss. She disagreed, and they were watching the show. At the moment of the beep, he was experientially willing that the two girls on the screen would kiss to prove him right to his girlfriend. This was a mental experience with no words, but something like, 'this is going to happen/Come on. Come on.' This willing was a slightly enjoyable thought; he denied there was an emotional component to this willing. This was approximately 70% of his experience. He was also

seeing the frame of the camera remaining still on the screen (which indicated to him the girls were going to kiss). This seeing was approximately 15% of his experience. He also felt pressure on the outside of his right elbow propping his body up in a more leaned forward position as he watched the scene.

In this sample he was intentionally willing his unsymbolized thinking to match what would happen onscreen. He was paying attention to his purposeful willingness of thinking and not paying attention to his thinking.

Mark also had samples where he was doing of a sensory awareness, as in sample 6.4

Sample 6.4: Mark was lying in bed and his girlfriend had fallen asleep with her head on his left shoulder/chest area. Mark was leaning his head down towards her head. At the moment of the beep, Mark was feeling his left check pushing up against his back 3 molars and feeling his girlfriend's head against his cheek, a sensation he was purposefully creating. He felt this in both the inside and outside of his cheek as one sensation of being squished. This sensation was about the size of a baseball, but it was a diffuse sensation of being squished throughout the cheek.

In this sample, Mark was not merely feeling the sensations in his cheek—he was intentionally creating ("doing") those sensation was so that he could pay attention to them.

There were also samples involving a doing of an expression of an emotion as in sample 4.2.

Sample 4.2: Mark's sister had asked him a question and he was annoyed and (apparently purposefully) taking longer than usual to answer her. [He was not processing the words at the moment of the beep—it was apparently the case that he had formulated his response but was not yet ready to say it, still dealing with the annoyance.] At the moment of the

beep, he felt annoyed. This was physically located in his head like a heavy head down and shaking sensation in his head. [The sensation was a slighter version of that which, if stronger, would have caused him to put his head in his hands and shake his head.] There was also a mental part of the annoyance that was something like, 'Jesus Christ, why are you asking me this?' But no words were present. None of this was very strong in his experience.

In this sample, Mark was purposefully expressing his annoyance at his sister. Mark had other samples where he purposefully manipulated his outward expression of emotions on his ninth sampling day in samples 9.1 and 9.2.

Sample 9.1: Mark and his girlfriend were lounging on the couch watching a news report that had just stated drinks are going to start costing more. His girlfriend had sarcastically said, "More?!" and he had just sarcastically replied, "More." At the moment of the beep, he was intentionally overexaggeratingly nodding his head and raising his eyebrows to express sarcasm. As best we could tell there was not a separate cognitive experience, but was an intentional doing of the expression of sarcasm.

Sample 9.2: His girlfriend had just said she was going to leave and Mark was intentionally mockingly replying, "Are you going to leave?" The beep occurred while he was saying leave. At the moment of the beep, he was saying leave with a sarcastic inflection (approximately 50% of his experience). He was also feeling a heaviness/exertion of muscles in the back of his neck and head as he lifted his head and turned it to look at his girlfriend (also approximately 50% of his experience).

In sample 9.1, Mark was intentionally expressing sarcasm by nodding his head and raising his eyebrows. This doing of an expression of an emotion involved bodily aspects of the feeling, no

cognitive aspects. In sample 9.2, he was intentionally expressing sarcasm by asking his reply, "Are you going to leave?" with a satirical inflection. Both of these experiences of sarcasm were purposefully manipulated in Mark's experience. He was able to experience sarcasm in his body and in his tone of speech. Intentionally manipulating one's experience is rare with typical DES participants.

Emotionally Relevant Samples

Emotionally relevant samples are moments that contained an emotional aspect despite no feeling being experienced directly. These emotionally relevant samples were not categorized as feelings because they did not involve (as best we could ascertain) the direct experiences of emotion. These emotionally relevant samples tended to be unclear and muddled, containing some sort of emotional content with other characteristics. Often, these emotionally relevant samples were blurred or impossible to distinguish from thoughts (which DES calls thought/feeling) so that the experience was neither a feeling or thought but a combination of both or failure to disentangle them. Emotionally relevant samples also include actively meddling with one's emotions (which DES calls the doing of emotion), and a broader inclusion of experiences as feelings than typical feelings like happy and sad. Kang (2013) labeled these kinds of emotionally relevant samples as, "emotionally tinged experiences." However, labeling experiences as emotionally tinged may misleadingly convey these experiences had some hint of a feeling instead of more clearly describing these experiences as having emotional relevance but not feeling, due to many different factors.

Seventeen (35%) of Mark's 48 samples had some kind of emotional relevance. Mark had a thought/feeling in 9 of 17 emotionally relevant samples. An example of a thought/feeling was found in Sample 2.3 discussed above. In this sample, Mark felt awe/surprise that was mentally

experienced as, “oh, that’s really interesting” without any specific words present. It was unclear if the thought was the feeling of awe/surprise itself or if the thought reflected the feeling. A similar thought/feeling experience was seen in sample 3.3.

> **Sample 3.3:** Mark had read the Time magazine cover headline, “Inside the nightmare launch of HealthCare.gov and the team that figured out how to fix it.” At the moment of the beep, he was skeptical/not believing it. This was a thought or feeling or thought/feeling with no words, but something like, ‘that doesn’t make sense/people don’t know.’ The skepticism may have also been a feeling of being confused/that’s not right. He could not say more about being skeptical. He was also seeing 5 people standing in a ‘V’ and seeing the redness of the cover of the magazine.

In this sample, it was unclear if his experience of skeptical/not believing was purely a thought, purely a feeling, or some combination of a thought and feeling with no specific words present. This sample illustrates the muddled nature of his experience of feelings. Mark’s difficulty with clear experience of feelings is in contrast to his many clear experiences of bodily sensory awareness.

Mark’s emotionally relevant samples sometimes included muddled bodily sensations; this was observed in 5 of 17 emotionally relevant samples. He did not directly experience a feeling, but instead experienced a jumble of bodily sensations that on retrospect could be said to have emotional relevance. For example:

> **Sample 5.1:** Mark had wet a paper towel and scrunched it up to squeeze out the excess water so he could use the wet paper towel to clean something up. At the moment of the beep, he was frustrated, which was experienced as a deliberately finding with all his fingers the correct spots on the paper towel to pull to open up the paper towel, and a

visual experience of looking for the correct spots. This was about 60% of his experience. He also experienced a mental frustration that had no words, but he described as a mental, 'Agh!/Why isn't this opening?' This was about 30% of his experience. He was also walking to the location he wanted to clean with the paper towel, approximately 10% of his experience.

In this sample, Mark was frustrated, but instead of directly experiencing a feeling of frustration, he somehow recognized frustration as being represented by the locations in his fingers along with a small mental component.

Mark also actively meddled with his emotions (the doing of emotion) as discussed in the previous section. He purposefully manipulated his experience of sarcasm in samples 9.1 and 9.2 discussed above. Mark frequently had moments that were emotionally relevant but in which he did not have a direct experience of an emotion. Most of the time, these experiences were muddled with thoughts or bodily sensations, making it difficult to determine if these experiences with an emotional relevance present at the moment of the beep were feelings.

Summary

Mark was a motivated participant who appeared to work to capture and report his inner experience to the best of his ability. He collected beeps late at night before going to bed and scheduled sampling interviews when he was not working at his full-time job. He seemed to learn the DES task quickly relative to other sampling participants with bipolar disorder and appeared to have adequate proficiency with which he approached the DES task by his third sampling day.

Mark tended to seek validation in aspects of his experience. During sampling interviews, Mark would provide a description of his inner experience and then ask the interviewers if it was possible he could have experienced his experience in such a manner. He appeared to be

concerned about whether or not his experience was "weird." For example, he would often explicitly ask, "Has that ever happened to you?" or "Does that happen?" or "Can that happen?"

Mark also tended to be self-conscious in his inner experience. For example in sample 3.4 discussed above, Mark was reaching for a piece of tomato to put back on his slice of pizza he was about to eat and at the moment of the beep, "He was also feeling and/or thinking oddness. He had one thought, without words, but something like, 'this is odd/why am I doing this/what am I doing/this is weird.'" In this sample, Mark was criticizing his experience and viewing it as odd.

Mark frequently experienced sensory awareness. Bodily sensory awareness was the clearest aspect of his inner experience overall. He had many instances of multiple bodily sensory awarenesses being present, instances of multiple sensory awarenesses being present at low levels, and unintegrated sensory awarenesses. Mark's experience of emotionally relevant samples (35%) never rose to a direct experience of a feeling. His emotional experiences were muddled with thoughts and bodily sensations.

Despite understanding the task, Mark had experiences that are not seen in sampling with typical DES participants. Mark purposefully manipulated sensory awareness, behaviors, and emotions. Aspects of Mark's experiences sometimes seemed to have an asynchronous life of their own and can be at a low-level, and/or range in differentiation. It may be that Mark has a lack of focus or lack the ability to create a focused engagement with his external and internal world. When he is engaged, he is often just doing – a rudimentary inner experience – rather than being engaged in things like higher level thinking or immersed in interactions.

CHAPTER 13

ACROSS PARTICIPANT RESULTS AND DISCUSSION

Chapters 7 through 12 separately presented idiographic descriptions of the inner experience of each of our six participants. This chapter will examine and describe shared features of inner experience across some or all of our six participants. We will also explore how these shared features relate to previous DES studies that explored the inner experience of individuals with affective disorders.

We observed five commonalities across the six participants. First, lack of clarity of experience was a characteristic of some sampled moments for all of our participants, and a dominant characteristic for three of our participants. This lack of clarity was prominent to all interviewers but unnoticed by the participants themselves. Second, all our participants had few or no moments when they were experiencing a coherent feeling. They all experienced what we called "emotionally relevant samples," defined as moments that contained an emotional aspect despite no clear feeling being experienced directly. However, when feelings were experienced, they sometimes were hyper-clear, existing in distinctly demarcated regions. Third, sensory awareness, when present, was clear, in sharp contrast to the majority of the remaining samples from these participants (which lacked clear or coherent inner experience). Fourth, inner seeing, when present, was also typically clear, again in contrast to the majority of samples. Fifth, most of our participants experienced some kind of noteworthy perceptual experience. These rarely occur in sampling with typical DES participants, so it was unusual to have a majority of our participants have noteworthy perceptual experiences. Each of these commonalities will now be discussed in greater detail, including considering how they relate to previous DES studies of individuals with mood disorders and to the diagnostic criteria for BD.

Unclear Inner Experience

For three of our participants, unclarity of inner experience was a dominant characteristic; furthermore, all our participants at least occasionally had unclear inner experience. This lack of clear inner experience in our participants was consistent with Kang (2013) who used DES to explore the inner experience of four individuals with BD and found lack of clear inner experience to be a dominant characteristic of all four. Similarly, Mihelic (2013) reported that using DES, five of her six participants with major depressive disorder or BD had "a deficit of clear experience … They had few clear inner seeings, feelings, unsymbolized thinking and almost no inner speaking. The exception seemed to be sensory awarenesses" (p. 202). Furthermore, in his early DES case studies, Hurlburt (1993) described changes in clarity of inner experience that depended on mood, finding that as participants' depression levels increased, the clarity of their inner experience decreased, leading to greater difficulty observing and describing their inner experience in detail. Thus there have been four DES studies of BD; all have found lack of clear experience as a dominant feature.

In the present study, we had little confidence regarding the fidelity of our understanding of our participants' inner experience because of their frequent and mostly persistent difficulty capturing clear inner experience. Moreover, none of these six participants was aware of the lack of clarity of their inner experience even though it was strikingly clear to us.

Previous DES studies that examined the inner experience of individuals with mood disorders also reported frequent or cyclical lack of clear inner experience. Hurlburt (1993) described one participant who experienced episodes of hypomania. Her inner experience became clearer during episodes of hypomania. Similar to what Hurlburt (1993) observed, the clarity of our own participant Jessica's inner experience appeared to be lower when her mood was more

depressed. Jessica had clear, vivid, colorful, creative inner seeing with motion on days when her mood seemed elevated, but when her mood appeared depressed her inner seeing lacked color, definition, motion, and even any actual thing being seen despite the experience of seeing in one sample.

None of our participants recognized that their inner experience varied in clarity across sampled moments. As seen in their idiographic profiles and described above, their samples varied dramatically in the degree which any clear, coherent inner experience was present. For example, Josh had the greatest difficulty apprehending and conveying clear inner experience and this difficulty was reflected in the long, arduous expositional interviews each week. Despite this, he never commented on lack of clarity or coherence of his inner experience. Karen also generally lacked clear inner experience, but the iterative training across multiple sampling days seemed to increase the frequency of clear inner experience. Before the start of her ninth expositional interview, Karen reflected she was getting worse and worse at performing the sampling task and was realizing her experience was too complicated to grasp. However, we believed and expressed that she appeared to be getting better and she seemed to have stopped describing experiences that did not exist in her experience.

Consistent with the findings of this study, previous DES studies also have found participants with mood disorders were unaware of their lack of clarity of their inner experience. Kang (2013) found that none of her four participants with BD recognized their sampling contained inner experience that was unclear in some moments and clear in other moments. Hurlburt (1993) reported three of his four participants with mood disorders lacked awareness that their inner experience changed in relation to their periods of differing affect.

Because Josh, Jessica, Trevor, and Karen were able to articulate some moments of clear inner experience, including both clear sensory awareness and clear inner seeing, it seems most likely that the moments when they were unable to apprehend or articulate coherent inner experience reflect the lack of coherent inner experience present. Kang (2013) suggested other less likely explanations for the variability in clarity of inner experience among participants, including participants' lack of language skills to describe coherent inner experience. However, all six participants were able to describe clear, coherent inner experience at some moments (these moments typically contained clear sensory awareness and/or clear inner seeing), making participants' language deficits unlikely. Kang (2013) also suggested that the investigators' lack of skill at understanding coherent inner experience was a possible explanation. However, that also seemed unlikely in this study, because we were able to understand high fidelity accounts of clear inner experience when clear inner experience was present.

It seems likely that the lack of clear and coherent inner experience is related to the participants' diagnosis of BD. This is supported by the fact that all of our participants experienced similar difficulties in this regard, as did Kang's (2013) participants and Mihelic's (2013) participants. Seibert (2009) conducted a DES study that examined the inner experience of older adults with cognitive impairment. His participants had substantial difficulty with the DES task in comparison with DES participants without cognitive impairments. However, the difficulties older adults with cognitive impairment experienced were even greater than the difficulties experienced by our participants. Hurlburt (2011) argued that inner experience must be skillfully created and apprehended out of the nearly infinite welter of experience. The diminished thinking ability, flight of ideas, and distractibility that are part of the diagnostic

criteria of BD may well be the result of individuals' inability to create clear (or any) inner experience.

A final possible explanation may be that, in those moments where we could not identify clear or coherent inner experience, it was due to our inability to understand what they were conveying. It is possible they experienced new phenomena of inner experience that we have not yet encountered and we thus did not know how to ask about it during the expositional interviews. It is possible that we held presuppositions about the phenomenon of inner experience that we were unable to accept a new phenomenon of inner experience. This seems unlikely given that we almost always had two or three separate interviewers, all of whom have substantial experience with DES and who probably do not have entirely overlapping presuppositions, but we cannot rule out this possibility entirely.

Few Feelings and Lack of Coordination of Emotions

The central diagnostic criterion for BD is disordered mood that involves the persistent experience of depressed and/or elevated affect (APA, 2013). Given the centrality of feelings in diagnosing an individual with mood disorder, one might reasonably expect people with BD to have frequent feelings. However, our participants experienced feelings infrequently or never. DES defines feelings as the direct experience of emotion phenomena (Heavey, Hurlburt, and Lefforge, 2012). Using this definition, approximately 23 (9%) of the 257 total samples included a feeling, as best the participants could describe and we could understand. Half of our participants, Mark, Trevor, and Karen, never experienced a feeling. This percentage of feelings is significantly ($z = 5.22$, $p < .001$) less frequent than the 26% of feelings reported in a DES study with a stratified random sample of college students (Heavey & Hurlburt, 2008).

The finding regarding the infrequent experience of feelings is consistent with previous DES studies conducted with individuals with mood disorder. Kang (2013) reported only eight (5%) of 177 total samples across her four participants with BD contained a feeling. Mihelic (2013) also observed a low frequency of feelings across her participants with major depressive disorder or BD. Hurlburt (1993) also reported few experiences of feeling among his participants with depressed mood.

Emotionally relevant samples occurred in 69 (27%) of the 257 total sampled moments. This percentage of emotionally relevant samples is consistent with the 26% of feelings reported in the DES stratified random sample of college students (Heavey & Hurlburt, 2008, which did not report emotionally relevant samples). This finding of more common emotionally relevant samples is supported by Kang's (2013) study that found 49 (28%) of the 177 total samples from four individuals with BD contained an emotionally relevant sample.

There were several ways in which our participants' experiences of emotion lacked coordination. The frequent lack of coordination of emotions among our participants is consistent with Kang's (2013) DES study of four individuals with BD. Three of her four participants experienced a lack of coordination of emotions.

Our participants' emotional experiences were intertwined with other experiences. Mark, Evan, Jessica, Trevor, and Karen experienced thought/feelings where they were unable to disentangle the emotional aspects from the cognitive aspects of their experience. Mark also experienced emotional experiences that were intertwined with bodily sensations.

Mark had three moments (and Evan had one moment) where he was purposefully altering the expression of an emotion. This purposeful alteration DES calls the "doing of" emotional expression: Mark and Evan were purposefully exaggerating their emotional states. Jessica had

one moment where she was recalling the bored/uncomfortable feeling she had felt at the time of a memory she was thinking about. Manipulating emotional experiences was also seen in one of the four participants in Kang's (2013) DES study of four individuals with BD. These participants' experiences of a doing of the expression of an emotion may be important to note because the BD diagnosis is of disordered feelings. That we would find four examples of the doing of emotion in 23 samples containing feelings suggests that the purposeful manipulation of feelings may be common.

Evan had moments where he was focused on an aspect that was in retrospect clearly emotional (e.g., bodily processes), but he did not integrate the bodily processes into a coherent emotional experience. For example, Evan had tightness in his torso related to experiencing excitement during these beeps, but this sensation of tightness was not in his inner experience until after the beep. That is, the tightness was part of the welter of his experience but he was not attending to it at the moment of the beep. Evan had other difficulties with emotions. He had one sample where he experienced two oppositely valenced emotions simultaneously. Experiencing two oppositely valenced emotions is rare in DES studies. He also experienced feelings outside of himself. Hurlburt (1993) observed emotional processes that occurred outside of awareness in his participants with depression that were similar to Evan experiencing emotional aspects outside of himself.

Lack of feelings across our participants was also related to a broader range of emotional experiences than more commonly experienced, widely understood emotions like sadness, anger, happiness, etc. For example, Josh described feeling connected, filthy, in harmony, surrender, etc. Kang (2013) also found her participants with BD had uncommon emotional experiences outside more commonly experienced emotions.

Jessica and Evan had clearly demarcated feelings. For example, Evan experienced worry as an uncomfortable sensation in the middle of his abdomen that was a clearly demarcated (with clearly experienced borders) oblong approximately grapefruit-sized area. Hurlburt (1990) associated the experience of clearly demarcated feelings with psychosis. Evan has a diagnosis of BDI with psychosis recurrent, in full remission, but Jessica has a diagnosis of BDI recurrent without psychosis in full remission.

Kang (2013) suggested her participants' low frequency of feelings might have been related to the lack of clear inner experience in general. The inner experience of few feelings and more common emotionally relevant samples is an important addition to the BD literature because the current literature emphasizes the importance of feelings in the diagnostic criteria for BD, rather than their relative absence.

The diagnostic criteria of BD describe the frequency of feelings expected in an individual with BD and specific labels of feelings. According to DSM-5, major depressive episode involves depressed mood most of the day, nearly every day and a manic or hypomanic episode involves elevated, expansive, or irritable mood most of the day, nearly every day. Our findings are not consistent with the frequency of feelings stated in the diagnostic criteria. Only one of our participants experienced depressed or elevated mood even close to the frequency of the diagnostic criteria. Jessica experienced negative emotionally relevant samples and feelings in four of her five sampling days. Moreover, she experienced negative emotions in all four of her samples on her fourth sampling day. All four male participants (Josh, Mark, Evan, and Trevor), experienced a majority of positively valenced emotions, but the frequency of these positive emotions was not close to the frequency described in the diagnostic criteria for mania or hypomania.

The DSM-5 diagnostic criteria also mention that feelings of worthlessness, guilt, and self-doubt are present nearly every day in a major depressive episode, and that feelings of inflated self-esteem or grandiosity are present in a manic or hypomanic episode. Only one participant, Jessica, experienced feelings in line with worthlessness and self-doubt. None of the other participants experienced feelings of worthlessness, guilt, or self-doubt throughout sampling. Mihelic (2013) also found similarly low frequencies of feelings and low frequencies of feelings consistent with the diagnostic criteria of MDD or BD in her participants with mood disorder. These findings suggest the possibility that the DSM-5 criteria are incorrect—that people with BD very often substantially over-report the frequency of the worthless or inflated feelings. When a mental health professional asks a patient to report retrospectively on the frequency of negative feelings, a person with few or no clear inner experiences is likely to "recall" negative feelings. It is also possible that our participants did generally experience a high frequency of negative feelings as suggested by the diagnostic criteria, but they did not experience them in the randomly sampled moments or there was something about the DES procedure that made it impossible to notice or report negative feelings. We think it unlikely given the random nature of DES and the uniformity of findings across participants that the discrepancy is due to sampling error. It is possible that the DES procedure has somehow missed negative feelings—all the DES investigations of BD have been conducted by Hurlburt or those he has trained. Perhaps he has a view of BD that has infected the process. We have taken extraordinary care to prevent that possibility, but the only way that possibility can be ruled out is for replications by others not related to us. The low frequency of feelings and low frequency of feelings matching the diagnostic criteria may also be related to all our participants being in remission and not in the active phase of BD.

This study replicates observations made in previous DES studies that participants with mood disorders have few to almost no experience of clear feelings and few experiences of the specific feelings that match the diagnostic criteria. The frequency and characteristic of feelings of individuals with BD should be continued to be explored using methods that allow for participants to observe their inner experience without presuppositions since feelings are the hallmark for diagnosis of BD.

Sensory Awareness

Sensory awareness, when present, was generally clear. The clarity of sensory awareness was in sharp contrast with the majority of sampled moments, when no clear or coherent inner experience was present. For Mark and Josh, sensory awareness was the most prominent phenomenon of inner experience as well as the clearest feature. Mark experienced sensory awareness in 63% of his sampled moments. Josh experienced sensory awareness in 33% of his sampled moments. Sensory awareness was not the most prominent phenomenon of inner experience for Karen, Evan, Trevor, and Jessica. However, when sensory awareness was present, it was a clear feature of inner experience for Karen, Evan, and Trevor. Karen experienced sensory awareness in 24% of her sampled moments. Evan experienced sensory awareness in 20% of his sampled moments. Trevor experienced sensory awareness in 15% of his sampled moments, and Jessica 6%.

It is possible that the frequency of sensory awareness varies greatly in BD, and Jessica happened to be at the infrequent end of the distribution. It is also possible there are more than one kind of BD—one involving high frequencies of sensory awareness and one involving low frequencies. It is also possible that the diagnosis of BD was not correct for Jessica. Much further research is necessary to tease these possibilities apart. Jessica's one instance of sensory

awareness occurred on her fifth and final sampling day. Many participants require several days of DES sampling before they are able (or willing) to report sensory awareness (Hurlburt, 2011); her low frequency of sensory awareness could be because she stopped sampling after her fifth day when she had just begun to be able to describe sensory awareness.

Sensory awareness was present in 74 (29%) of the 257 total samples discussed. Kang (2013) found an average frequency of 49% for sensory awareness in her DES study of four individuals with BD. Perlotto (2001) also found the average frequency of sensory awareness in her three participants with depressed mood to be 49%, and it was the second most commonly occurring phenomenon of inner experience in her study. Mihelic (2013) found sensory awareness to be the most commonly occurring and clearest phenomenon of inner experience across her participants with major depressive disorder or BD. Sensory awareness was present in 22% of samples in Heavey and Hurlburt's (2008) stratified sample of college students; out 29% is larger but not significantly larger ($z = 1.83$, $p = .07$).

The clarity of sensory awareness that was observed in this study, in contrast to the other phenomena of inner experience, was consistent with previous DES study examining the inner experience of individuals with depression and mood disorders (Kang, 2013, Mihelic, 2013, Perlotto, 2001).

The characteristics of sensory awareness across all the participants except Jessica included all modalities: visual, auditory, tactile. Hurlburt (2002) similarly reported individuals who experience sensory awareness frequently experience it across modalities. Additionally, Josh, Mark, Evan, and Karen experienced multiple sensory awarenesses simultaneously. Mark had the most multiple sensory awareness experiences. For example, Mark experienced up to four

multiple sensory awarenesses in his body and even two sensory awarenesses in the same part of his body.

Most of the extant literature on the inner experience of BD, aside from DES studies of individuals with mood disorders, does not include any mention of sensory awareness. This lack of inclusion of sensory awareness is likely due to the fact that sensory awareness is not a widely recognized phenomenon of inner experience within psychology despite its existence being robustly replicated in DES studies (Heavey & Hurlburt, 2008; Hurlburt, 2009; Hurlburt, Heavey & Bensaheb, 2009).

The reason that our participants with BD had clear experiences of sensory awareness but few other moments of clear inner experience appears consistent with the reason suggested in Kang's (2013) exploratory DES study of four individuals with BD: that sensory awareness is a more basic form of inner experience that requires less cognitive integration or skill to create as it typically involves only focusing on a sensory aspect of the individual's inner or outer environment. Kang (2013) also suggested that the cognitive difficulties including diminished thinking ability and distractibility may be the result of individuals' inability to create inner experience. Having a diminished mental capacity may affect the experience of individuals with BD if mental capacity is needed to create experience. The DSM-5 (APA, 2013) diagnostic criteria still includes an experience of diminished thinking ability characterized by a flight of ideas and distractibility. Thus, our participants' experience of clear sensory awareness continues to seem consistent with the current diagnostic criteria if sensory awareness is a rudimentary form of inner experience that takes little mental capacity to create (Hurlburt, Heavey, & Bensaheb 2009).

Inner Seeing

Inner seeing was a low frequency phenomenon for our participants except Jessica; overall, inner seeing appeared in 32 (12%) of the 257 moments considered in this study. Inner seeing was the most frequent and clearest phenomenon of inner experience for Jessica, who experienced inner seeing in 82% of her sampled moments. The other participants had experiences of inner seeing much less frequently than Jessica, and much less frequently than sensory awareness. Inner seeing was present in 15%, 6%, 14%, 4%, and 0% of sampled moments for Josh, Trevor, Evan, Karen, and Mark respectively. When present, inner seeing was a clear phenomenon of experience in all participants except Mark, who had no experiences of inner seeing throughout his sampling.

Heavey and Hurlburt (2008) reported the frequency of inner seeing at 34% in their stratified random sample of non-psychiatric individuals; thus our participants' 12% is a significantly lower percentage ($z = 6.02$, $p < .001$). Jessica's experience of inner seeing was consistent with the highest within-participant frequency of inner seeing observed by Heavey and Hurlburt (2008), 90%. All the other participants' experience of inner seeing were below Heavey and Hurlburt's observed average frequency. Despite the variability in frequency of inner seeing across participants, when inner seeing was present, it was usually clear, in contrast to their other phenomena of inner experience except for sensory awareness.

Our participants' inner seeing involved seeing both past lived experiences and imaginary scenes. The inner seeings usually had color, movement, and a clear perspective. Jessica was the only participant in this study to experience multiple inner seeings that occurred in rapid succession. Kang (2013) described one study participant, Jewel, who also experienced multiple inner seeings that occurred in rapid succession.

The low frequency of inner seeing in all of our participants except Jessica is consistent with the hypothesis suggested in Kang's (2013) study and related to the reasoning about sensory awareness being the most common clear inner experience among these participants. Specifically, if creating clear inner seeing requires substantial cognitive integration and energy, then diminished cognitive abilities may lead to the relatively low frequency of inner seeing observed in most of our participants. However, there are many other theoretical explanations that might be advanced; the present study does not provide a mechanism for preferring one explanation to another. At this stage in psychological research, it is enough to notice the possibility of low frequency of inner seeing, because except for previous DES studies of those with mood disorders (e.g., Kang, 2013; Mihelic, 2013), there is no literature or diagnostic criteria that considers a potential connection between low frequency of inner seeing and BD.

Noteworthy Perceptual Experiences

Four participants, Jessica, Mark, Josh, and Evan had noteworthy perceptual experiences, by which we mean distortions of reality including attempts to control, alter, or manipulate inner experience, and hearing, seeing, or feeling things that were not there in actuality. These experiences are notable in these participants because of how infrequently such perceptual experiences occur in DES studies with individuals without a diagnosis of a serious mental illness. Jessica had the highest frequency of noteworthy perceptual experiences, 29% of her sampled moments. Mark had noteworthy perceptual experiences in 15% of his sampled moments. Josh had noteworthy perceptual experiences in 8% of his sampled moments. Evan had noteworthy perceptual experiences in 6% of his sampled moments.

Jessica had noteworthy perceptual experiences that involved the doing of inner seeings, the doing of a feeling, the doing of sensory awareness, the happening of speaking, and inner

speaking without words. Recall that by "the doing of" we mean that the person specifically, intentionally creates or alters a perceptual experience. For example, inner seeing is nearly always experienced as something that happens or takes place—at the moment of a beep, people recognize themselves to be experiencing an already naturally ongoing seeing. In *the doing of* inner seeing, by contrast, people experience themselves as being caught in the act of purposefully creating or altering the seeing. For example, Jessica was purposefully manipulating her inner seeing of a calendar according to her work schedule in one of her sampled moments. Jessica deliberately interfered in her experience of feeling where she was *remembering* feeling uncomfortable cognitively because she did not want to *re-experience* feeling uncomfortable emotionally.

Mark also deliberately affected his inner experience across multiple characteristics of experience including feelings, unsymbolized thinking, sensory awareness, and behaviors. For example, he purposefully moved his foot to scratch his leg in a certain way so he could feel the strangeness of his right quadriceps flexing as he moved it up and down.

Josh had noteworthy perceptual experiences that involved religious components. For example, Josh experienced God speaking. Evan deliberately manipulated inner speaking, more specifically inner singing experiences. For example, he deliberately sang incorrect lyrics to a song in his head so he could hear them incorrectly.

Kang (2013) had two of four participants with BD experience perceptual distortions. She suggested perceptual distortions might be related to having fewer ties to reality or an increased fluidity between reality and imaginative experiences. Our current findings with our six participants support the finding that individuals with BD have a higher frequency of experiencing noteworthy perceptual experiences than do individuals without serious mental

illness. It may be that individuals with BD try to manipulate their experience to avoid the symptoms of their disorder, or vice versa, or that the disorder itself is an unintended consequence of the purposeful interference with phenomena, or some other unknown explanation. Additional research is needed to explore whether noteworthy perceptual experiences are a typical experience of individuals with other serious mental illnesses. The experience of noteworthy perceptual experiences may be a characteristic of individuals at risk for developing serious mental illnesses.

Summary and Conclusions

All of our participants (Josh, Mark, Jessica, Evan, Trevor, and Karen) had unclear or no inner experience on at least some occasions. Our participants differed regarding the extent of the unclarity of their experience. Still, they all demonstrated a lack of clear inner experiences and may be a characteristic of individuals with BD. The present results replicate the findings of Kang (2013), Mihelic (2013), and Hurlburt (1993). It is also possible that our participants did have more frequently occurring clear inner experiences but the investigators and participants were unable to access them, but we provided reasons that this seems unlikely. Future research aimed at determining the reliability of this pattern is needed.

The exceptions to the deficit of unclear inner experience were sensory awareness and inner seeing. When sensory awareness was present, it was generally clear, also replicating Kang (2013) and Mihelic (2013), although the present study found lower frequencies of clear sensory awareness and clear inner seeing than did Kang (2013) and Mihelic (2013). Perhaps sensory awareness is a more rudimentary form of experience, thus making it easier for individuals to have clear sensory awareness when present. Inner seeing was present less frequently than sensory awareness, but inner seeing was also generally clear when present.

Our participants had few feelings but more frequent emotionally relevant samples. Moreover, our findings related to feelings were not consistent with the diagnostic criteria of BD. All of our participants experienced a much lower frequency of feelings than noted in the diagnostic criteria. All of our participants also experienced a much lower frequency of the specific feelings included in the diagnostic criteria for BD.

Overall, this study highlights the importance of increasing efforts to explore the inner experience of individuals diagnosed with mental illnesses. This study also highlights the utility of the DES method for investigating inner experience. Our findings suggest additional DES studies investigating the experience of individuals with BD would be valuable to refine our understanding of this population, how symptoms of BD impact their inner experience, and the full nature of BD.

Limitations and Suggestions for Future Research

The present study had several limitations. A major limitation was our small sample size. DES is a highly labor and time intensive procedure that makes obtaining large sample sizes for studies impractical. For this study, Drs. Heavey and Hurlburt and I spent approximately 10 direct hours in expositional interviews with each participant during the sampling phase, and an additional 15-20 indirect hours per participant in writing beep descriptions and understanding the nature of their experience, often including re-watching video recordings of the interviews and examining the data in various ways. Whenever possible, three researchers were included in each expositional interview to minimize the likelihood of our own presuppositions biasing our findings. The participants also contributed much of their time to this study including at least 40 hours to wear the beeper and collect samples, and 10 hours plus travel time to and from our lab to participate in expositional interviews.

Another limitation of the study was that we did not control for variables that may have impacted our participants' experience. For example, five of our six participants took daily medications to manage their symptoms of BD. The one participant who did not take medications dropped out of this study early and had the highest frequency of noteworthy perceptual experiences. The scope of this study did not include understanding and identifying the impact of those medications on our participants' inner experience. Moreover, our participants may have been using other substances (e.g., alcohol) that may have affected their inner experience. We did not explicitly ask about their substance abuse history and current status. Further research exploring the impact of medications and substances on an individual's inner experience is needed.

An additional limitation was our small sample of moments of experience. We had initially hoped to collect approximately 360 sampled moments (i.e., 60 moments of experience from each person); however, we were limited by time constraints and sometimes unable to discuss all six samples during each expositional interview. We discussed a total of 262 sampled moments of experience across our participants. With this size sample of moments of experience, we could have missed low frequency characteristics. We could have also missed or mostly missed important characteristics of experience within each participant, or our even for the group as a whole.

The current study findings indicate that future research designed to explore the inner experience of BD would be advantageous in furthering our understanding of the nature of inner experience and serious mental illness. Future research employing DES to explore the nature of inner experience should continue to explore the inner experience of individuals with BD. Additional studies might increase our understanding of BD and provide further comparison with

the widely held presuppositions about the experience of BD. Future research may help to clarify and understand the discrepancy between the diagnostic criteria of BD and the characteristics of inner experience of the participants with BD.

REFERENCES

Allen, D. N., Randall, C., Bello, D. T., Armstrong, C., Frantom, L. V., Cross, C., & Kinney J. (2010). Are working memory deficits in bipolar disorder markers for psychosis? *Neuropsychology, 24*, 244-254.

Altman, E. (2004). Differential diagnosis and assessment of adult bipolar disorder. In S. L. Johnson, & R. L. Leahy (Eds.), *Psychological treatment of bipolar disorder* (pp. 35-57). New York: Guilford Press.

Amador, X. F., Flaum, M., Andreasen, N. C., Strauss, D. H., Yale, S. A., Clark, S. C., & Gorman, J. M. (1994). Awareness of illness in schizophrenia, schizoaffective and mood disorders. *Archives of General Psychiatry, 51,* 826-836.

American Psychiatric Association (APA). (1952). *Diagnostic and statistical manual of mental disorders* (1st ed.). Washington, DC: American Psychiatric Association.

American Psychiatric Association (APA). (1968). *Diagnostic and statistical manual of mental disorders* (2nd ed.). Washington, DC: American Psychiatric Association.

American Psychiatric Association (APA). (1980). *Diagnostic and statistical manual of mental disorders* (3rd ed.). Washington, DC: American Psychiatric Association.

American Psychiatric Association (APA). (1987). *Diagnostic and statistical manual of mental disorders* (3rd ed., revised). Washington, DC: American Psychiatric Association.

American Psychiatric Association (APA). (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: American Psychiatric Association.

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text revision). Washington, DC: American Psychiatric Association.

American Psychological Association (2010). *Proposed Changes to Mood Disorders*. Retrieved

from http://www.dsm5.org/ProposedRevisions/Pages/MoodDisorders.aspx.

Ancoli-Israel, S., & Roth, T. (1999). Characteristics of insomnia in the United States: Results of the 1991 National Sleep Foundation Survey. I. *Sleep*, *22*, 347–353.

Andreasen, N. C. (1987). Creativity and mental illness: Prevalence rates in writers and their first-degree relatives. *American Journal of Psychiatry, 144,* 1288-1292.

Angst, J. (1966). Zur Atiologie und Nosologie endogener depressiver Psychosen. *Eine genetische, soziologische und klinische Studie*. Berlin, Hidelberg, New York: Springer.

Angst, J. (2004). Bipolar disorder: A seriously underestimated health burden. *European Archives of Psychiatry and Clinical Neuroscience, 254,* 59-60.

Angst, J. (2009) Diagnostic concepts of bipolar disorders: A European perspective, *Clinical Psychology: Science and Practice, 16*(2), 161-165.

Angst, J., & Cassano, G. (2005). The mood spectrum: Improving the diagnosis of bipolar disorder. *Bipolar Disorder, 7*(4), 4-12.

Angst, J., & Gamma, A. (2002). A new bipolar spectrum: A brief review. *Bipolar Disorder, 4*(1), 11-14.

Angst, J., & Preisig, M. (1995). Outcome of a clinical cohort of unipolar, bipolar and schizoaffective patients: Results of a prospective study from 1959 to 1985. *Schweizer Archiv für Neurologie und Psychiatrie, 146,* 17–23.

Angst, J., & Sellaro, R. (2000). Historical perspectives and natural history of bipolar disorder. *Biological Psychiatry, 48,* 445-457.

Angst, F., Stassen, H. H., Clayton, P. J., & Angst, J. (2002). Mortality of patients with mood disorders: Follow-up over 34-38 years. *Journal of Affective Disorders, 68,* 167-181.

Baillarger, J. (1854). De la folie á double forme. *Annales Médico-psychologiques, 6,* 369-389.

Baldassano, C. F. (2005). Assessment tools for screening and monitoring bipolar disorder. *Bipolar Disorder 7(*1), 8-15.

Barrat, E. S. (1993). Impulsivity: Integrating cognitive, behavioral, biological, and environmental data. In W. G. McCown, J. L. Johnson, & M. B. Shure (Eds.), *The Impulsive Client: Theory, Research, and Treatment.* Washington, DC: American Psychological Association, 39-56.

Beardslee, W. R., Versage, E. M., & Gladstone, T. R. (1998). Children of affectively ill parents: A review of the past 10 years. *Journal of the American Academy of Child and Adolescent Psychiatry, 37,* 1134-1141.

Begley, C. E., Annegers, J. F., Swann, A. C., et al. (2001). The lifetime cost of bipolar disorder in the US: An estimate for new cases in 1998. *Pharmacoeconomics, 19,* 483-495.

Bellivier, F., Golmard, J., Rietschel, M., Schulze, T. G., Malafosse, A., et al. (2003). Age of onset in bipolar I affective disorder: Further evidence for three subgroups. *American Journal of Pscyhiatry, 160,* 999-1001.

Berman, A. (2002). *Electroboy: A Memoir of Mania.* New York: Random House.

Berrios, G. E. (1996). *The history of mental symptoms: descriptive psychopathology since the nineteenth century*. Cambridge: Cambrige University Press.

Bertelsen, A. Harvald, B., & Haughe, M. (1977). A Danish twin study of manic-depressive disorders. *British Journal of Psychiatry, 130,* 330-351.

Black, D. W., Winokur, G. Bell, S., Nasrallah, H., & Hulbert, J. (1988). Complicated mania: Comorbidity and immediate outcome in the treatment of mania. *Archives of General Psychiatry, 45,* 232-236.

Brickman, A., LoPiccolo, C., & Johnson, S. L., (2002). Screening for bipolar disorder by

community providers [Letter to the editor]. *Psychiatric Services*, *53*, 349.

Brieger, P. Ehrt, E., & Marneros, A. (2003). Frequency of comorbid personality disorders in bipolar and unipolar affective disorders. *Comprehensive Psychiatry, 44,* 28-34.

Brown, E. S., Suppes, T., Adinoff, B., & Thomas, N. R. (2001). Drug abuse and bipolar disorder: Comorbidity or misdiagnosis? *Journal of Affective Disorders, 65,* 105-115.

Cassidy, F., Ritchie, J. C., Carroll, B. J. (1998). Plasma dexamethasone concentration and cortisol response during manic episodes. *Biological Psychiatry, 43,* 747-754.

Cella, D., Yount, S., Rothrock, N., Gershon, R., Cook, K., Reeve, B., & ... Rose, M. (2007). The Patient-Reported Outcomes Measurement Information System (PROMIS): Progress of an NIH roadmap cooperative group during its first two years. Medical Care, 45(5,Suppl1), S3-S11. doi:10.1097/01.mlr.0000258615.42478.55

Cheney, T. (2008). *Manic: A Memoir.* New York: Harper.

Clark, L. Iversen, S. D., & Goodwin, G. M. (2002). Sustained attention deficit in bipolar disorder. *British Journal of Psychiatry, 180,* 313-319.

Clark, L., Sarna, A., & Goodwin, G. M. (2005). Impairment of executive function but not memory in first-degree relatives of patients with bipolar I disorder and in euthymic patients with unipolar depression. *American Journal of Psychiatry, 162,* 1980-1982.

Craddok, N. Khodel, V. Van, E. P, & Reich, T. (1995). Mathematical limits of multilocus models: The genetic transmission of bipolar disorder. *American Journal of Human Genetics, 57,* 690-702.

Csikszentmihalyi, M., & Larsen, R. (1987). Validity and reliability of the experience sampling method. *Journal of Nervous and Mental Disease, 175,* 509-513.

Daly, I. (1997). Mania. *The Lancet, 349,* 1157-1160.

DeHert, M., Dekker, J., Wood, D., Kahl, K., Holt, R., & Möller, H. (2009). Cardiovascular disease and diabetes in people with severe mental illness position statement from the European Psychiatric Association (EPA), supported by the European Association for the Study of Diabetes (EASD) and the European Society of Cardiology (ESC). *European Psychiatry*, *24*(6), 412-424.

Dell'Osso, L. Pini, S., Cassano, G. B., Mastrocinque, C., Seckinger, R. A., Saettoni, M., Papasogli, Al., Yale, S. A., Amador, X. F. (2002). Insight into illness in patients with mania, mixed mania, bipolar depression and major depression with psychotic features. *Bipolar Disorders, 4,* 315-322.

Deupe, R. A., & Klein, D. N. (1988). Identification of unipolar and bipolar affective conditions in nonclinical and clinical populations by the General Behavior Inventory. In D. L. Dunner, E. S. Gershon, & J. E. Barret (Eds.), *Relatives at risk for mental disorder* (pp. 179-204). New York: Raven Press.

Depue. R. A., Slater, J. F., Wolfstetter-Kausch, H., Klein, D., Goplerud, E., & Farr, D. (1981). A behavioral paradigm for identifying persons at risk for bipolar depressive disorder: A conceptual framework and five validation studies. *Journal of Abnormal Psychology, 90*, 381-437.

Derogatis, L. R., (1992). *The Symptom Checklist-90-Revised.* Minneapolis, MN: NCS Assessments.

Derogatis, L. R., Lipman, R. S., Covi, L. (1973). SCL-90: an outpatient psychiatric rating scale--preliminary report. *Psychopharmacology Bulletin 9*(1), 13-28.

Detre, T., Himmelhock, J., Swartzburg, M., Anderson, C. M., Byck, R., & Kupfer, D. J. (1972). Hypersomnia and manic depressive disease. *American Journal of Psychiatry*, 1303–1305.

Dixon, T. Kravariti, E., Frith, C., Murray, R. M., & McGuire, P. K. (2004). Effect of symptoms on executive function in bipolar illness. *Psychological Medicine, 34,* 811-821.

Drake, C. L., Roehrs, T. A., Burduvali, E., Bonahoom, A., Rosekind, M., & Roth, T. (2001). Effects of rapid versus slow accumulation of eight hours of sleep loss. *Psychophysiology*, *38*, 979–987.

Dunayevich, E., Sax, K. W., Keck, P. E. Jr., McElroy, S. L., Sorter, M. T., McConville, B. J., & Strakowski, S. M. (2000). Twelve-month outcome in bipolar patients with and without personality disorders. *Journal of Clinical Psychiatry, 61,* 134-139.

Eastwood, M. R., Stiasny, S., Meier, H. M., & Woogh, C. M. (1982). Mental illness and mortality. *Comprehensive Psychiatry, 23,* 377-385.

Ebner-Priemer, U. W., & Trull, T. J. (2009). Ecological momentary assessment of mood disorders and mood dysregulation. *Psyhological Assessment, 21*(4), 463-475.

Elmslie, J. L, Silverstone, J T., Mann, J. I., et al. (2000). Prevalence of overweight and obesity in bipolar patients. *Journal of Clinical Psychiatry, 61,* 179-184.

Endicott, J., & Spitzer, R. L., (1978). A diagnostic interview: The schedule for affective disorders and schizophrenia. *Archives of General Psychiatry, 62,* 996-1004.

Falret, J. P. (1851). De la folie circulaire ou forme demaladie mentale caracterisée par l'alternative réguliére de la manie et de la mélancoli. *Bulletin de l Academie Nationale de Medecine.* Paris.

Feldman, S. (2004). *Burn: A Bipolar Memoir.* Victoria, BC,Canada: Trafford.

Ferrier, I. N., Chowdhury, R. Thompson, J. M., Watson, S., Young, A. H. (2004). Neurocognitive function in unaffected first-degree relatives of patients with bipolar disorder: A preliminary report. *Bipolar Disorders, 6,* 319-322.

Forty, L., Jones., L., Jones, I., Smith, D. J., Caesar, S., Fraser, C., Gordon-Smith, K., Hyde, S., & Craddock, N. (2009). Polarity at illness onset in bipolar I disorder and clinical course of illness. *Bipolar Disorders, 11*, 82-88.

Frangou, S. (2002). Predictors of outcome in a representative population of bipolar disorder. *Bipolar Disorders, 4*, 41-42.

Gershson, E. S., Hamovit, J., Guroff J. J., et. al. (1982). A family study of schizoaffective bipolar I, bipolar II, unipolar and normal control probands. *Archives of General Psychiatry, 39,* 1157-1167.

Gitlin, M., Swendsen, J., Heller, T., & Hammen, C. (1995). Relapse and impairment in bipolar disorder. *American Journal of Psychiatry, 152,* 1635-1640.

Goldberg, J. F. (2009). Comorbidity in bipolar disorder: Assessment and treatment. In Y. N. Lakshmi, & V. Kusumakar (Eds.), *Bipolar Disorder: A clinician's guide to treatment management, 2nd ed.* (pp, 221-258). London: Brunner-Routledge.

Goldberg, J. F., & Chengappa, K. N. R. (2009). Identifying and treating cognitive impairment in bipolar disorder. *Bipolar Disorders, 11*, 123-137.

Goldberg, J. F., Harrow, M., & Grossman, L. S., (1995). Course and outcome in bipolar affective disorder: A longitudinal follow-up study. *American Journal of Psychiatry, 152,* 379-384.

Goodwin, F.K., & Jamison, K. R. (1990). Manic-Depressive Illness. New York: Oxford University Press.

Goodwin, R. D., & Hoven, C. W. (2002). Bipolar-panic comorbidity in the general population: Prevalence and associated morbidity. *Journal of Affective Disorders, 70*, 27-33.

Grant, B. F., Hasin, D. S., Chou, S. P., et al. (2004). Nicotine dependence and psychiatric

disorders in the United States: results from the National Epidemiologic Survey on Alochol and Related Conditions. *Archives of General Psychiatry, 61,* 1107-1115.

Greenberg, P E., Stiglin, L. E., Finkelstien, S. N., et al. (1993). The economic burden of depression in 1990. *Journal of Clinical Psychiatry, 54,* 405-418.

Greenhouse, W. J. (2002). *Predictors of occupational and social functioning in mania: A symptom-regulation model.* Unpublished doctoral dissertation, University of Miami.

Hammen, C. (1991). Depression runs in families: *The social context of risk and resilience of children of depressed mothers.* New York: Springer-Verlag.

Hammen, C., & Cohen, A. N. (2004). Psychosocial functioning. In S. L. Johnson., & R. L., Leahy (Eds.), *Psychological Treatment of Bipolar Disorder.* New York: Guilford Press.

Hammen, C., Shih, J., & Brennan, P. (2003). Intergenerational transmission of depression: Tests of an interpersonal stress model in a community sample. *Journal of Consulting and Clinical Psychology, 72* (3), 511-522.

Hankin, B. L. (2009). Etiology of bipolar disorder across the lifespan: Essential interplay with diagnosis, classification, and assessment. *Clinical Psychology: Science and Practice, 16*, 227-230.

Harrow, M., Goldberg, J., Grossman, L., & Meltzer, H. (1990). Outcome in manic disorders: A naturalistic follow-up study. *Archives of General Psychiatry, 47,* 665–671.

Harvey, A. G., Talbot, L. S., & Gershon, A. (2009). *Clinical Psychology: Science and Practice, 16*, 256-277.

Havermans, R., Nicolson, N. A., Berkhof, J., deVries, M. W. (2010). Mood reactivity to daily events in patients with remitted bipolar disorder. *Psychiatry Research, 179,* 47-52.

Havermans, R., Nicolson, N. A., deVries, M. W. (2007). Daily hassles, uplifts, and time use in

individuals with bipolar disorder in remission. *Journal of Nervous and Mental Disorders, 195,* 745-751.

Haynes, J. (2008). *My Kind of Crazy: Living in a Bipolar World.* Book Surge Publishing.

Heavey, C. L., Hurlburt, R. T., & Lefforge, N. (2010). Descriptive experience sampling: A method for exploring momentary inner experience. *Qualitative Research in Psychology*, *7,* 345-368.

Heavey, C. L., Hurlburt, R. T., & Lefforge, N. (2012). Toward a phenomenology of feelings. *Emotion, 12* (4), 763-777.

Henin, A., Micco, H. A., Wozniak, J., Briesch, J. M., Narayan, A. J., & Hirschfeld-Becker, D. R. (2009). Neurocogntive functioning in bipolar disorder. *Clinical Psychology: Science and Practice, 16,* 231-250.

Hilty, D., Brady, K. T., & Hales, R. E. (1999). A review of bipolar disorder among adults. *Psychiatric Services, 50,* 201-213.

Hirschfeld, R. M., Levis, L., & Vornick. L. A. (2003). Perceptions and impact of bipolar disorder: How far have we really come? Results of the national depressive and manic-depressive association 2000 survey of individuals with bipolar disorder. *Journal of Clinical Psychiatry, 64,* 161-174.

Hirschfeld, R., Bowden, C., Gitlin, M., Keck, P., Suppes, T., Thase, M., et al. (2002). Practice guideline for the treatment of patients with bipolar disorder, second edition. *American Psychiatric Association practice guidelines for the treatment of psychiatric disorders: Compendium* (pp. 547-634). Washington, DC: American Psychiatric Association.

Hirschfeld, R. M. A., Williams, J. B. A., Spitzer, R. L., Calabrese, J. R., Flynn, L., Keck, P. E.,

Jr., et al. (2000). Development and validation of a screening instrument for bipolar spectrum disorder: The Mood Disorder Questionnaire. *American Journal of Psychiatry, 157,* 1873-1875.

Hollan, H. (2007). *Soaring and Crashing: My Bipolar Adventrues.* Minneapolis, MN: Mill City Press.

Hornbacher, M. (2008). *Madness: A Bipolar Life*. Boston: Houghton-Mifflin.

Hoyer, E.H., Mortensen, P. B., & Olesen, A. V. (2000). Mortality and causes of death in a total national sample of patients with affective disorders admitted for the first time between 1973 and 1993. *British Journal of Psychiatry, 176,* 76-82.

Hurlburt, R. T. (2011). Investigating pristine inner experience: Moments of truth. New York, NY: Cambridge.

Hurlburt, R. T. (1990). Sampling normal and schizophrenic inner experience. New York: Plenum Press.

Hurlburt, R. T. (1993). Sampling inner experience in disturbed affect. New York: Plenum Press.

Hurlburt, R. T. (1997). Randomly sampling thinking in the natural environment. *Journal of Consulting and Clinical Psychology, 65,* 941-949.

Hurlburt, R. T. & Akhter, S. A. (2006). The Descriptive Experience Sampling method. *Phenomenology and the Cognitive Sciences, 5,* 271 – 301.

Hurlburt, R. T. & Heavey, C. L. (2006). Exploring inner experience: The Descriptive Experience Sampling method. Amsterdam: John Benjamins.

Hurlburt, R.T, & Heavey, C. L. (2002). Interobserver reliability of descriptive experience sampling. *Cognitive Therapy and Research, 26*, 135-142.

Hurlburt, R. T., Heavey, C. L., & Bensaheb, A. (2009). Sensory awareness. *Journal of Consciousness Studies, 16,* 231-251.

Hurlburt, R. T., Koch, M., Heavey, C. L. (2002). Descriptive Experience Sampling demonstrates the connection of thinking to externally observable behavior. *Cognitive Therapy and Research, 26,* 117–134.

Hurlburt, R. T., & Schwitzgebel, E. (2007). *Describing inner experience? Proponent meets skeptic.* Cambridge, MA: MIT Press.

Inder, M. L. Crowe, M. T., Moor, S., Luty, S. E., Carter, J. D., & Joyce, P. R. (2008). "I actually don't know who I am": The impact of bipolar disorder on the development of self. *Psychiatry, 71*(2), 123-133.

Jamison, K. R. (2005). *An Unquiet Mind: A Memoir of Moods and Madness.* New York: Vintage Books.

Johnson, S. L., & Meyer, B. (2004). Psychosocial predictors of symptoms. In S. L. Johnson, & R. L., Leahy (Eds.), *Psychological Treatment of Bipolar Disorder.* New York: Guilford Press.

Johnson, S., Meyer, G., Winett, C., & Small, J. (2000). Social support and self-esteem predict changes in bipolar depression but not mania. *Journal of Affective Disorders, 38,* 79-86.

Johnson, S. L, Miller, C., & Eisner, L. (2008). Bipolar disorder. In J. Hunsley & E. J. Mash (Eds.), A *Guide to Assessments That Work* (pp.121-137). New York: Oxford University Press.

Judd, L., Akiskal, H. S., Schettler, P. J., Endicott, J., Maser, J., Solomon, D. A., Leon, A. C., Rice, J. A., & Keller, M. B. (2002). The long-term natural history of the weekly symptomatic status of bipolar I disorder. *Archives of General Psychiatry, 59,* 530-537.

Kahlbaum, K. (1882). Ueber cyklisches *Irresein. Der Irrenfreund, 24,* 145-157.

Kang, J. (2013). Examining the inner experience of four individuals with bipolar disorder. Unpublished master's thesis, University of Nevada, Las Vegas.

Kassem, L., Lopez, V., Hedeker, D., Steele, J., Zandi, P., & McMahon, F. J. (2006). Familiality of polarity at illness onset in bipolar affective disorder. *American Journal of Psychiatry, 163,* 1754-1759.

Keck P. E., Bennet, J. A., & Stanton, S. P. (1995). Health-economic aspects of the treatment of manic-depression illness with divalproex. *Review of Contemporary Pharmacotherapy, 6*, 597-604.

Kessler, R. C., Aguilar-Gaziola, S., Alonso, J., Chatterji, S., Lee, S., Ormel, J., Ustun, T. B., & Wang, P. S. (2009). The global burden of mental disorders: an updated from the WHO world mental health surveys. *Epidemiologia e Psichiatria Sociale, 18*(1), 23-33.

Kessler, R. C., Chiu, W. T., Demler, O., & Walters, E. E. (2005) Prevalence, severity, and comorbidity of twelve-month DSM-IV disorders in the National Comorbidity Survey Replication (NCS-R). *Archives of General Psychiatry, 62*, 617-627.

Kieseppa, T., Partonen, T., Haukka, J., Kaprio, J., & Lonnqvist, J. (2004). High Concordance of bipolar I disorder in a nationwide sample of twins. *American Journal of Psychiatry, 161,* 1814-1821.

Killgore, W. D., Balkin, T. J., & Wesensten, N. J. (2006). Impaired decision making following 49 h of sleep deprivation. *Journal of Sleep Research*, *15*, 7-13. .

Kinkelin M (1954): Verlauf und Prognose des Manisch-Depressiven Irreseins. Schweizer Archiv für Neurologie, Neurochirurgie und Psychiatrie*, 73,* 100-146.

Kleist, K. (1953) Die Gliederung der neuropsychischen Erkrankungen. *Mon Psychiatrie Neurol,*

125, 526-554.

Klinger, E., & Kroll-Mensing, D. (1995). Idiothetic assessment experience sampling and motivational analysis. In J.N. Butcher (ed.), *Clinical personality assessment: Practical approaches* (pp 267-277). New York: Oxford University Press.

Kraepelin, E. (1893). *Psychiatrie. 4.* Auflage. Leipzig: Barth.

Kraepelin, E. (1896). *Psychiatrie. 5*. Auflage. Leipzig: Barth.

Kraepelin, E. (1913). *Psychiatrie. Ein Lehrbuch fu¨r Studierendeund Aerzte,* 8th ed, Vol III. Leipzig, Germany: Barth.

Lavori, P. W., Dawson, R., Mueller, T. I, Warshaw, M., Swartz, A., & Leon, A. (1996). Analysis of course of psychopathology: transitions among states of health and illness. *International Journal of Methods in Psychiatric Research, 6,* 321-334.

Leonhard, K. (1957). *Aufterlung der endogenen Psychosen*. Berlin: Akademie Verlag.

Levin, F. R., & Hennessy G. (2004). Bipolar disorder and substance abuse. *Biological Psychiatry, 56,* 738-748.

Levkovitz, V., Fennig, S., Horesth, M., Barak, B., & Treves, I. (2000). Perception of ill spouse and dyadic relationship in couples with affective disorder and without. *Journal of Affective Disorders, 58,* 237-240.

Lim, L. Nathan, P., O'Brien-Malone, A., & Williams, S. (2004). A qualitative approach to identifying psychosocial issues faced by bipolar patients. *Journal of Nervous and Mental Disorders, 192,* 810-817.

Lincinio, J. (2005). The experience of bipolar disorder: A personal perspective on the impact of mood disorder symptoms. *Molecular Psychiatry, 10,* 827-830.

Lish, J. D., Dime-Meenan, S., Whybrow, P. C., Price, R. A., & Hirschfeld, R. (1994). The

national depressive and manic-depressive association (DMDA) survey of bipolar members. *Journal of Affective Disorders*, *31,* 281-294.

Lund, F. (1925). The psychology of belief IV: The law of priming in persuasion. *Journal of Abnormal and Social Psychology, 20,* 183-191.

Marneros, A. (1999). *Handbuch der unipolaren und bipolaren Erkrankungen*. Stuttgart: Thieme.

Marneros A., & Angst J. (2000). Bipolar disorders: roots and evolution. In A. Marneros & J. Angst (Eds.), *Bipolar Disorders: 100 Years After Manic-Depressive Insanity* (pp. 1-36). Kluwer Academic Publishers: UK.

Martinez-Arán, A., Vieta, E., Reinares, M., (2002). Cognitive function across manic or hypomanic, depressed, and euthymic states in bipolar disorder. *American Journal of Psychiatry, 161,* 262-270.

Martinez-Arán, A., Vieta, E., Chengappa, K. N., Gershon, S., Mullen, J., & Paulsson, B., (2008). Reporting outcomes in clinical trials for bipolar disorder: A commentary and suggestions for change. *Bipolar Disorders, 10,* 566-579.

Mayes, R., & Horwitz, A. V. (2005). DSM-III and the revolution in the classification of mental illness. *Journal of the History of the Behavioral Sciences, 41*, 249-267.

McClure-Tone, E. B. (2009). Socioemotional functioning in bipolar disorder versus typical development: Behavioral and neural differences. *Clinical Psychology: Science and Practice, 16,* 98-113.

McElroy, S. L., Altshuler, L. L., Suppes, R., Keck, P. E., Jr., Frye, M. A., Denicoff, K. D., Myin-Germeys, I., Peeters, F., Havermans, R., Nicolson, N. A., deVries, M. W., Delespaul P, van Os, J. (2003). Emotional reactivity to daily life stress in psychosis and

affective disorder: an experience sampling study. *Acta Psychiatria Scandinavia, 107,* 124-131.

Mendel, E. (1881). *Die Manie. Eine Monographie.* Vienna: Urban & Schwarzenberg.

Mendlewicz, J., & Rainer, J. D. (1977). Adoption study supporting genetic transmission in manic-depressive illness. *Nature, 268,* 327-329.

Mihelic, J. (2013). Examining the experience of three individuals with major depressive disorder and three individuals with bipolar disorder. Unpublished doctoral dissertation. University of Nevada, Las Vegas.

Miller, C., Johnson, S. L. & Eisner, L. (2009). Advancing the role of assessment in evidence-based practice. *Clinical Psychology: Science and Practice, 16*, 188-201.

Mitchell, P. B., Slade, T., & Andrews, G. (2004). Twelve-month prevalence and diability of DSM-IV bipolar disorder in and Australian general population survey. *Psychological Medicine, 34,* 777-785.

Murray, C. J. L. & Lopez, A. (1996). *Global Health Statistics: A Compendium of Incidence, Prevalence and Mortality Estimates for over 2000 Conditions.* Cambridge: Harvard School of Public Health.

National Depressive and Manic-depressive Association. (1993). National survey of NDMDA members finds long delay in diagnosis of manic-depressive illness. *Hospital and Community Psychiatry,* 44, 800-802.

Nolen, W. A., Kupka, R. W., Leverich, G. S., Rochussen, J. R., Rush, A.J., & Post, R. M. (2001). Axis I psychiatric comorbidity and its relationship to historical illness variables in 299 patients with bipolar disorder. *American Journal of Psychiatry, 158,* 420-426.

Novick, D. M., Swartz, H. A., & Frank, E. (2010). Suicide attempts in bipolar I and bipolar II

disorder: A review and meta-analysis of the evidence. *Bipolar Disorders, 12*, 1-9. Patel, N. C., DelBello, M. P. Keck, P. E., Strakowski, S. M. (2006). Phenomenology associated with age at onset in patients with bipolar disorder at their first psychiatric hospitalization. *Bipolar Disorders, 8,* 91-94.

Perlick, D., Clarkin, J. F., Sirey, J., Raue, P., Greenfield, S., Struening, E., & Rosenheck, R. (1999). Burden experienced by care-givers of persons with bipolar affective disorder. *British Journal of Psychiatry, 175,* 56-62.

Perlotto (2001). An exploration of the inner experience of depression. Unpublished master's thesis, University of Nevada, Las Vegas.

Perris, C. (1966). A study of bipolar (Manic-depressive) and unipolar recurrent depressive psychoses. *Acta Psychiatrica Scandinavia, 194,* 1-89.

Perry, A., Tarrier, N., Morris, R., McCarthy, E. & Limb, K. (1999). Randomized controlled trial of efficacy of teaching patients with bipolar disorder to identify early symptoms of relapse and obtain treatment. *British Medical Journal,* 318, 149-153.

Pichot, P. (1995). The birth of the bipolar disorder. *European Psychiatry, 10,* 1-10.

Pilcher, J. J., & Huffcutt, A. I. (1996). Effects of sleep deprivation on performance: A meta-analysis. *Sleep*, *19*, 318–326.

Pilkonis, P. A., Choi, S. W., Reise, S. P., Stover, A. M., Riley, W. T., & Cella, D. (2011). Item banks for measuring emotional distress from the Patient-Reported Outcomes Measurement Information System (PROMIS®): Depression, anxiety, and anger. Assessment, 18(3), 263-283. doi:10.1177/1073191111411667

Potash, J. B., & DePaulo, J. R. (2000). Searching high and low: A review of the genetics of bipolar disorder. *Bipolar Disorders, 2,* 8-26.

Prien, R. F., Klett, C. J. & Caffey, E. M. (1974). Lithium prophylaxis in recurrent affective

illness. *American Journal of Psychiatry*, 131, 198 -203.

Preisig, M. (2006). Genetics of bipolar disorder: A review. *Schweizer Archiv für Neurologie und Psychiatrie*, *157*(8), 366-377.

Proudfoot, J. G., Parker, G. B., Benoit, M. Manicavasagar, V., Smith, M., & MCrim, A. G. (2009). What happens after diagnosis? Understanding the experiences of patients with newly-diagnosed bipolar disorder. *Health Expectations, 12*(2), 120-129.

Radke-Yarrow, M. (1998). *Children of depressed mothers: From early childhood to maturity.* Cambridge, UK: Cambridge University Press.

Rennie, T. A. C. (1942). Prognosis in manic-depressive psychoses. *American Journal of Psychiatry, 98,* 801– 814.

Robins L. N., & Regier, D. A. (Eds.), (1991). *Psychiatric Disorders in America: The Epidemiology Catchment Area Study*. New York: Free Press.

Romans, S. E., & McPherson, H. M. (1992). The social networks of bipolar affective disorder patients. *Journal of Affective Disorders, 25,* 221-228.

Roshanaei-Moghaddam, B., Katon, W. (2009). Premature mortality from general medical illnesses among persons with bipolar disorder: A review. *Psychiatric Services, 60,* 147-156.

Ruggero, C. J., Carlson, G. A., Kotov, R., & Bromet, E. J. (2010). Ten-year diagnostic consistency of bipolar disorder in a first-admission sample. *Bipolar Disorder, 12,* 21-31.

Rusner, M., Carlsson, G., Brunt, D., & Nystrom, M. (2009). Extra dimensions in all aspects of life – the meaning of life with bipolar disorder. *International Journal of Qualitative Studies on Health and Well-being, 4,* 159-169.

Sadovnick, A. D., Remick, R. A., Lam, R., et. al. (1994). Mood disorder service genetic

database: Morbidity risks for mood disorders in 3,942 first-degree relatives of 671 index cases with single depression, recurrent depression, bipolar I, or bipolar II. *American Journal of Medical Genetics, Neuropsychiatry Genetics, 54,* 132-140.

Schmitz, N., Hartkamp, N., Kiuse, J., Franke, G. H., Reister, G., & Tress, W. (2000). The Symptom Checklist-90-R (SCL-90-R): A German validation study. *Quality of Life Research, 9,* 185 – 193.

Serretti, A., & Olgiati, P. (2005). Profiles of "manic" symptoms in bipolar I, bipolar II and major depressive disorders. *Journal of Affective Disorders*, *84*, 159–166.

Sharma, R., & Markar, H. R. (1994). Mortality in affective disorder. *Journal of Affective Disorder, 31,* 91-96.

Shiffman, S., & Stone, A.A. (1998). Ecological momentary assessment: A new tool for behavioral medicine research. In D.S. Krantz & A. Baum (Eds.), *Technology and Methods in Behavioral Medicine* (pp. 117-151). Mahwah, NJ: Erlbaum.

Simon, L. (2002). *Detour: My Bipolar Road Trip in 4-D*. New York: Washington Square Press.

Soloman, D., A., Leon, A. C., Coryell, W. H, Endicott, J., Li, C., Fiedorowicz, J. G., Boyken, L., & Keller, M. B. (2010). Longitudinal course of bipolar I disorder: duration of mood episodes. *Archives of General Psychiatry, 67,* 339-347.

Spiegel, K., Tasali, E., Penev, P., & Van Cauter, E. (2004). Brief communication: Sleep curtailment in healthy young men is associated with decreased leptin levels, elevated ghrelin levels, and increased hunger and appetite. *Annals of Internal Medicine*, *141*, 846–850.

Spitzer, R. L., & Endicott, J. (1978). *Schedule for Affective Disorders and Schizophrenia – Change version* (3rd ed.). New York: Biometrics Research.

Spitzer, R. L., Endicott, J., & Robins, L. (1979). Use of the Research Diagnostic Criteria and the Schedule for Affective Disorders and Schizophrenia to study affective disorders. *American Journal of Psychiatry, 136,* 52-56.

Spitzer, R. L., Williams, J. B. W., Gibbon, M., First, M. B. (1992). The structured clinical interview for DSM-III-R (SCID). I. History, rationale, and description. *Archives of General Psychiatry, 49,* 624-629.

Stephens, J. H., McHugh, P. R. (1991). Characteristics and long-term follow-up of patients hospitalized for mood disorders in the Phipps Clinic, 1913–1940. *Journal of Nervous and Mental Disorders, 179,* 64-73.

Stone, A. A. & Shiffman, S. (1994). Ecological momentary assessment (EMA) in behavioral medicine. *Annals of Behavioral Medicine*, 16, 199-202.

Stone, A. A., Shiffman, S. S., & DeVries, M. W. (1999). Ecological momentary assessment. In D. Kahneman, E. Diener, & N. Schwartz (Eds.), Well-being: The foundations of hedonic psychology. New York, NY: Russell Sage Foundation: 26-39.

Strakowski, S. J., Fleck, D. E., DelBello, M. P., Adler, C. M., Shear, P. K., Kotwal, R., & Arndt, S. (2010). Impulsivity across the course of bipolar disorder. *Bipolar Disorders, 12,* 285-297.

Suppes, R., Leverich, G. S., Keck, P. E., Nolen, W. A., et al. (2001). The Stanley foundation bipolar treatment outcome network II. Demographics and illness characteristics of the first 261 patients. *Journal of Affective Disorders, 67,* 45-49.

Tamam, L., & Ozpoyraz, N. (2002). Comorbidity of anxiety disorder among patients with bipolar I disorder in remission. *Psychopathology, 35,* 203-209.

Thompson, J. (2006). *Sugar and Salt: My Life with Bipolar Disorder*. Bloomington, IN: Author

House.

Tohen, M., Waternaux, C.S., & Tsuang, M. T. (1990). Outcome in mania: A 4-year prospective follow-up of 75 patients utilizing survival analysis. *Archives of General Psychiatry, 47,* 1106-1111.

Tondo, L., Isacsson, G., & Baldessarini, R. J. (2003). Suicidal behavior in bipolar disorder: Risk and prevention. *Therapy in Practice, 17,* 491-511.

Tsuang, M. T., & Faraone, S. V. (1990). *The genetics of mood disorders*. Balitmore: Johns Hopkins University Press.

Tsuang, M. T., & Woolson, R. F. (1978). Excess mortality in schizophrenia and affective disorders: Do suicides and accidental deaths solely account for this excess? *Archives of General Psychiatry, 35,* 1181-1185.

Tsuchiya, K. J., Byrne, M., Mortensen, P. B. (2003). Risk factors in relation to an emergence of bipolar disorder: A systematic review. *Bipolar Disorder, 5,* 231-242.

Uecok, A., Karaveli, D., Dundakci, T., & Yazici, O. (1998). Comorbidity of personality disorders with bipolar mood disorders. *Comprehensive Psychiatry, 39,* 72-74.

Vehmanen, L., Kaprio, J., & Loennqvist, J. (1995). Twin studies of bipolar disorder. *Psychiatria Fennica, 26,* 107-116.

Vieta, E., Colom, F., Corbella, C., Martinez, A. A., Reinares, M., Benabarre, A., & Gasto, C. (2001). Clinical correlates of psychiatric comorbidity in bipolar I patients. *Bipolar Disorders, 3,* 253-258.

Weissman, M. M., Bland, R.C., Canino, G. J., et al. (1996). Cross-national epidemiology of major depression and bipolar disorder. *Journal of the American Medical Association*, *276,* 293-299.

Weissman, M. M, Bruce, M. L., Leaf, P. J. et al. (1991). Affective disorders. In Robins, L. N., & Regier, D. A., (Eds.), *Psychiatric Disorders in America: The Epidemiologic Catchment Area Study.* New York: Free Press.

Weissman, M. M., Gershon, E. S., Kidd K. K., et. al. (1984). Psychiatric disorders in the relatives of probands with affective disorders: the Yale-NIMH collaborative family study. *Archives of General Psychiatry, 41,* 13-21.

Wender, P. H., Kety, S. S., Rosenthal, D., Schulsinger, F., Ortmann, J., & Lunde, I. (1986). Psychiatric disorders in the biological and adoptive families of adopted individuals with affective disorders. *Archives of General Psychiatry, 43*, 923-929.

Wernicke, C. (1900). Grundrisse der Psychiatrie. Leipzig: Thieme.

Wernicke, C. (1906). Grundrisse der Psychiatrie in klinischen Vorlesungen (28. Bis 41. Vorlesung). Leipzig: Thieme.

Wheeler L., & Reis H.T. (1991). Self-recording of everyday life events: Origins, types, and uses. *Journal of Personality, 59,* 339-354.

Winokur, G., Clayton, P. J., & Reich, T. (1969). *Manic depressive illness*. St. Louis, MO: C. V. Mosby.

World Health Organization. (1993). *The ICD-10 classification of mental and behavioural disorders: diagnostic criteria for research*. Geneva: World Health Organization.

WHO International Consortium in Psychiatric Epidemiology (2000) Cross-national comparisons of the prevalences and correlates of mental disorders. *Bulletin of the World Health Organization, 78*, 413-426.

Wyatt, R. J., & Henter, I. (1995). An economic evaluation of manic-depressive illness. *Social psychiatry and psychiatric epidemiology, 30*, 213-219.

Yatham, L. N., Kauer-Sant'Anaa, M., Bond, D. J., Lam, R. W., & Torres, I. (2009). Course and outcome after the first manic episode in patients with bipolar disorder: prospective 12-month data from the systematic treatment optimization program for early mania project. *Canadian Journal of Psychiatry, 54*, 105-111.

Yoo, S., Gujar, N., Hu, P., Jolesz, F., & Walker, M. (2007). The human emotional brain without sleep: A prefrontal amygdala disconnect? *Current Biology, 17*, 877–878.

Young, R. C., Biggs, J. T., Ziegler, V. E., & Meyer, D. A. (1978). A rating scale for mania: Reliability, validity and sensitivity. The British Journal Of Psychiatry, 133429-435. doi:10.1192/bjp.133.5.429

Youngstrom, E. A. (2009) Psychological science and bipolar disorder. *Clinical Psychology: Science and Practice, 16*, 93-97.

Zanarini, M. C., & Frankenburg, F. R. (2001). Attainment and maintenance of axis I and II disorders over the course of a longitudinal study. *Comprehensive Psychiatry, 42*, 369-374.

Zimmerman, M. & Mattia, J. I. (1999). Psychiatric diagnosis in clinical practice: Is comorbidity being missed? *Comprehensive Psychiatry,* 40, 182-191.

Zheng, D., Macera, C. A., Croft, J. B., Giles, W. H., Davis, D., & Scott, W. K. (1997). Major depression and all-cause mortality among white adults in the United States. *American Epidemiology, 7,* 213-218.

Zlotnick, C., Kohn, R., Keitner, G., & Della Grotta, S. A. D. (2000). The relationship between quality of interpersonal relationships and major depressive disorder: Findings for the National Comorbidity Survey. *Journal of Affective Disorders, 59,* 205-215.

CURRICULUM VITAE

JOHANAH Y. KANG

Home
5024 Walbrook Lane
Las Vegas, NV 89148
Cell Phone: (702) 301-8315
Email: johanahkang@gmail.com

Office
Center for Applied Neuroscience
716 South 6th Street
Las Vegas, NV 89101

Fluent Languages: English and Korean

EDUCATION

Expected Dec 2015	Ph.D. Candidate, **University of Nevada, Las Vegas** Major: Clinical Psychology (APA accredited) Master's Degree conferred December 2013
May 2008	B.A. in Psychology, Minor in Biology **University of Nevada, Las Vegas** Graduated Summa Cum Laude with Honors

POST DOCTORAL TRAINING

2015-Present	**Center for Applied Neuroscience,** Las Vegas, NV Setting: Private practice neuropsychologists specializing in the assessment of cognitive functioning in individuals across the lifespan

INTERNSHIP TRAINING

2014-2015	**Veterans Affairs Puget Sound Health Care System, American Lake Division,** Tacoma, WA (APA accredited) *Setting:* VA hospital, including both inpatient and outpatient psychiatric facilities.

PREDOCTORAL PRACTICUM TRAINING

June 2013-June 2014 Vegas, NV	**Cleveland Clinic, Lou Ruvo Center for Brain Health**, Las *Setting:* Non-profit academic medical center providing clinical and hospital care

June 2011-July 2014	**Center for Applied Neuroscience**, Las Vegas, NV *Setting:* Private practice neuropsychologists specializing in the assessment of cognitive functioning in individuals across the lifespan
June 2012-Oct 2013	**Disability Resource Center (DRC)**, Las Vegas, NV *Setting:* Center within University of Nevada, Las Vegas (UNLV) committed to supporting students with disabilities
Jan 2012-May 2012	**Silver Ridge Healthcare Center**, Las Vegas, NV *Setting:* Private inpatient rehabilitation facility
June 2011-May 2012	**Creative Health Solutions**, Las Vegas, NV *Setting:* Private interprofessional practice specializing in treatment of eating disorders and weight related issues
Aug 2010-Aug 2011	**Counseling and Psychological Services (CAPS)**, Las Vegas, NV *Setting:* UNLV counseling center
Aug 2009-Aug 2010 Vegas, NV	**Center for Individual, Couple, and Family Counseling**, Las *Setting:* Counseling center within the UNLV Psychology and Marriage and Family Therapy departments
Aug 2009-May 2014	**Psychological Assessment and Testing Clinic**, Las Vegas, NV *Setting:* Clinic within the UNLV Psychology Department providing psychological assessments on a sliding scale

SUPERVISION EXPERIENCE AND TRAINING

May 2012-Aug 2012	**Pyschotherapy Supervisor in Training** *Location:* Center for Individual, Couples, and Family Counseling, Las Vegas, NV
May 2012-Aug 2012	**Assessment Supervisor in Training** *Location:* Psychological Assessment and Testing Clinic, Las Vegas, NV

RESEARCH EXPERIENCE

Aug 2014-Aug 2015	**Research Assistant** Puget Sound Geriatric Research, Education, and Clinical Center Project: Memory Skills for Older Adults with PTSD: Update on a Clinical Demonstration Project
Aug 2011-May 2012	**Research Assistant** School of Social Work at the University of Nevada, Las Vegas *Project:* Culture, Language, and Gendered Violence in Southern Nevada
June 2013-June 2014	**Research Assistant & Project Coordinator** Psychology Department at the University of Nevada, Las Vegas *Project:* Inner Experience Training Study

PUBLICATIONS

Thaler, N. S., **Kang, J.Y.,** Reger, S.L. (2014). IQ testing and the Asian American client. In L. Benuto (Ed.), *Psychological Assessment of Asian American Clients.* New York, NY: Springer Publishing.

PROFESSIONAL PRESENTATIONS

Kang, J.Y., Heavey, C.L, & Hurlburt, R. T. (2012). Exploring the inner experience of four individuals with bipolar disorder. Poster presented at the 10th Biennial Toward a Science of Consciousness meeting, Tucson, AZ.

TEACHING EXPERIENCE

Aug 2011-Aug 2012	**Instructor of Record** *Location:* University of Nevada, Las Vegas, Las Vegas, NV *Course Taught:* PSY 101 – Introductory Psychology

SERVICE EXPERIENCE

Aug 2014-Aug 2015	**Diversity Committee Member**, VA Puget Sound, American Lake Division
June 2013-Present	**Diversity Committee Chair**, Nevada Psychological Association
May 2013-May 2014	**Program Coordinator**, UNLV Outreach Undergraduate Mentoring Program (OUMP)
May 2008-May 2014	**Mentor**, UNLV Clinical Student Committee

May 2008-May 2014 **Mentor**, UNLV OUMP

PROFESSIONAL AFFILIATIONS

2013-Present	National Academy of Neuropsychology
2013-Present	International Neuropsychological Society
2008-Present	American Psychological Association
2008-Present	Nevada Psychological Association
2006-2009	Psi Chi, National Honor Society in Psychology

AWARDS & HONORS

2015	Diversity Leadership Development Participant
2012	UNLV Graduate and Professional Student Association Poster Award
2012	NPA Student Poster Award
2011	UNLV Summer Session Scholarship
2011	UNLV Graduate Access Grant

REFERENCES

Sharon Jones-Forrester, PhD
Licensed Neuropsychologist
Center for Applied Neuroscience
716 S. Sixth Street
Las Vegas, NV 89101
Email: drjonesforrester@gmail.com/Phone: 702-510-6502

Emily H. Trittschuh, PhD
Licensed Neuropsychologist
Geriatric Research Education and Clinical Center
VA Puget Sound Healthcare System
1660 S. Columbian Way, GRECC S-182
Seattle, WA 98108
Email: emily.trittschuh@va.gov/Phone: 206-277-6283

Sarah J. Banks, PhD, ABPP-CN
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

Michelle G. Paul, PhD
Associate Director of Clinical Training, Department of Psychology
University of Nevada, Las Vegas
4505 S. Maryland Parkway
Las Vegas, NV 89154-5030
Email: michelle.paul@unlv.edu/Phone: 702-895-0134