Exploring adolescent inner experience

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EXPLORING ADOLESCENT INNER EXPERIENCE

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ABSTRACT

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Adolescence famously is known as a time of storm and stress, hormones, and crises of identity, yet psychology knows remarkably little about adolescents’ actual inner experience. This study aimed to describe the actual phenomenology of adolescent inner experience by using Descriptive Experience Sampling (DES) with a sample of six adolescents aged 11-14 years. Each wore a random beeper in his/her natural everyday environments for five days. They observed the phenomenology of their inner experience each time the beeper sounded and described that inner experience to the investigators in expositional interviews. We found substantial differences in the complexity of inner experience across subjects, suggesting that adolescents may be in the process of developing inner experience itself. We also found very infrequent experience of emotion despite the fact that they had frequent emotional behavior, suggesting that (a) acting emotionally, (b) recognizing emotion in a third-person way, and (c) feeling emotion in a
first-person way may be three separate skills that are acquired at very different rates and
times across development. That is, we speculated that adolescents’ stormy emotional
behavior may reflect a lack of emotional experience, not chaotic emotional experience.
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CHAPTER 1

INTRODUCTION

Textbooks on adolescence begin with publicly observable criteria for defining their subjects: age and puberty. Textbooks then break down their subject matter into seemingly separate, although presumably interacting, parts. There are chapters on theories of adolescence, on cognitive development, moral development, sexual development, social relations, social deviance and pathology, and education and career options. Each chapter reviews research, which inevitably is quantitative. There are straight statistical presentations: ‘35% of white subjects and 23% of black subjects had never gone steady during the previous 3 years.’ There are correlational data: ‘Teachers’ grades were rather highly correlated with achievement test scores for disadvantaged students and black students, but only minimally correlated with achievement test scores for advantaged students and white students.’ And there are semi-experimental data: ‘2,062 subjects in grades 6 through 12 rated themselves on a 7-point semantic differential scale. The self-concept ratings were factor analyzed and four factors emerged: (a) achievement-leadership, (b) congeniality-sociability, (c) adjustment, and (d) sex-appropriateness of the self-concept.’ Such findings provide food for thought about adolescent life. However, we are left to wonder just what these data point to in the actual lives of these people. (Fischer & Alapack, 1987, p.105)
This project explores the actual lived inner experience of adolescents. Fischer and Alapack’s characterization (1987, quoted above) that psychological research has much to say about adolescents in general but very little to say about what their experience is really like, still holds today. One explanation for this state of affairs is that psychology has not yet systematically applied to adolescents a methodology capable of sensitively accessing inner experience. The present study is an attempt to remedy that by exploring adolescent inner experience using Descriptive Experience Sampling (DES), a method specifically designed to capture and explicate the phenomenology of inner experience with high fidelity.

To date, only one DES study of adolescent inner experience has been conducted. In this exploratory investigation, Monson (1989) collected random samples of inner experience from five adolescent subjects. The following is one example of a sample excerpted from Monson’s study:

[At sample #12, Wendy] was reading the book *Five Little Peppers* about a little girl who got a nail stuck through her foot just behind the toes. Wendy had just put the book down when the beep occurred. An image was present in her imagination at that moment, and was black and white and dark and fuzzy, a little out of focus. The image was of a foot, side view with a dark spot on it just above the toes. The foot was located a bit above Wendy’s eyes so that she had to look up to see it; Wendy did not notice the ankle or leg. She was of the opinion that this image was in the process of forming; that if the beep had not interrupted her, this image would have become clear and in color. Furthermore, the dark spot on the foot in
the image would likely have become the nail that stuck through the foot in the story. (Monson, 1989, pp.87-88)

By collecting random samples of inner experience such as this instance of Wendy’s forming an image, Monson discovered detailed idiographic and phenomenological information about her subjects’ inner worlds, data that stand in stark contrast to the statistical, correlational, experimental knowledge about adolescents criticized by Fisher and Alapack (1987). Monson’s preliminary findings on adolescent inner experience shed new light on the “actual lives” of teenagers.

The present study seeks to reopen the exploration of adolescent inner experience using DES. Eighteen years have passed since Monson’s (1989) original investigation and, during that time, statistical, correlational, experimental research programs devoted to the study of adolescent experience have proliferated. Despite these efforts, there remains little knowledge of the actual inner experience of adolescents. From our perspective, this shortcoming is a methodological issue: though the widely used methods of exploring adolescent experience provide new information about adolescents, none explore that experience at the level of fidelity necessary to build a detailed and accurate understanding of the phenomena of adolescent inner experience. This study is as much about sorting out differences in methodological approaches to studying inner experience as it is about learning about the inner experience of adolescents. Therefore, the introduction and literature review has four parts. In the present introductory chapter, we will (a) discuss inner experience and introspection in general; and (b) discuss the DES method. In Chapter 2 we will (c) review the literature that has used methods in some ways similar to
DES to explore adolescent inner experience, and, finally, (d) compare and contrast those methods to DES.

Inner Experience and Introspection

Inner experience refers to any thought, perception, sensation, emotion, or any other inner phenomenon consciously apprehended by a person (Hurlburt & Heavey, 2006). Our definition of inner experience does not include unconscious processes or those too miniscule to be detected consciously; instead, the “experience” of inner experience implies that the experiencer is conscious of his experience, whatever that may be. The excerpted sample from Monson’s study above is just one example of inner experience. Wendy was in the midst of forming an image of a foot and that phenomenon was present in her conscious awareness; that is, she was able to apprehend it.

The quest to understand inner experience dates back to the birth of consciousness itself and is famously marked in the Western tradition by Socrates’ exhortation to “Know Thyself.” Understanding inner experience has been and remains an explicit and fundamental question driving the field of psychology as well. Hurlburt and Heavey (2004) asserted, “awareness is worthy of scientific study, if for no other reason than because [it] has long been held to be central to the scientific study of consciousness” (p. 113).

Because inner experience is by nature private and subjective (i.e., it exists within, and can be directly known only to the person to whom it belongs), access to it requires some form of introspection, self-reflection, or “looking within” to know. Without introspection, it would be impossible to access and describe inner experience. In Eastern
spiritual traditions such as Buddhism, Hindu and Kashmiri teachings, and Taoism, introspection is used as a means to achieve spiritual evolution. Through meditative and yogic practices, spiritual students come to direct observation and understanding—and often transformation—of their inner experiences (Almaas, 2004). In the West, introspection is more a secular and externalized endeavor derived from a natural science approach to observation and description. Introspectors report their experiences to investigators in order to advance an objective scientific understanding of the human being.

Early Western psychology attempted to create a systematic introspection (sometimes called “classical introspection” or “Introspection” with a capital I) and used this approach to understanding internal processes of the human mind from the end of the nineteenth to the beginning of the twentieth century. By the second quarter of the twentieth century, however, introspection had faced severe criticism and was essentially abandoned. It never regained its footing as a legitimate scientific method (Danziger, 1980). Three factors contributed to the downfall of introspection: conflict among researchers about how to do introspective research (methodological differences), debate among researchers about how to characterize findings (interpretive differences), and severe criticism of introspection by rising behavioral researchers (Danziger, 1980). We briefly discuss these three factors here.

Differences in introspective methodologies can be traced back to the conflicting approaches of Wilhelm Wundt and William James (Lyons, 1986). Wundt’s was a structuralist approach to introspection; he investigated tightly controlled, strictly manipulated “fundamental” aspects of inner experience. Wundt advocated “inner
perception,” a form of introspection in which subjects were exposed to controlled stimuli and asked to observe and report only those specific features of perception occurring in reaction to those stimuli. In contrast, James’s approach was functional; he investigated those aspects of inner experience that naturally and organically presented to consciousness. James practiced “self observation,” a freer, fluid, and spontaneous process that asked subjects to dip into the stream of consciousness and report about found mental events.

As introspection evolved as a science, a major disagreement erupted among structuralists: two Wundtian schools of introspection—the Titchenerians and investigators from Würzburg—vehemently disagreed about how to interpret introspective findings (Hurlburt, 1993; Monson 1989). Specifically, this debate centered on the existence of an element of consciousness called “imageless thought.” (The phenomenon behind imageless thought is known as unsymbolized thinking in the DES lexicon.) Monson and Hurlburt (1993; Monson 1989) conducted a detailed analysis of the imageless thought debate and found that Titchenerians and Würzburg investigators had actually collected similar phenomenological descriptions of imageless thought. What they could not resolve was whether or not it was possible to have a thought without an image. Both schools’ data showed that subjects experienced thought with no easily detectable image. But the Titchenerians still asserted that some form of an image, even vanishingly faint, must lie at the heart of every thought. According to this belief, images that accompany thought could be visual, kinesthetic, auditory or of some other sensory form, but the argument was that every single thought had to have an imaginal core of some kind or another. The Würzburg investigators, on the other hand, believed that it was possible
to have a thought that did not involve images at all. In a sense, the Würzburg
investigators stuck to the discovered phenomenon: if on careful and repeated inspection
using rigorous methodology subjects did not report an image at the core of some
thoughts, then this was evidence that sometimes thoughts do not have imaginal cores.
Thus the imageless thought debated was not rooted in a discrepancy in data but instead
was based on a difference in theoretical positions. The controversy was a lengthy, heated,
and ultimately deadly disagreement for introspection; largely as a result of this standoff,
introspection was dismissed by psychology (Hurlburt, 1993).

As introspection suffered due to internal strife, the rising field of behaviorism
simultaneously leveled attacks at introspection from the outside, which expedited and
intensified its downfall. The behaviorists—including Skinner—were explicitly critical of
inner experience and introspection (Lyons, 1986), and in fact used the term
“introspectionism” as an opposing contrast to their own “behaviorism” approach
(Danziger, 1980). Surprisingly, however, Skinner actually did believe in the vital
importance of inner experience to psychological understanding. His criticisms were
squarely aimed at what he saw as three fundamental and inherent difficulties in exploring
inner experience: (1) people are not skilled at talking about inner experience because the
verbal community cannot easily shape that talk; (2) it is impossible to access one’s full
inner experience; and (3) it is dangerous to extrapolate causation from the contents of
inner experience, but the tendency to do so would be great (Hurlburt & Heavey, 2001).

Despite its rocky history in Western psychology, Hurlburt and Heavey (2004)
asserted that the study of inner experience remains critically important and valuable to
modern psychology. They suggested that past criticisms of introspective methodologies
should be used constructively—that is, to strengthen the approach, not to destroy it: “The radical exclusion of introspection from scientific method throws the baby out with bathwater” (p.114). They concluded that exploring inner experience is neither “trivially easy” nor “impossible,” but that fruitful investigations of inner experience require a rigorous methodology that avoids the traps and pitfalls of prior attempts.

DES: A Method of Exploring Inner Experience

Hurlburt developed a thought-sampling method (later transformed into Descriptive Experience Sampling or DES) in 1973, in response to the need for a method capable of accessing inner experience that did not suffer many of the problems and inadequacies of previous attempts at introspection. Perplexed by the dilemma of how to do this, Hurlburt found inspiration in a “Fortune Magazine” article investigating how executives spend their time (Wheeler & Reis, 1991). The article suggested that secretaries check in on their bosses at half hour intervals and log their bosses’ activities at those times over the course of a day. When aggregated, these data provided a clear and accurate picture of what the executives actually spent their time doing. Though Hurlburt wasn’t particularly interested in how executives spend their time, he did think this “sampling” approach might be useful if modified. He decided to try randomly sampling people in their natural environments to see if this might be a viable introspective methodology.

Hurlburt wanted a method that would elicit “real,” “pure,” or “raw” inner experience data. He created a beeper that cued subjects to “freeze” their cognitions at random moments and asked them to record, right then, the details of their samples. He
rigorously interviewed his subjects about those samples, going after clear descriptions of experience rather than general descriptions or interpretations.

In his first published study using thought-sampling, Hurlburt and Sipprelle (1978) used the random beeper to collect samples of inner experience from a single subject. “Donald” recorded his cognitions when cued by the beeper across two days, collecting 28 samples. Hurlburt and Sipprelle found many of his samples to involve feelings of anger, irritation, and hostility toward his children, a finding that greatly surprised Donald himself. Prior to sampling, Donald’s self-perception was that he experienced only loving and positive feelings toward his children and, during the early stages of sampling, he resisted Hurlburt and Sipprelle’s characterization that his experience involved frequent anger. However, he came to realize that he was, in fact, often experiencing anger toward his children despite his staunch self-image of having only positive feelings toward his children. Apparently Hurlburt’s thought-sampling method was able to uncover information about Donald’s inner experience about which not even Donald was aware.

Over time, Hurlburt refined the thought-sampling procedure and eventually named it Descriptive Experience Sampling (DES), but the core aspects of the method—collecting samples using a random beeper in subjects’ natural environments—remained the same. The DES procedure to explore and describe idiographically the salient characteristics of each subject’s inner experience was articulated by Hurlburt (1990). In that explicitly structured version of DES, Hurlburt implemented six phases of the idiographic analysis of one subject’s experience: (1) prior to sampling, the subject was asked to write a brief account of what she expected to find in her inner experience (to make explicit any presuppositions), (2) the sampling itself, which required the subject to
wear the beeper from morning until night, collecting as many as 30 samples per day, (3) writing the narrative descriptions of each sample of inner experience, (4) reviewing each sample of inner experience and refining the narrative version to be an accurate account of the sampled experience, (5) comparing the narrative descriptions to the pre-sampling expectations (i.e., did the subject actually experience what she expected to experience?), and (6) conducting a follow-up period of sampling and comparing those samples to the first set of samples. These six steps embodied Hurlburt’s (1990) efforts to avoid contaminating the apprehension of the subject’s raw inner experience.

The most recent descriptions of the DES method (Hurlburt & Heavey, 2006; Hurlburt & Akhter, 2006) do not refer to those six steps because the method has evolved from its 1990 embodiment. Hurlburt (personal communication, November, 2007) now holds that it is a mistake to ask subjects to perform step 1 because that step focuses subjects on what they expect to find, rather than their actual experience. Eliminating step 1 necessitates eliminating step 5 as well. Step 6 is now incorporated into the “iterative” nature of DES (Hurlburt & Akhter, 2006). Instead of conducting one follow-up sampling and comparing that to the original sampling, the iterative procedure considers each sampling day in comparison to all the previous days. Thus iterativeness is a more organic or continuous embodiment of the original step 6.

Thus, DES can be characterized as a random time sampling and qualitative interview methodology that enables the investigation of the phenomena and characteristics of inner experience. It accesses and describes inner experience at a level of depth and accuracy not possible using other methodologies (Hurlburt, 1997), and it reliably yields high-fidelity information about the characteristics and features of inner
experience (Hurlburt & Heavey, 1999, 2002, 2006). DES “seeks simply to describe inner experience rather than quantify it based on the view that careful descriptions should be the foundation on which subsequent quantification should be built” (Hurlburt, 1997, p. 946).

So how exactly does DES work? A DES subject is given a pocket-sized beeper programmed to sound at random intervals and is instructed to wear the beeper while going about usual daily activities in his/her natural environment. At the time of each beep, the subject writes down (or records on tape) any thoughts, feelings, sensations, or any other awarenesses consciously present at the last undisturbed moment before the beep. Subjects collect between four and six samples during each sampling session and, within 24 hours, meet with a DES investigator for an “expositional interview.”

During the expositional interview, the investigator and subject work to distill the characteristics of the subject’s phenomenological experience. This is done by guiding the subject to focus recall efforts precisely and specifically on retrieving the contents of awareness at “the last undisturbed moment” just prior to each beep; this is similar to being asked to describe the characteristics of a photographic snapshot in time. The unit of inner experience data collected is narrowly defined temporally by the beep and therefore the interviewer’s task over the course of the initial expositional interview is to train the subject to home in on the subject’s inner experience at the exact moment of the beep. The subject learns that the investigation is not about general narrative reporting of a period of time near the beep, but instead about reporting the contents of experience at the specific moment of the beep. Furthermore, the interviewer trains the subject to report only those characteristics of experience that are overtly apparent and factually present in the
subject's awareness; assumptions and deductions about what was “probably” or “must have been” happening are dismissed. The first sampling day and interview are considered to be training exercises to help the subject become skilled at “capturing” the contents of awareness in a given moment and reporting only what was confidently and actually occurring.

Once a subject understands the task, she wears the beeper and reports for expositional interviews typically five times. This provides between 20 and 30 samples per subject, enough to reveal some of a subject’s idiographic characteristics and patterns of inner experience. The “data” of DES are phenomenologically based, detailed descriptions of an individual’s inner experience. The goal of the method is to gain access to the inner world of the individual, to examine the details of experience with precision and accuracy, and to report that information with fidelity. In this way, DES provides a rich and truly idiographic glimpse into inner experience.

Though DES does not actively “search out” common characteristics in subjects, since the method’s inception, common or frequently found characteristics of inner experience have emerged across subjects. The five main characteristics consistently found across adult subjects are inner speech, unsymbolized thinking, images, feelings, and sensory awareness (Hurlburt & Heavey, 2006). These characteristics refer to the form of experience, or how experience is happening for an individual. For example, inner speech is “the experience of speaking words in the person's own voice, with the same vocal characteristics (timbre; rate; inflection for commas, question marks, etc.; pauses; accents; stutters; etc.) as the person's own external speech, but with no external (real) noise. In its pure form, the experience of inner speech is identical to that of external
speech except that the mouth does not move and no external production of sound is produced” (Hurlburt & Heavey, 1999, p.2). This is in contrast to content, or the about what of experience, which may be important but does not typically emerge as a salient characteristic of an individual’s inner experience.

In addition to discovering idiographic patterns of inner experience within individual subjects, DES can also derive patterns and trends in inner experience across individuals within groups (Hurlburt, 1990, 1993; Hurlburt & Heavey, 2006). DES research has explored the inner experience of psychologically normal and various clinically diagnosed psychiatric populations, including individuals with schizophrenia, depression, anxiety disorders, and eating disorders, and found distinctive similarities among characteristics of inner experience in persons drawn from the same clinical population.

DES findings sometimes contradict the findings and assumptions of extant research. For example, the general psychological literature describing the inner experience of bulimia suggests that bulimia is characterized by a lack of body awareness and sensitivity. However, Jones-Forrester (2006) sampled the inner experience of bulimics and found an abundance of body-based sensory awareness experiences across subjects. Furthermore, DES has been able to demonstrate links between inner experience and externally observable behavior (Hurlburt, Koch, & Heavey, 2002), as well as personality variables (Hurlburt & Heavey, 2006).
CHAPTER 2

REVIEW OF RELATED LITERATURE

There are three categories of research approaches that share core methodological characteristics with DES and that have been applied to the study of adolescents: time and event sampling (including the Experience Sampling Method and Ecological Momentary Assessment), think aloud paradigms/protocol analysis, and phenomenological approaches. These approaches are described below along with their respective adolescent-relevant literatures. Finally, DES is reviewed in contrast to these approaches.

Time and Event Sampling

Experience Sampling Method (ESM)

The Experience Sampling Method (ESM) is the most prolific of the research paradigms discussed in this paper. Though some reviewers (Hektner & Csikszentmihalyi, 2002; Hormuth, 1986) treat ESM as an umbrella term used to encompass all time sampling methods (including DES), this review takes a narrower and more common view and defines ESM as the specific time sampling methodology developed by Csikszentmihalyi and colleagues at the University of Chicago in 1977 (see Larson & Csikszentmihalyi, 1983). ESM grew out of the social psychological tradition, which views the individual as inseparable from context. Therefore, a core characteristic of ESM is ecological validity, or the collection of data from persons while they are engaged in
their everyday activities within their natural environments—*in situ* (Hormuth, 1986). ESM seeks to correlate people’s experiences with aspects of their external situations, and to draw conclusions based on the frequency and intensity of certain combinations. ESM is predominantly a quantitative methodology; its explicit aim is to collect and analyze data pertaining to: (1) internal and external aspects of experience, (2) situational/contextual variables, and (3) relationships between experience and situation.

ESM subjects wear pagers programmed to emit signals on random time schedules during waking hours over the course of a week. At the time of each signal, subjects complete (via paper-and-pencil or, more recently, using palmtop computers) a roughly 40-item self-report questionnaire designed to describe immediate experience. The questionnaires, or Experience Sampling Forms (ESFs), can vary according to research objectives, but generally consist of brief, open-ended questions about each subject’s location, activity, and company, as well as multiple choice items and Likert-type scales to ascertain aspects of thought content; cognitive, emotional, and motivational states; and perception of current situation. Typically, a single subject completes 40-50 ESFs over the course of data collection; thus depending on the sample size, ESM studies can yield thousands of data points. Data are coded and can be analyzed at the “beep-level” (data from a single ESF), the “person-level” (data from all of one individual’s ESFs), and across groups of people (data from an entire sample, or across samples). This data structure allows researchers the flexibility “…to focus analysis on situations, on persons, and on the interactions between situations and persons” (Hektner & Csikszentmihalyi, 2002, p. 236).
Early ESM studies investigated traditional social psychological topics, including interpersonal communication and relationships (see Hektner & Csikszentmihalyi, 2002); solitude (see Larson & Csikszentmihalyi, 1983); urban relocation (Hormuth, 1986), and mental disorders including schizophrenia, anxiety depression, multiple personality disorder, and bulimia (see deVries, 1992). More recent ESM studies have explored a wider range of psychological interest areas, such as happiness (Csikszentmihalyi & Hunter, 2003); antidepressant treatment (Barge-Schaapveld & Nicholson, 2002); risk perception in high-altitude rock climbing (Delle Fave, Bassi, & Massimini, 2003); cannabis use (Tournier, Sobara, Gindre, Swendson, & Verdoux, 2003); moods in the work setting (Miner, Glomb, & Hulin 2005); parenthood (Delle Fave & Massimini, 2004); and emotions across cultures (Scollon, Diener, Oishi, & Biswas-Diener, 2004).

Since the method’s inception, adolescence has been a core research focus of ESM (Arnett, 2001; Csikszentmihalyi & Larson, 1984; Csikszentmihalyi, Rathunde, & Whalen, 1993; Larson & Richards, 1994a). The common assumption underlying this body of research is that the socialization of adolescents is a product of how they spend their time. Furthermore, the shared goal of these ESM investigations is to shed light on the developmental processes associated with socialization during this critical life stage. ESM adolescent studies examine daily activity patterns in conjunction with aspects of affective experience and then analyze and interpret these data within the context of developmental theories and hypotheses (Csikszentmihalyi & Larson, 1978, 1984; Csikszentmihalyi, Larson, & Prescott, 1977; Kleiber, Larson, & Csikszentmihalyi, 1986; Larson, Csikszentmihalyi, & Freeman, 1984; Larson, Csikszentmihalyi, & Graef, 1980; Larson & Richards, 1989, 1994a). Thus, each ESM study is basic science in the sense
that it yields novel “real-time” data on experiences, situations, and experience-by-
situation interactions, but each investigation is also theoretically driven. ESM captures a
completely original type of data on adolescent experience, and has the valuable ability to
illuminate old theories in new ways.

Csikszentmihalyi and Larson are the pioneers of ESM adolescent research. In one
of the first ESM studies, they examined patterns of daily activities and the affective
experiences associated with those activities in a sample of 25 adolescents aged 13 to 18
years (Csikszentmihalyi, Larson, & Prescott, 1977). Based on the assumption that daily
activity significantly influences attention, the aim of this study was to explore how
attentional structures in adult personality might become established during adolescence as
a result of daily activity. Researchers collected and analyzed 753 random time samples
and found that their sample of 25 teenagers engaged in the following activities (ordered
here by frequency of occurrence): talking with peers, talking with adults, watching TV,
playing sports/games, eating, grooming, walking, work, reading, studying, class. Of
these, playing games/sports and talking with peers provided the most positive affective
experience, while watching TV and studying generated less positive affective experience.
Because peer interaction was by far the most common venue for adolescent socialization,
investigators concluded that peer interaction must have a significant impact on the
development of adult attentional patterns.

Next, Larson and Csikszentmihalyi (1978) focused on the experiential correlates
of time spent alone in adolescence. The central question here was whether time alone was
developmentally productive or if, instead, it would lead to patterns of isolation and
loneliness. ESM samples revealed that adolescents spent roughly one third of their
waking hours in solitude, the most frequent solitary activities being free-floating thinking, listening to music/reading books, sleeping, and personal grooming. Results indicated that, although aloneness was experienced as not enjoyable, it was associated with lower alienation, a positive trait. Furthermore, adolescents who spent no time alone, and those who spent a significant amount of time alone, were found to be the most alienated. Thus, researchers concluded that adolescents who spend an intermediate amount of time alone are least alienated and most likely to succeed at the developmental task of establishing autonomous identities.

Csikszentmihalyi and Larson (1984) designed a larger protocol in which they used ESM to sample 75 randomly selected Chicago area high-school students. They stratified subjects on the basis of sex, grade, and socioeconomic status, and collected 4,489 self-reports over the course of the study. The self-reports were designed to capture data both on external aspects of subjects’ experience, including location, activity, and companionship, as well as on internal dimensions of experience, such as mood, cognitive state, and motivation. Results revealed that this sample of teenagers spent 41% of their time at home, 32% at school, and 27% in public places (friends’ homes, work, store, etc.). Forty percent of their time was devoted to leisure activities (socializing, watching TV), 31% to doing maintenance activities (chores, eating, personal care), and 29% to productive activity (studying, classwork). Regarding companionship, the sample reported spending 29% of their waking hours with friends, 27% alone, 23% with classmates, and 19% with family. The data on subjective states showed that location had less of an impact on adolescents’ internal experience than did activity and companionship. Adolescents were far more motivated to engage in leisure and maintenance activities than in
productive activities, and they evidenced more positive affect when engaged in leisure pursuits. They were happiest to be with friends while engaged in leisure activities and least motivated to be with classmates while doing maintenance activities. Despite lower mood states, adolescents evidenced high levels of concentration while engaged in productive activities alone.

Data from Csikszentmihalyi and Larson’s longitudinal protocol (1984) contributed to several additional substudies in which the data were analyzed to inform theoretical and special topic questions. For example, Larson, Csikszentmihalyi, and Graef (1980) explored the theoretical assumption that adolescents experience greater mood variability than adults. They sampled 107 adults, aged 19 to 65 years, and compared the adult data to the adolescent data collected by Csikszentmihalyi and Larson (1984). Findings indicated that adolescent moods were more variable than adult moods, and that adolescents evidenced a wider range of moods (higher highs and lower lows) and more rapid changes in moods (short-lived and changeable) than did adults.

Larson, Csikszentmihalyi, and Freeman (1984) also investigated the influence of social and contextual factors on substance use and experience in teenagers. To do so, they focused on the 25 instances of alcohol use, 19 instances of marijuana use, and 4 instances of combined use reported in Csikszentmihalyi and Larson (1984). They discovered that teenagers consumed alcohol predominantly on weekend evenings at friends’ homes among large groups of people. In contrast, teenagers used marijuana in small groups or alone at many different times of day, across all parts of the week. Whereas alcohol was associated with more positive moods, marijuana use revealed a more complex pattern of moods: teenagers reported more negative affect, less emotional variability, but
simultaneously endorsed experiences of high excitement and freedom. Investigators also noted that descriptions of experience during marijuana use might have been characterized more positively in retrospect than was actually the case when experienced at the time of use.

In an investigation into leisure time in adolescence, Kleiber, Larson, and Csikszentmihalyi (1986) explored different types of leisure activities and speculated about how these activities might contribute to adult development. They found that adolescents engage in two broad types of leisure activities: (1) relaxed leisure, which included, socializing, watching TV, reading, and listening to music, and (2) "transitional activity" leisure, which included, engaging in sports, games, arts, and hobbies. Investigators argued that transitional activities contribute more to the development of motivation and task engagement than do leisure activities, and that sports, games, artwork, and hobbies were valuable time spent for adolescents because they engender "the subjective experience of leisure within a context of effort and demand" (p.175), thus leading to the development of positive adult characteristics.

Following up on an earlier finding by Larson, Csikszentmihalyi, and Freeman (1984), Freeman, Csikszentmihalyi, and Larson (1986) investigated differences in ESM reports of immediate experience and reports of recalled experience in adolescents. Twenty-seven adolescents each completed two sets of ESM, each set spaced two years apart. Investigators found almost no differences in subjects’ reports of immediate experience between the two years; moods appeared stable across time. However, an additional component of the study involved asking adolescents at time two to describe their recalled affective states at time one (i.e., to retrospect about their moods two years
earlier). Results revealed that teenagers retrospectively rated their moods significantly more positively than they had rated them at the time (that is, at time one). Instead of focusing solely on the magnitude of the disparity between reports, investigators proposed an "Interpretive Model of Development" suggesting that teenagers' inaccurate interpretations of past experience might actually be a sign of positive developmental functioning. The disparity in mood appraisal at time two about time one was interpreted as a sign of developmental work in which teenagers were learning how to contextualize their experiences into a larger personal narrative and worldview. Investigators further suggested that this developing perspective might help teenagers become better able to make realistic appraisals of their moods based on acquired life experience and reflection on that life experience. Thus, teenagers' reformulation of perspective on their own experiences across time was seen by investigators to constitute major developmental work in adolescents (Freeman, Csikszentmihalyi, & Larson, 1986, p. 183).

In the largest ESM adolescent protocol to date, Reed Larson and Maryse Richards (1989) sampled 483 fifth through ninth graders to investigate the transition into adolescence and the characteristics of life space during this life stage. Participants were drawn from two suburban Chicago communities (one middle-class, the other working-class), belonged to stable families, and were predominantly white. The sample was stratified by grade and sex, which facilitated comparisons among life stages and between genders. Over a two-year period, 18,022 self-reports revealed adolescents spent 75% of their waking hours engaged in one of the following: schoolwork, maintenance, socializing, media, and sport. Several investigators participated in this protocol and simultaneously conducted their own investigations into the teenagers' experiences using
Leone and Richards (1989) investigated how well school-related activities prepare adolescents for adulthood. They examined the amount of time teenagers spent doing schoolwork, teenagers' subjective experiences of doing schoolwork, and whether or not they had companionship while doing homework. Results indicated that the sample of students spent 21.5 hours a week engaged in schoolwork, with only six of those hours devoted to homework. Time spent doing homework correlated with bad moods, and classwork was associated with low levels of attention. However, time spent doing homework was associated with better academic achievement, particularly if the homework was done with parents. Overall, results suggested that schoolwork was not intrinsically motivating, leading investigators to conclude that adolescents don't learn to internalize work-related values from school-related tasks.

In a related investigation, Duckett, Raffaelli, and Richards (1989) explored adolescents' experience of basic daily tasks, including personal and household maintenance activities, and hypothesized about how these tasks might shape social development. Tasks were found to be subject to sex typing. For example, girls engaged in grooming more often than did boys, and boys did more outside chores than did girls. Investigators proposed that sex differences in adolescents' experiences of daily tasks might lead to gender intensification and eventually to sex-role stereotyping.

Raffaelli and Duckett (1989) proposed "talk" to be one of the most salient indicators of socialization and explored adolescents' patterns of communication with family and friends. They discovered that talking was indeed a major activity for
adolescents and that, overall, time spent talking increased with age. Time talking doubled for girls from fifth to ninth grade, with a similar, though smaller, increase in boys' time talking. Adolescents evidenced a significant increase in time spent talking with peers as age increased, while time spent talking with family remained constant across age. Investigators also found sex differences in the subjective experience of talk; in girls, as they became older, affect increased when talking with intimates (family and friends). As a result, researchers suggested that talk within close relationships has a heightened importance for girls over boys.

In an attempt to explore how leisure time activities influence socialization in adolescents, Larson, Kubey, and Colletti (1989) and Kirshnit, Ham, and Richards (1989) investigated two contrasting leisure time choices: media use and sports, respectively. Larson, Kubey, and Colletti (1989) found that adolescent media use was associated with relatively passive subjective states. Additionally, data indicated that a shift occurred across adolescence from TV watching with family to listening to music with friends. The decline in TV watching was attributed to less time spent with family, while the increase in music listening, especially in the company of peers, suggested a move toward independence from family. Kirshnit, Ham, and Richards (1989) found sports to be associated with positive affect, high motivation, and intense attention in adolescents. Investigators suggested that sports were highly constructive in terms of developing the ability to derive positive affect while doing hard work. Investigators also noticed a trend among teenagers: as they got older, they tended to drop out of sports, despite reports of high motivation and positive emotions while playing sports. On the basis of the data collected, Kirshnit, Ham, and Richards proposed that sports attrition with age increase
may be due to increasing self-judgments related to sporting ability, as well as a new age-specific need to allocate time in ways other than for immediate gratification.

Another segment of ESM analyses focused specifically on exploring the assumption that adolescence is a time of “storm and stress,” characterized by increasing emotional lability and affective instability (Green, 1990; Larson & Ham, 1993). Though early ESM data appeared to support this idea (Diener, Sandvik, & Larson, 1985; Larson, Csikszentmihalyi, & Graef, 1980), subsequent findings revealed a more complex picture. For example, Larson and Lampman-Petratis (1989) compared the emotional states of preadolescents to adolescents and did not find evidence of increased emotional variability with age. However, older participants did report more negative mood states than younger participants, indicating an overall shift toward more “bad moods” with age. Larson, Richards, Raffaelli, Ham and Jewell (1990) investigated daily states and time use patterns associated with depression in adolescents. ESM reports revealed that teenagers’ subjective experiences of depression were characterized by low interest, lack of energy, and more moodiness. Though both depressed and nondepressed youth reported doing the same types of daily activities, depressed teenagers—particularly males—tended to experience more social isolation than their nondepressed counterparts.

Larson and Asmussen (1991) explored adolescents’ negative emotional experiences and found that teenagers’ patterns of emotional stress shifted significantly across age. Specifically, in preadolescents the locus of emotional trauma appeared to be related to concrete immediate experiences. Older adolescents, however, experienced more emotional stress in relation to abstract issues (i.e., feelings of others, possible future events). Investigators suggested that these differences might reflect cognitive changes in
adolescents as described by developmental theorist Jean Piaget: “[It] resembles a Piagetian shift from a concrete, here-and-now world to a more abstract, hypothetical, and constructed reality” (p. 37).

Larson and Ham (1993) continued investigation into teenagers’ negative emotional experiences, this time specifically focusing on possible situational correlates. Older adolescents experienced more emotional distress than preadolescents and, not surprisingly, these high levels of distress were found to correlate with an increased number of negative/stressful life events.

Richards and Larson (1993) investigated daily emotional experience in relation to pubertal development. For both sexes, the emotional state of “being in love” was strongly associated with pubertal development. Boys exhibited strong associations between pubertal status and emotional states: more physically mature boys reported better moods, more focus, and feeling “strong.” Limited associations between emotional states and physical maturity were found in girls, however, leading investigators to hypothesize that puberty might interact with other life events and transitions to induce elevated emotional states.

ESM researchers have also examined adolescent experience in relation to family (Larson and Richards, 1994a). Larson and Richards (1994b) explored the hypothesis that adolescents’ emotions are closely interrelated with their parents’ emotions and found that, in fact, they are not. Fifty-five mother-father-adolescent triads simultaneously carried ESM pagers for one week and were sampled at the same time as they went about their normal everyday routines (sometimes together in the same location, sometimes not). Overall, adolescents evidenced greater mood variability and mood intensity than their
parents, though modest correlations were found between parent and adolescent momentary affective states.

Richards and Duckett (1994) explored the effect of maternal employment on young adolescent daily experience. Contrary to popular belief, investigators found that maternal employment did not disrupt the daily life experience of their children; in fact, young adolescents with working moms spent the same amount of time with family, in class, with friends, and alone as did young adolescents with stay-at-home moms. Furthermore, youth with working moms reported more positive mood states and higher self-esteem than did their counterparts. They also spent more time with their fathers, and the time they did spend with their moms was experienced as “friendly”—that is, they felt positively toward and enjoyed the time spent with their mothers.

Csikszentmihalyi and Csikszentmihalyi (1993) explored the relationship between the subjective experience of early family environment and the development of creativity in adulthood. They found that creative persons emerged from one of two early environments: difficult or exceptionally excellent. Conversely, good-enough environments appeared to lead to effective but not necessarily creative adults, whereas traumatic childhoods were found to inhibit success entirely. The data underlying these conclusions came from a five-year longitudinal ESM study that sampled the ongoing daily experiences of 200 “talented teenagers” (Csikszentmihalyi, Rathunde, & Whalen, 1993). In an attempt to uncover the elements of adolescent experience that influence the development of talent, creativity, and optimal functioning, the talented teenager data were compared to average teenager data collected in an earlier study (Larson & Csikszentmihalyi, 1984). Results revealed that talented teenagers often traded time spent
having fun, relaxing, and socializing for time spent practicing their talent. Because talented teenagers chose to postpone immediate fun in favor of nurturing their talents, their moods suffered more than the average teenager. However, despite the fact that mood suffered in talented teenagers in general, when actually engaged in their activity of talent, these same teenagers reported optimal experiences (including feeling open, cheerful, strong, excited, un-self-conscious, intrinsically-motivated, successful and skillful) and feeling like they were working toward long-range goals. In line with these findings, Rathunde and Csikszentmihalyi (1993) found modes of undivided interest (operationalized by above average spontaneous interest coupled with goal-directed interest) to be associated with talent development in adolescence.

More recent ESM studies on optimal development in adolescence have examined differences across cultures. Csikszentmihalyi and Asakawa (1998) explored possible reasons for greater academic achievement among Asian American adolescents as compared to Caucasian American adolescents. ESM samples from 33 Asian American adolescents were compared to samples from 33 Caucasian American adolescents in the sixth, eighth, tenth and twelfth grades. Findings indicated that, although the two groups did not differ in the amount of time spent studying, Asian American students reported more positive experiences, enjoyment, high motivational states, and perception of the importance of what they were doing as compared to their Caucasian American counterparts. In a related study (2000), the same investigators found that the physical presence of others, particularly family members, affected Asian American adolescents more strongly and more positively than Caucasian American adolescents, thus suggesting that internalization of cultural values via family may relate to academic excellence.
In a review of cross-cultural ESM studies on adolescent leisure, Verma and Larson (2003) noted that adolescents appear to engage in common leisure activities (active sports, music, media use, and computer games) but that varying cultural values and practices influence the experiences of these activities in distinct ways. For example, Korean, Japanese, and Indian adolescents spend many hours engaged in intense studying and schoolwork to fulfill a cultural imperative to excel in academics. As a result, their leisure time involves more passive activities, which are experienced as recuperation. In contrast, American adolescents' leisure time is driven by the cultural ideal of unstructured freedom, which promotes “finding oneself” over excelling in school. European adolescents report experiences of leisure time on both ends of the continuum; those involved in demanding academic curriculums experience leisure time as restorative while those under less pressure are inspired to engage in more challenging leisure activities.

In a study examining optimal experience in Italian adolescents, Bassi and Delle Fave (2004) looked at changes over time in adolescent experience. Specifically, they compared quality of experience as charted by the ESM in two groups of 60 adolescents, aged 15 to 18, at two times, 1986 and 2000, to ascertain whether optimal experience and related activities had changed with the times. Despite changes in the external environment and culture over two decades, results indicated that adolescent experience remained relatively stable over time.

Overall, ESM studies have provided a wealth of information on where, how, with whom, and in what mood states adolescents actually spend their time. These studies have provided more than just a glimpse into the actual everyday lives of teenagers, they have
provided a good long look. The most revolutionary characteristic of ESM is its ecological validity, or its ability to obtain data on peoples’ experiences as they are living those experiences. For example, Csikszentmihalyi and Larson (1984) found that adolescents are happiest when engaged in leisure activities with friends. These findings were not obtained by asking adolescents about happiness, leisure time, or friends in general; instead, this information was obtained by sampling actual moments of adolescent lives in a variety of situations including leisure activities, and asking about mood, activity, and companionship in those moments.

In addition to providing base-rate information on adolescent experience (i.e., mood), contexts (i.e., location), and the interaction between experience and contexts, ESM studies have also made valuable contributions to the theoretical discourse about adolescence and child development. For example, as we saw above, one common assumption made by developmental theorists had been that youngsters with working mothers suffered from negative moods and had poor relationships with their mothers. However, when Richards and Duckett (1994) used ESM to explore the daily experience of youth with working moms they found more positive mood states, more enjoyable time spent with moms, and higher self-esteem than in young adolescents with stay-at-home moms. Because these findings are ecologically valid, they take on a level of power that cannot be achieved by methods that tap retrospective memory or general narrative self-report.

*Ecological Momentary Assessment (EMA)*

A second time and event sampling approach that has been applied to studying aspects of adolescence is Ecological Momentary Assessment (EMA; Stone & Shiffman,
1994; Stone, Shiffman, & DeVries, 1999; Smyth & Stone, 2003). EMA differs from ESM in that it is not exclusively a *random* time sampling method; instead EMA sampling may occur at regular intervals or during specific events. EMA was developed in response to behavioral medicine’s need to assess medically related phenomenon in patients within the context of their natural environments. Like ESM, it is designed to capture “real” data by “maximizing ecological validity while avoiding retrospective recall” (Stone & Shiffman, 1994, p.199). EMA might be used to investigate patients’ blood pressure variability, cortisol levels, pain perceptions, or prophylactic compliance. Thus, an important aspect of EMA is “selecting a sampling scheme that will optimally capture the phenomenon to be studied” (Stone & Shiffman, 1994, p.200). There are three basic EMA sampling schemes that can be used depending on the goals of the research: (1) an event-contingent schedule, which requires patients to complete a brief-self report measure at the time the event of interest occurs, after jogging, for example; (2) a time-contingent schedule, which mandates participants to self-report at regular and/or designated time intervals, every hour for example; and (3) a signal-contingent schedule, which, like ESM, randomly cues patients to complete designated self-report measures.

EMA research on adolescents is nascent, and published studies investigating this population relate to biomedical, psychopathology, and public health issues (Axelson et al., 2003; Holden, Bearison, Rode, Kapiloff, & Rosenberg, 2000; Mermelstein, Hedeker, Flay, Shiffman, 2007; Simonich et al., 2004).

Holden, Bearison, Rode, Kapiloff, & Rosenberg (2000) used EMA to investigate perceptions of pain and feelings of anxiety in a sample of hospitalized youth. In order to ascertain whether access to a private computer network enabling communication among
hospitalized children ameliorated anxiety and perceived pain, investigators compared EMA self-reports from youth with access to the network to youth without access. Findings indicated that the group with access to the computer network experienced significantly less pain intensity, pain aversiveness, and anxiety.

In a pilot study to assess the feasibility of using EMA with youth, Axelson et al. (2003) collected EMA reports from 16 children and adolescents with affective disorders and five healthy youth to assess moods, thoughts, and behaviors over an 8-week period. Investigators concluded that EMA would be appropriate for use in complex studies of neurobehavioral systems and the pathophysiology of pediatric affective disorders.

In another pilot study, Simonich et al. (2004) used palm-top technology to investigate EMA use in the assessment of mood variation in female victims of sexual abuse. Using a sample of nine young women, investigators found palm-top EMA to be an effective means of collecting mood data from this population.

In the largest yet EMA protocol involving adolescents, Mermelstein, Hedeker, Flay, Shiffman, (2007) examined cigarette smoking among adolescents. Investigators collected EMA self-reports from 507 eighth and tenth grade students to determine contextual influences on smoking behavior. Investigators found that teenagers smoke most when watching TV or listening to music, using other drugs and/or alcohol, or at parties. They rarely smoke when alone or with family members, and most often smoke when with other smokers. Investigators concluded that EMA was successful at providing rich data on teenage smoking both within subjects and across subjects.

Thus the few EMA studies that have been conducted with adolescents provide ecologically valid data on specific topics of study.
Think Aloud Paradigms/Protocol Analysis

Since the 1970s, researchers have used a variety of “think-aloud” procedures to investigate internal thought processes and mood states. As the name suggests, think aloud paradigms ask subjects verbally to report their ongoing inner processes while performing various tasks, thus granting access to aspects of otherwise private inner experiences.

Ericsson and Simon (1980; 1984/1993) examined think aloud approaches through the lens of cognitive and information-processing theories. They developed the term “protocol analysis” to describe rigorously executed think-aloud approaches that yield accurate, valid, and non-reactive verbal reports of thought sequences (Crutcher, 1994). As defined by Ericsson and Simon, protocol analysis is the investigation of “actual concurrent sequences of thoughts [to] infer the underlying cognitive processes [of people]” (Ericsson & Simon, 1993, p. XV). An important characteristic of protocol analysis is its stringent focus on internal thought processes exactly as they occur for a subject; the sole focus of the method is the raw footage of internal cognitive happenings. As such, during data collection, there is no social/conversational dialogue between subject and investigator (as might occur in an interview format), nor any form of introspective analysis/interpretation.

A second core characteristic of protocol analysis is that it occurs in “real time.” Ericsson and Simon proposed that strictly performed concurrent verbalization provides direct access to cognitive processes while eliminating retrospective bias, historically the most serious criticism leveled at self-report methods (Nisbett & Wilson, 1977).

Most think aloud/protocol analysis studies involving adolescents derive from the fields of Education and Educational Psychology. Research in this arena specifically is concerned with understanding how students process information in order to improve
pedagogical strategies. For example, Moore and Scevak (1997) used protocol analysis to examine the various ways in which students process text and visual aids (i.e., tables and diagrams) while reading. Within a sample of 119 fifth through ninth graders, investigators found that students used several different methods of reading, and that older students used a greater range of reading strategies than did younger students. Results suggested that educators should be sensitive to different levels of strategy development among students, particularly across grades.

In an exploratory study on writing processes, 36 ninth graders wrote essays under think-aloud conditions to ascertain whether differences in cognitive activity while writing would be related to writing quality (Van Den Bergh & Rijlaarsdam, 2001). Results revealed a complex picture; cognitive activities varied across students as well as within students while writing, leading investigators to conclude that “the nature of the writing process is recursive and dynamic” (p.381). However, results also suggested that some patterns of cognitive activity appeared to be more effective than others. For example, students who engaged in thinking about what and how they would write before actually writing produced better essays than those who wrote without thinking first, a finding with clear implications for how to teach writing.

Mosborg (2002) investigated adolescents’ historical thinking using protocol analysis. Two groups of high school history students, one group (N=5) from a conservative Christian school and the other (N=5) from a liberal college prep school, were asked to think aloud while reading newspaper articles about current affairs. Think aloud data revealed that most students used similar frameworks while engaged in everyday historical thinking; more specifically, both groups of students drew upon a
combination of their prior political conviction/beliefs and what they knew about the relevant historical eras to interpret the newspaper articles. The groups differed, however, in their views about the articles based on their background narrative and school community milieu. As a result of these findings, Mosborg suggested that educators attend to the frameworks students use in everyday historical thinking, as these frameworks impact the way students see the world and engage in political discourse.

Vandergrift (2003) used a think aloud approach to explore listening strategies used by junior-high students skilled in French as a second language. Thirty-six students listened to three French spoken text recordings and, at predetermined points, were asked to verbalize what they were thinking. Data revealed that all subjects used an "extensive variety of listening strategies" (p.484), and that there were significant differences in strategy between more skilled and less skilled listeners. For example, more skilled listeners used comprehension monitoring, a sophisticated metacognitive strategy involving continual verification and correction of comprehension (top-down processing), while less skilled listeners engaged in more direct translation (bottom-up processing) while listening. In light of these findings, Vandergrift suggested that less skilled listeners incorporate monitoring of their comprehension as they listen so that they can begin to build more advanced skills.

In an attempt to inform history instruction, Wolfe and Goldman (2005) used a think aloud paradigm to investigate how adolescent students read and process multiple accounts of an event. Forty-four sixth grade students read two conflicting historical accounts of the fall of Rome and thought aloud after reading each sentence. Results indicated that the students in this study were able to make connections among
information across multiple historical texts, though there was significant variation in how students achieved these connections.

**Articulated Thoughts in Simulated Situations (ATSS)**

Articulated Thoughts in Simulated Situations (ATSS; Davison, Robbins, & Johnson, 1983) is a protocol analysis approach geared toward understanding peoples' cognitive processes as they occur specifically in response to social stimuli. ATSS is designed to stimulate and then access the resulting ongoing stream of thoughts and feelings triggered by exposure to a variety of simulated yet naturalistic situations. Subjects listen to audiotapes describing “stimulus scenarios” designed to elicit responses such as social anxiety or hostile thoughts. As they listen, they imagine actually being involved in the scenarios and pay particular attention to their cognitions and emotions during task. Immediately after hearing each situation, subjects have 30 seconds to verbalize what they were thinking and feeling during the simulated situation. Typically, multiple stimulus situations are presented during one sitting. Responses are recorded, and the content is coded and analyzed according to relevant research goals. Consistent with other protocol analysis procedures, ATSS is “as close to ‘on-line’ as possible” (Davison, Navarre, & Vogel, 1995, p.31), leaving little room for subjects to make retrospective errors.

There is only one published ATSS study on adolescents (DiLiberto, Katz, Beauchamp, & Howells, 2002). In this investigation, researchers examined the cognitive activity of aggressive and nonaggressive male (N=41) and female (N=40) high school students (mean age=16.22). Subjects listened to an audio recording of an ambiguous encounter with an unknown peer that bumps into them in a hallway at school. While
listening, the adolescent subjects were asked to respond aloud as if they were actually in the situation. Responses were recorded verbatim, and subsequently coded for analysis. Results indicated that males expressed more aggressive intent than did females, although there were no gender differences in anger expression or hostile attributions.

The central methodological aim of think aloud/protocol analysis paradigms is to access cognitive processing as it occurs, to uncover the fine details of mental processes. For example, the goal of the Moore and Scevak (1997) study was to examine variations in cognitive processes while reading in a sample of adolescents. The target of interest was the process of reading. Thus think aloud/protocol analysis aspires to a level of detailed examination that surpasses other methods that seek to understand experience. For example, ESM might randomly sample a subject and ask via palm device, Are you reading right now? The subject either answers Yes or No. From this we might learn how often a subject reads or even how he feels when he reads (if we ask), but we will not learn the phenomenological details of his reading process. ESM level questions are too gross to be able to derive that kind of detail about experience.

Additionally, protocol analysis is ecologically valid to a certain degree. Although typically the setting is experimental, subjects actually engage in the activity under study at the time of study. For example, in the Moore and Scevak (1997) protocol, subjects were actually reading during the protocol—subjects were not asked to report on their experience of reading sometime after reading. By adhering to the in-the-moment study of reading processes, investigators were able to uncover differences in reading processes.
Phenomenological Approaches

The phenomenological-psychology approach to investigating inner experience is the third and final methodological category reviewed here. Phenomenological psychology grew out of the phenomenological philosophy of Edmund Husserl, who was interested in examining “the most essential structures of consciousness—that is, phenomena—such as intentionality, temporality, spatiality, corporeality, perception, cognition, and intersubjectivity…” (von Eckartsberg, 1998, p. 5). In order to explore these phenomena and their structures systematically, Husserl advanced a two-part process of explicating experience and then deriving the essential characteristics of experience. The first part of the process involved the application of the phenomenological reduction, a method of reflection characterized by the bracketing of presuppositions. The second part of the process involved application of the eidetic reduction, or using free imaginative variation in order to discover the core characteristics of the phenomenon under investigation. These two parts of Husserl’s process are described below.

First, to assume the phenomenological attitude, or to bracket presuppositions, means to let go of/put out of play/hold in abeyance any prior held beliefs, notions, attitudes, judgments, interpretations, and associations about a given phenomenon while it is under investigation (Giorgi, 1987). By doing so, the phenomenon under investigation can be more fully and clearly apprehended exactly as it manifests. The goal in assuming the phenomenological attitude is not to forget everything one ever knew or learned, but rather to observe the phenomenon under investigation with fresh eyes and openness to seeing what is actually there. Husserl posited that when a phenomenon is observed in
such a manner, the essence of the phenomenon, which may have been previously occluded, is now available for apprehension.

Phenomenological psychologists aspire to bracket presuppositions primarily in the investigation of psychological processes. Thus, when studying how people learn, Giorgi (1987) bracketed his presuppositions about the process of learning so that he could objectively observe his subject’s experiences of learning; that is, he suspended the trying to interpret what they were saying along the lines of his own experience or his own “knowledge” about how learning occurs.

However, bracketing presuppositions can be applied to clinical psychotherapy as well. For example, a therapist may begin a session with a presupposition in play that her client needs to continue processing an unfinished topic from the prior session. Because the therapist makes such an assumption, that is, because she is operating based on an activated presupposition, she will direct the session in a way that angles discussion toward the old topic. By doing so, she is likely to overlook the fact that the client on this day needs to discuss a completely different topic. In this case, the therapist’s presupposition is driving her ability to apprehend reality in the moment. Had the therapist bracketed her presupposition about the session topic, she may have been much better attuned to the actual and objective needs of her client in session.

The bracketing of presuppositions is never a perfect process. It would be impossible to bracket all presuppositions about a particular phenomenon or topic or person, and it would be equally impossible to quantify an investigator’s ability to bracket presuppositions. Nonetheless, it is a core methodological feature of phenomenological-psychology investigations conducted today (Giorgi 1987; Kvale 1991).
The second part of Husserl's phenomenological two-part process is known as the eidetic reduction, which is an attempt to arrive at the pure essence, to distill the fundamental/objective/universal/essential characteristics from the superfluous or non-essential aspects of the phenomenon. To apply the eidetic reduction, Husserl proposed the technique of free imaginative variation (von Eckartsberg 1998). A common example used to explain how free imaginative variation works asks one to consider an apple (von Eckartsberg 1998). Apples exist in many colors, most commonly, red, green, and yellow. If we use free imaginative variation to think of an apple in a completely different color, say purple, it still retains the fundamental and essential qualities of an apple in our understanding. Thus color can be ruled out as being a fundamentally essential aspect of an apple—we have effectively used free imaginative variation to get one step closer to understanding the most essential, basic, and universal understanding of an apple possible. Next we might consider shape; in our world, some apples are large and some apples are small, some are perfectly round and others are somewhat deformed. However, if we apply free imaginative variation to the shape of an apple and imagine an apple as a long thin wafer, we run into a problem: an apple loses its essential identity as an apple if we vary the shape dramatically. Thus shape is somewhat of a fundamentally essential characteristic of apple. Husserl believed that by applying free imaginative variation systematically to objects and phenomena, one could come to the purest, most reduced essential understanding of the object or phenomenon under investigation.

Phenomenological psychologists rely less heavily on using free imaginative variation to achieve eidetic reduction than do phenomenological philosophers. However, the underlying principle that phenomena can reveal indivisible and essential
characteristics is a cornerstone of phenomenological-psychology investigations. As we will see below, Alapak (1991) conducted a phenomenological investigation of adolescent first love, the central aim of which was to discover the most fundamental and essential aspects of that experience.

In addition to the bracketing of presuppositions and the goal of eidetic reduction, there is a third characteristic of phenomenological investigation, which Husserl referred to as taking the life world perspective. Phenomenologists define life-world as the taken-for-granted backdrop/context/underlying ground of reality/universe within which humans live and experience but are not necessarily aware of and thus take for granted (Ashworth, 2003; von Eckartsberg, 1998). In the language of modern psychology, life-world perspective could be understood as a form of ecological validity, in some ways parallel to the Experience Sampling Method’s tenet that experience is inseparable from environment.

An important characteristic of phenomenological approaches is that they explicitly take into account the existence of this life-world context and the fact of human embeddedness within it. By seeking a life-world perspective, phenomenological investigations are most often of lived experiences, that is, experiences that subjects are actually engaged in. For example, Petitmengin (2006) wanted to explore a subject’s inner experience of thinking of an elephant. To do this, Petitmengin instructed her subject to, “think of an elephant.” She then asked detailed questions of her subject about her ongoing experience of thinking of an elephant. Petitmengin asked her subject to “think of an elephant” numerous times during the interview so as to refresh her subject’s lived experience of thinking of an elephant in the moment. In line with the phenomenological
tradition, Petitmengin’s strategy was aimed at exploring her subject’s lived experience of
thinking of an elephant—her subject’s actual experience in the moment—which is very
different from asking her subject to retrospect or provide a general speculation about her
thinking-about-an-elephant process.

The ultimate goal of phenomenological investigation, then, is to understand the
essences of phenomena of experience as they interact with/speak to/reveal the taken-for-
granted context of the life-world itself, because the core assumption is that the
phenomena and life-world are inseparable. Therefore the grand aim of phenomenological
investigations is not simply to explicate individual phenomena, but also to arrive at an
essential understanding of the life-world itself.

There has been some application of the phenomenological-psychology approach
Cross & Stewart 1995). In an early phenomenological-psychology investigation into
adolescent experience, Alapack (1984) examined adolescent first love and derived the
following essential characteristics of the first love relationship: absoluteness, uniqueness,
perfection, togetherness, idealism, innocence, communication, emotional connection,
reciprocal involvement, orientation to a future, and consistency with one’s roots.

More recently, Alapack (1991) phenomenologically explored the adolescent first
kiss to reveal a rich and detailed set of experiences explicating the anticipation of the first
kiss, moments leading up to the first kiss, the kiss itself, the moment of disengagement,
and the aftermath of the first kiss. Alapack was surprised to find that his subjects’
experiences of their first kisses often did not include an experiential component of the
actual kiss itself. Instead, “other themes” appeared to eclipse the experience of the kiss.
itself, including: preoccupation with the performing self (worries of ‘bad’ breath), prominence of bodily sensations (parched lips, butterflies, rubbery knees), and hyperawareness of context (“It was as though the physical space between us was alive” (p.56).

The phenomenological method has been applied to the investigation of the life-world of gifted students. Cross and Stewart (1995) conducted phenomenological interviews with 24 gifted adolescents in rural high schools to understand the experience of being a gifted student in a rural setting. Interviews lasting 40 to 90 minutes were conducted, recorded, and transcribed, and the resultant data were analyzed for significant statements, thematic units, and major themes. Results indicated that major themes characterizing rural school experience for gifted students clustered around community/family, personal development, and time. These themes involved complex, varied, and detailed aspects of subjects’ experiences; for example, gifted students in rural settings described the complexities of being “visible” to peers, teachers, and families.

Although the phenomenological-psychology approach has not been exhaustively applied to the study of adolescents, it contributes to the present study in two main ways. First, these investigations provide evidence that adolescents can participate in detailed investigations of their own lived experience. Second, the phenomenological approach to investigating psychological phenomena via bracketing presuppositions, seeking to understand the essential characteristics of phenomena, and exploring lived experiences, yields data that are rich, detailed, and idiographic. Phenomenological-psychology investigations are deeply human-centered and seek to reveal that which is most personal: lived inner experience.
Comparing DES to Other Methods

We have reviewed the methods and contributions of four ways of exploring the actual lives and experiences of adolescence—DES, experience sampling methods, think aloud paradigms, and phenomenological approaches—unique ways of exploring human experience. The present study uses DES, so we now briefly review the fundamental characteristics of experience sampling methods, think aloud paradigms, and phenomenological approaches, and show how DES may be able to provide access to aspects of adolescent experience that have remained hidden.

Experience sampling methods (i.e., ESM and EMA) use beepers to sample subject’s experiences, either randomly or at set times, as they go about their daily lives in their natural environments. When sampled, subjects fill out questionnaires which ask about location, activity, mood, or other broad factors. By doing so, experience sampling methods provide broad characterizations of how, where, and with whom people spend their time, as well as on how they feel and what they think while in those situations. These methods avoid the pitfalls of retrospection by examining experience in the moment.

Think aloud/protocol analysis paradigms seek to understand the details of internal cognitive and emotional processes as they occur. These paradigms apply strict investigatory rules (for example, not allowing subjects to discuss anything other than their ongoing experience of the process under investigation) so that the fine details of internal processes can be accessed and understood. Like experience sampling methods, think aloud paradigms do not engage in retrospection; all investigation is conducted on subjects’ processes as they occur in the moment. Furthermore, subjects’ reports are
recorded verbatim so that details are not missed. Unlike the broad characterizations of the
experience sampling method, think aloud characterizations are detailed.

Phenomenological approaches to investigating experience use qualitative
interviews to derive characterizations of lived experiences. Investigators attempt to
bracket presuppositions and seek to understand the essential characteristics of
psychological phenomena. Furthermore, characterizations derived from
phenomenological studies are detailed. However, since the goal of phenomenological
investigation is to understand essential aspects of phenomena, the characterizations
represent the details found to be common across subjects.

DES shares with these three approaches the overarching goal of accurately
accessing experience, but DES specifically is designed to access, explore, and describe
inner experience. In order to do so, DES incorporates the core traits of each of these
methodologies but also differs from these methods in important ways, which are
described below.

DES is a proponent of ecological validity, or understanding people within their
natural contexts. Like experience sampling methods, DES uses a beeper to sample
subjects in their natural environments. However, unlike some experience sampling
methods (EMA, for instance) DES always adheres to random sampling to avoid biases.
Additionally, because DES is interested in exploring the detailed characteristics of inner
experience, it does not use standardized questionnaires with subjects, as do experience
sampling methods. Instead, DES derives its data through an expositional interview in
which subjects explicate the characteristics of their inner experience at given moments.
Thus experience sampling data differ drastically from DES data; experience sampling
protocols are questionnaire based, and thus not much different than the typical general and often inaccurate self-report data (i.e., “Right now, I’m feeling,” A. Sad, B. Happy, C. Angry, D. Frightened).

DES is similar to think aloud methods in its interest in the details of people’s actual inner experience. DES shares with think aloud methods the use of verbal narrative as the primary source of data from subjects, and DES adheres to strict rules in its interviewing procedure to ensure high fidelity and accurate information from subjects. However, DES differs from think aloud paradigms in that DES samples single moments, whereas think aloud paradigms explore whole/entire events (i.e., what it’s like to multiply 24*36). Second, DES uses random sampling in subjects’ natural environment, whereas think aloud paradigms occur in the laboratory under controlled experimental conditions. And third, DES explores inner experience, which includes thoughts, feelings, sensations or any other inner experience a subject is aware of, whereas think aloud paradigms concentrate on cognitive and some emotional processes.

DES is significantly influenced by phenomenological thinking and practice; in fact, the method can be characterized as a phenomenological approach. Both DES and phenomenological investigations use in-depth qualitative interviews to access the characteristics of subjects’ experiences exactly as those experiences occur. DES also takes to heart the practice of bracketing presuppositions while investigating phenomena. However, DES differs from phenomenological approaches in three ways. First, DES explores randomly sampled experiences whereas phenomenological approaches explore a theme or a topic (learning, apples, or thinking about elephants, for example). Second, DES defines the exploration temporally (i.e., moment of the beep) whereas
phenomenological investigations do not. Third, DES limits its exploration to the phenomenon only, whereas phenomenological approaches try to derive the “essence” of a phenomenon. DES aims to explore the actual phenomena of inner experience at random moments, whereas phenomenological psychology aims to derive the essential factors comprising a general phenomenon based on common experiences across people.

As mentioned in the introduction, only one DES study has been devoted to the study of adolescent inner experience (Monson, 1989). Monson used DES to sample the inner experience of five adolescents between the ages of 12 and 14. Her sample varied widely with respect to learning ability: her four female subjects included a gifted student, a below-average student, a slow learner, and an above average student, and her one male subject was a learning disabled student.

With respect to differences in learning abilities among her subjects, Monson found that her gifted student subject revealed greater differentiation in her inner experience, and was able to report her inner experience with greater clarity than her slow-learner subject. In her analysis of this found difference, Monson (1989) stated:

Questions that cannot be answered, but that one must wonder about as more young people are studied are: Is intelligence related to the more differentiated perception of sensory processes? Is high intelligence related to the actual production of more differentiated processes? That is, does Wendy [the gifted student] actually have more going on in her inner experience and is accurately reporting it whereas Anita [slow learning student] has less going on and is accurately reporting that? Or perhaps the difference between the two subjects lies in the ability to describe inner experience, a language ability that may not
necessarily be related to intelligence at all. As was noted above, this question cannot be answered because we are contrasting only individuals, not large groups of subjects. (p.199)

Overall, Monson found that her sample of adolescents experienced the same characteristics of inner experience as those reported by adults during DES, namely inner speech, inner seeing, sensory awareness, unsymbolized thinking, and feelings. However, Monson did observe a peculiarity regarding visual imagery in her adolescent subjects as compared to prior reports of imagery from adult DES subjects. Specifically, Monson’s subjects often reported being in a process of imaging or forming images at the moment of the beep, rather than simply experiencing fully formed images, as was commonly the case with adults. As a result, Monson suggested that “the forming and fading of images may be a developmental process” (p.204) and advocated further research on this topic.

Though other methods of exploring experience have yielded valuable data on aspects of adolescent experience, they have not specifically explored the characteristics of adolescents’ inner experience. Thus the present study aims to use DES to investigate adolescent inner experience in a second attempt at basic science research into this population.
CHAPTER 3

METHOD

Subjects

Six adolescents between the ages of 11 and 14 years old participated in the present study. Three subjects were female, aged 11, 12 and 13, and three subjects were male, aged 12, 13, and 14. Four subjects were Caucasian, one female subject was half Caucasian and half African American, and one female subject was Latina. All six subjects were recruited via word-of-mouth; four subjects hailed from one of the investigator’s neighborhoods, one subject was a colleague’s niece, and one subject was another colleague’s younger brother. Subjects were recruited and participated in the present study one at a time, beginning in late 2006 and ending in early 2007. Five subjects participated during the spring semester of their school year, and one subject participated during her summer break. As all subjects were minors, parents or legal guardians were fully informed about the study and cosigned the informed consent paperwork.

Overview

Each subject met with two DES investigators, the author of this study and her advisor, approximately six times in a setting convenient to the subject. The purpose of the first meeting was to explain the DES procedure to the subject and her parents/guardians,
to complete informed consent/assent paperwork, and to answer questions pertaining to
the study. The second, third, fourth, fifth, and sixth meetings were one hour expositional
interviews in which the DES investigators interviewed the subject about her samples.
Five subjects elected to come to the DES lab located on the UNLV campus, and one
subject agreed to have DES investigators travel to her home for meetings. All subjects
consented to having expositional interview meetings video recorded. Five subjects
completed sampling within one month and one subject completed sampling over a period
of two months.

Meeting 1: Orientation

During the first meeting, investigators introduced the DES procedure to the
subject and her parents/guardians, and then explained the operation of the DES beeper
and trained the subject in its proper use. The subject’s main task was to collect random
samples of her inner experience and then to discuss those samples with the investigators.
To aid in the collection of samples, the subject would wear a random beeper while going
about regular daily activities in her natural environments. The beeper was a shirt-pocket
sized apparatus with an on/off/volume dial, a reset button, and an earphone jack. A
beeper was issued to the subject with an earphone that attached to the beeper with a wire,
similar to the way a headset plugs into a cell phone. The subject would wear the beeper
and collect her samples within 24 hours of the upcoming expositional interview to have
“fresh beeps” for that interview. When the beeper sounded, the subject was to jot down in
a small spiral-bound notebook (provided by investigators) whatever she was aware of at
that moment. That awareness might be some form of thinking, feeling, or sensing, or
anything else the subject was consciously aware of within or around herself at the moment of the beep. The subject’s sampling notes could be of anything in any format that would aid the subject in discussing her samples of inner experience during the expositional interview. These notes were purely for the subject’s use and knowledge and therefore were regarded as the subject’s private property; investigators would not collect the notes at any point in the study.

Additionally, the investigators explained exactly what was meant by “the moment of the beep.” The subject’s task would be to capture her inner experience as it was occurring the microsecond before the beep interrupted her. This was an important concept to convey, as the purpose of the study was to explore the subject’s naturally unfolding inner experience, not the subject’s inner experience in reaction to the beep. Therefore the beep was best viewed as a cueing tool to help the subject collect random samples of her inner experience, not as a manipulator of her inner experience. The subject was informed that that explanation should be regarded as only the first, rough approximation to the moment-of-the-beep concept, as prior experience has shown that subjects require iterative practice in the application of this concept.

Each sampling day, the subject was to collect five samples, which would require wearing the beeper for about three hours. Within 24 hours of collecting samples, the subject would meet for one hour with DES investigators to discuss those samples. This process of collecting samples and meeting to discuss them would happen five times, on five different days. Altogether, across five occasions, the subject and investigators would explore approximately 25 sampled inner experiences together (see Hurlburt & Heavey, 2006, for details of this procedure).
Finally, informed parental consent and youth assent paperwork was completed, a beeper was issued to the subject, and investigators answered any remaining questions about the DES procedure. A time and date for the first expositional interview was set and the orientation meeting was adjourned.

Meetings 2-6: Expositional Interviews

Meetings two through six were one hour “expositional interviews” in which the subject and the two investigators discussed the subject’s recently collected samples of inner experience. These expositional interviews, at heart, were conversations in the service of discovering the phenomenology of the subject’s inner experience during her sampled moments. The expositional interviews have no set format, but the general procedure was this: The subject consulted her notes and talked about the beeped experience. That talk was typically an unstructured combination of (a) reports about background and/or context of the experience, (b) reports about the situation (where she was, who was there, etc.), (c) reports about the activity (what she was doing, etc.), (d) reports about the experience that occurred before the beep, (e) reports about the experience that occurred after the moment of the beep, and (f) reports about the experience that was ongoing at the moment of the beep. Furthermore, all these reports were a combination of faithful accounts and distorted/misleading/overlooking/incomplete accounts. The task of the investigator was to help the subject zero in on the faithful accounting of (f) and to filter away all the other talk. That was a gradual process that we have called iterative, taking place over several expositional interviews, so that as the
sequence of sampling/interviewing progresses, the talk became more and more purely faithful (f).

*Expositional Interview 1 (Meeting 2)*

The first expositional interview was expected to be a challenging meeting for the subject and the investigators, and the subject was informed to anticipate difficulties. There are typically three kinds of challenges.

The first kind of challenge is about what counts as inner experience. Subjects typically are not skillful at identifying their own inner experience, and they don’t have a good understanding of what might count within the investigators’ definition of inner experience, and therefore need continuing, ongoing practice and support.

The first interview therefore involved asking the subject to report about something that she is not very skilled at doing: capturing/noticing/apprehending her inner experience. The investigators asked for a level of detail that most subjects found initially surprising. The investigators understood that, and expected to hear remarks such as, “I didn’t know you were going to ask me about *that,*” *that* being the phenomenological details of their inner experience. The investigators’ task was to be supportive of the subject’s (mostly failed) attempts during the struggle to identify her inner experience and at the same time repeatedly to continue to redirect the subject toward their inner experience. The subject was reassured that most subjects find the first day difficult in this way; that some subjects (but not all) find that things become easier on subsequent sampling and interview days as their skills improve.

The subject was assured that this method of training is somewhat “trial-by-fire” in the sense that the investigators had declined, at the outset, to tell the subjects what they
were to look for, but now the subjects are being asked to describe that in detail. Subjects were told that that might not seem fair, but that that is the only way to allow subjects to encounter their own inner experience for themselves, as they immediately apprehend it. Otherwise, the investigators might have influenced the subject to look for aspects of experience that the subject herself does not experience. That is, the investigators explained to the subject, in nontechnical terms, that the bracketing of presuppositions requires that the investigation begins slowing, haltingly, frustratingly, tentatively; and that while that might be somewhat unpleasant, it is typically transient as both subject and investigators become more skilled at the discourse about the subject's experience.

The second challenge typical of the first expositional interview has to do with language. Together, the subject and the investigators have to begin the struggle to establish a community language that is both attuned to and expressive of the subject's inner experience, and that both subject and investigator really understand. Therefore, each subject was encouraged to struggle to find the right words; the investigators struggled to ensure that they did not take for granted that they understood what the subject was saying by questioning and clarifying all the details of the subject's language. That consistent attention to detail helped the subject clarify this language, which eventually became incorporated into the lexicon of the trialectic.

Finally, the third challenge during the first expositional interview is staying faithful to the phenomena of inner experience. The investigators modeled the bracketing of presuppositions (that is, they expressed interest solely in the phenomena and no interest in narrative or interpretations) while the subject dealt with the discomfort of having many things she said about her samples be bracketed out because they were not
descriptions of the phenomena themselves. Thus the investigators consistently worked to maintain a focus on the subject’s inner experience without indulging the subject’s tendencies to speak in generalities, to make deductions about what her experience “must have been like,” or to make causational inferences (“because of X”).

Thus, during the first expositional interview, the investigators trained the subject to encounter her inner experience by asking detailed questions about the subject’s inner experience, even when the subject could not answer those questions. The investigators resisted any urges to “rescue” the subject from her discomfort, thus allowing the subject to learn to apprehend her own inner experience. By struggling through the first expositional interview, the subject achieved an experientially based understanding of how to apprehend her own inner experience, how to talk about that experience, and how to stay faithful to that experience. Those are skills that need to be practiced, but the first steps have been taken.

*Expositional Interviews 2-5 (Meetings 3-6)*

By the second expositional interview the subject was typically markedly improved at identifying and discussing her inner experience at a finer level of detail and with greater certainty than during the first expositional interview. The investigators continued, as in the first expositional interview, to work to redirect the subject to her experience at the moment of the beep, but the amount of that effort generally lessened as the subject acquired the capacity to redirect herself. Also, building on the seeds planted during the first expositional interview, a language specific to the subject’s inner experience began to grow organically over the course of the interviews. This language was emergent along with the subject’s inner experience, and that language was
continually mirrored and refined in the interviews. As a general rule, we adopted the vocabulary, terminology, and manner that was natural to the subject, although often that became refined as discussion of fine points evolved.

Thus the second through fifth expositional interviews were much smoother than the first expositional interview. At this stage of the process, the challenges shifted from establishing ground rules and implementing new skills to exploring the fine-grained details, nuances, and exactly-as-it-was-for-her of the subject’s sampled inner experience. The main continuing challenge during expositional interviews two through five was bracketing presuppositions and staying faithful to the phenomena under investigation. Both the subject and the investigators worked arduously to bracket presuppositions during this phase. The temptations to interpret, to import, to assume, are subtle, and the tendency to “think you know what’s going on” is insidious, particularly after you “get to know” a subject and develop a relationship with her. The presence of two investigators, both of whom were quite different people with different interests, and so on, but with a common aim of faithful apprehension/description, aided the bracketing, as did the review of video between interviews.

Debriefing

After the final expositional interview, each subject was given a chance to ask any questions she had about the present study or DES. Most subjects reported that they had found the experience interesting. After debriefing, subjects were presented with a $30 gift card.
Data

The aim here was to collect randomly sampled, raw experiences and then see what those sampled experiences had to tell us about the characteristics of adolescent inner experience. (See Appendix A for “raw data" of all samples across subjects).

Collecting the Data

The primary unit of data collected in this study is what we refer to as “a sample of inner experience.” To review, each time a subject in our study was randomly “beeped,” she jotted down notes in a notebook about her inner experience at that moment. During the expositional interview, investigators asked the subject detailed questions about her inner experience at each moment, one at a time, in chronological order. In this section we describe how we handled this data.

During expositional interviews, both investigators took careful notes about the specific characteristics, details, idiosyncrasies, and nuances of the subject’s lived inner experience at each sample. After the interview, the subject’s inner experience at each sample was then described in written narrative form incorporating the particular language that had emerged during the expositional interviews to describe the subject’s inner experience (for example, one subject described thoughts as “passing through” his head; that language was used in the written descriptions, as it perfectly expressed his experience of the phenomenon). The object of these descriptions was to capture as faithfully as possible and with as high fidelity as possible the inner experience that was ongoing at each beep. The interview video recordings were consulted about details of the discussion in the preparation of these written descriptions; these written narratives were written typically with a few days of each interview and before the next interview took
place. At the time these descriptions were written, the investigators had no way of knowing what, if any, details of the experience would be deemed important in the subsequent extraction of salient characteristics; therefore, the descriptions sought to capture as faithfully as possible everything that might later be deemed salient.

**Apprehension of Salient Characteristics—Idiographic**

After a subject completed the sampling process and each sample of inner experience had been explored and understood to the best of the subject’s and the investigators abilities, the investigators considered all of the subject’s samples of inner experience together as a whole to see what salient patterns, forms, and phenomena emerged across samples. Again, the central data were the experiences themselves, only now viewed collectively.

We implemented the following core characteristics of DES in an attempt to cleave our idiographic analysis faithfully to subjects’ inner experiences:

1. We explored one subject’s samples of inner experience at a time, independent of any other subject’s inner experience, past, present, or future.

2. We assumed the phenomenological attitude and bracketed all presuppositions about the subject in particular and inner experience in general, regardless of whether those presuppositions came from personal characteristics of the subject (her neighborhood, friends, manner of dress, parentage, etc.), personal characteristics of the investigators, characteristics of adolescents that are “commonly understood” (raging hormones, etc.), characteristics reported in the literature, or presuppositions that came from any other source. Additionally, the randomness of the samples of inner experience
under investigation aided in the bracketing of presuppositions in that neither the subject nor the investigators had any control/choice/influence over which moments of inner experience to investigate. The data examined in this study were simply random moments of inner experience, chosen by the beeper without regard for the presuppositions of either the subject of the investigators.

(3) Both independently and together, the two investigators immersed themselves in all of the particular subject’s samples of experience. That immersion was aided by the written descriptions of the subject’s individual samples of inner experience (which were written to be as faithful as possible to the original experiences), but was explicitly not about the written descriptions. The written descriptions aimed us back at the original experiences, helped us to recall the original experiences, but the original experiences themselves were understood to be the proper basic data of the investigation. For example, if immersion in all samples raised a question about sample #12, something that was not immediately apparent in the written description of #12, then we returned to the video recording of sample #12 to clarify.

(4) During this immersion, investigators embarked on a delicate yet fundamentally critical aspect of the idiographic undertaking: the apprehension of salient characteristics. We characterize this part of the method as delicate because it required a seemingly paradoxical combination of fierce bracketing of presuppositions and refined perception. That is, we tried to glimpse the subject’s experiences from the inside, beneath the veils of self-presentation, self-management, self-deception, and self-control, undistorted by our own predispositions, self-protectionism, greed, desire. We tried to wrap our arms around all of the subject’s sampled inner experiences and lightly hold
them all at once, to see the forms and patterns unique to the subject's private experience. We tried to grasp those forms and patterns of manifestation as they idiosyncratically characterize of the subject’s experience—that’s what we call the idiographic view.

Thus, the apprehension of salient characteristics involved, (a) immersion in all of the subject’s samples of inner experience, (b) fiercely bracketing all presuppositions about what we might or should see, (c) applying our very best observational and pattern recognition skills to the collection of phenomena, which lead to (d) the apprehension of characteristics, patterns, trends, and idiosyncrasies in the subject’s inner experience. Some of the apprehended salient characteristics were familiar to us, for example, the phenomena of inner speech or sensory awareness, which are frequently found phenomena of inner experience. It should be noted, however, that we were not explicitly looking for frequently found phenomena, as that would be conducting our analysis based on the presupposition that we should find those phenomena. Instead, our attitude was, if those particular phenomena arose, we should recognize them for what they are. On the other hand, many of the apprehended salient characteristics that emerged across the subject’s samples of inner experience were frequent at all. Our job simply and straightforwardly was to apprehend those phenomena.

There was no formula for this task, but at the same time it was not unconstrained. It was rather like Lewis and Clark’s investigating uncharted territory: certain features stood out (mountains, rivers, native peoples, wildlife) and got chronicled. Had Smith and Jones investigated the same territory at the same time as Lewis and Clark, they would doubtless have reported many of the same features, but not all: Smith and Jones’ sensitivities are different from Lewis and Clark’s, and therefore would be interested in
somewhat different things. However, both teams would have chronicled the main features of the rivers, the mountains, and the natives. The same logic applies to our apprehension of salient characteristics. We attempted to be open to any kind of characteristic, and to apprehend and then write about those that emerged as salient. Furthermore, we worked hard at ensuring that those saliences were indeed characteristic of the subjects' experience and were not exported from our own predilections—that is, we worked hard at bracketing our own and our subjects' presuppositions.

In a sense, all of the pains taken to implement the DES method lead us to this act of apprehending what is there to be seen about a person’s experience. We took great pains to train the subject to use the beeper to “capture” random samples of her inner experience. Next, we worked with our subject to develop the language needed to be able to describe and discuss her inner experience with fidelity (and accuracy). We worked hard in the expositional interviews to understand/apprehend/glean every possible detail about the subject’s actual lived inner experience during those sampled moments, and then we worked hard to write faithful descriptions of those inner experience samples. Finally, we worked to behold all of the subject’s samples of inner experience at once, and, because of our hard work and discipline throughout the process, we are able to glimpse the forms and patterns of the subject’s inner experience. This glimpse is what we call the apprehension of salient characteristics and it allows us a deeper view of how the subject actually experiences.

(5) As part of this immersion, the experiences were also coded, where appropriate, according to the DES codebook developed by Hurlburt and Heavey (1999). Like the written descriptions themselves, these codings were meant to aim us at the
original experiences, and were not meant to be the end result of the study. However, the codings were useful tools in that they helped to us see broad patterns and trends across samples.

(6) Once these salient characteristics were identified within a subject, we wrote an idiographic description of that subject’s experiences. This description was passed back and forth between investigators, each of whom edited, until a satisfactory description was obtained. On occasion, this writing process would bump us back to earlier steps to rethink the salient characteristic(s) and our descriptions of these characteristics (requiring us to return to all 25 samples and ensure that the new revision still fit); furthermore, on occasion it required returning to the original video recordings to ensure that the salient characteristic descriptions faithfully represented the original experiences, as best as we could tell.

Apprehension of Salient Characteristics—Across Subjects

Finally, after all subjects had completed sampling, all samples of inner experience across all subjects were examined collectively for across-subject analysis. This procedure had approximately the same aspirations as were described above, but the aim here was to apprehend the salient characteristics and patterns that emerged across all subjects’ samples.
CHAPTER 4

ROADMAP TO RESULTS

This chapter explains how the results of this study are organized and presented throughout the remainder of this thesis. As described in detail in Methods (Chapter 3), DES considers its data on two levels: (1) idiomorphically, or per individual subject, and (2) collectively, or across all subjects. Mirroring these two levels of analysis, Chapters 5 through 10 are idiographic descriptions of each individual subject’s inner experience as discovered by DES, and Chapter 11 describes the patterns and salient characteristics of inner experience discovered across all six subjects. We outline the structure of these chapters here.

Idiographic Chapters

The aim of idiographic analysis is to come to understand as thoroughly as possible the characteristics of one particular subject’s inner experience. DES performs an idiographic analysis by considering all of an individual subject’s samples of inner experience and then describing the salient characteristics and patterns that emerge across those samples.

Six adolescent subjects participated in the present study and therefore the investigators conducted six separate idiographic analyses, which are presented in Chapters 5 through 10. Each chapter is devoted to idiographic analysis of a single
subject: Chapter 5 features FM, a 12 year-old Caucasian male; Chapter 6 features RD, a 13 year-old Caucasian male; Chapter 7 features BC, a 12 year-old Caucasian female; Chapter 8 features AV, an 11 year-old Latina female; Chapter 9 features JT, a 14 year-old Caucasian male; and Chapter 10 features JW, a 13 year-old Caucasian and African American female. The chapters are presented chronologically; that is, FM (Chapter 5) was the first subject to participate in this study, RD (Chapter 6) was the second, and so on.

Each idiographic chapter begins with a summary of the subject’s discovered salient characteristics and then opens up into a detailed exposition of those salient characteristics and other idiosyncratic aspects of inner experience discovered within the subject’s samples. The chapters are divided into sections based on the particular salient characteristics that emerged across the subject’s samples. For example, in FM’s Chapter 5, the sections are: sensory awareness, inner speech, unsymbolized thinking, worded thinking, feelings, inner seeing, organizing perceptual stimuli, and meta-awareness. The presence of each section reflects the presence of that particular characteristic in FM’s inner experience; furthermore, the most salient, or frequently occurring, characteristics are discussed first and the less salient characteristics are discussed last. The section in FM’s Chapter 5 will be different from the sections in RD’s Chapter 6, as FM’s inner experience is different from RD’s inner experience. Thus the chapters are structured similarly, but not identically.

Additionally, each idiographic chapter ends with a table delineating the frequency of characteristics of inner experience discovered across the subject’s samples. These tables are meant to serve as heuristic visual aids only and should not be regarded as the
central results of this study. The central results are the subject’s inner experiences themselves. The narrative descriptions are faithful attempts to translate those lived experiences into words, and the idiographic narratives attempt to “lift” and illuminate the salient characteristics and patterns of inner experience. Thus the frequency counts are the grossest representation of our data in that the richness of lived inner experience has been reduced to categories and then into simple numbers. With that caveat in mind, however, the frequency counts are useful in that they enable an “at-a-glance” understanding of the broad tendencies across a subject’s inner experience. The tables illustrate two aspects of frequency: the number of samples in which a characteristic occurs (there may be two or more different characteristics per sample), and the number of instances of a characteristic (there may be two or more instances of one characteristic in a sample).

Across Subjects Chapter

After the idiographic analyses, DES investigators conducted a collective analysis in which all samples of inner experience across all subjects were considered. The collective analysis procedure is similar to the idiographic analysis procedure in that the aim is to apprehend the salient characteristics and patterns of inner experience, only this time across all subjects.

In the present study, six adolescent subjects collected a total of 161 samples of inner experience (including samples from first sampling days). Chapter 11 presents and discusses the salient characteristics that emerged across these samples in five main sections. The first section considers the results across subjects in terms of the five main characteristics of inner experience in order of frequency. The second section discusses
other frequently occurring characteristics, while the third section discusses less frequently occurring characteristics discovered across all subjects. The fourth section addresses variations in the complexity of inner experience across subjects, and the fifth section is a discussion of nascent inner experience. The chapter concludes with a discussion of the limitations of this study and directions for future research.

The across subjects results and discussion chapter also features a table delineating the frequency of characteristics across subjects. This table, like the tables featured in the idiographic chapters, is meant to serve as a visual aid only. As the reader will discover, the most striking findings in the present study cannot be reduced to mere frequency counts.
CHAPTER 5

“FM”

FM was a 12 year-old male who sampled with us in December 2006. He collected 29 samples over five separate days and participated in an expositional interview within 24 hours of each sampling day. Sensory awareness was the most frequently occurring characteristic discovered in FM’s inner experience; it occurred in 12 samples, or in 41% of his 29 samples. Additionally, inner speech occurred in seven of his samples (24%), unsymbolized thinking occurred in six samples (21%), feelings occurred in two samples (7%), and inner seeing (aka images) occurred in two samples (7%). In three samples (10%), FM experienced his attention being pulled away from one experience toward listening to a sound (e.g., background conversation, teacher talking, TV). He also experienced worded thinking in one sample (3%) and meta-awareness in one sample (3%).

IDIOPHIC DESCRIPTION OF FM’S INNER EXPERIENCE

SENSORY AWARENESS

Sensory awareness occurred most frequently across FM’s samples. In 12 of 29 samples, or 41% of the time, FM was attending to sensory aspects of his experience, including color, form, sound, and physical sensation. For example, at beep 3.5 FM had been looking up at a string of Christmas bulbs on the ceiling, noticing the different
colors. At the moment of the beep he was looking at one specific red bulb, noticing that it appeared shinier than the other bulbs. He was drawn to its redness and shininess, but was unable to say whether he was more drawn to the redness or the shininess; he was drawn to both in that moment. FM’s inner experience was purely sensory in that he was engrossed in the sensory aspects (redness and shininess) of the bulb and not aware of anything else at that moment.

FM was paying attention to color in more than half of his sensory awareness experiences; seven of his 12 sensory awareness samples featured color awareness. For example, at Beep 4.3 he was staring at a little green light on the power button of his DVD player, specifically noticing its yellowish-green color. FM was clear that the color, not another sensory aspect such as the glowingness or tiny size of the light, was capturing his awareness at that moment. Similarly, at beep 4.5 FM was eating cereal, noticing the bright lemon-yellowness of the Pops in his bowl. Nearly all of his attention was on the lemon yellow color, while a smaller portion of his awareness was on his saying to himself in his head with surprise, “Wow, they’re yellow!” Another example occurred at Beep 5.3: FM was looking at his phone, specifically staring at the blue color on part of the phone. Most of his attention was focused on the blue color but he was thinking in words to himself, matter-of-factly, “The edge of my phone is blue.”

FM’s sensory awareness experiences sometimes involved attention to form. On one occasion, at the moment of Beep 4.2, FM was noticing his little brother’s cowlick, specifically the circularness of it. On another occasion, at beep 4.6, FM was aware of a blend of color and form. He was looking at a tuft of fur on his cat’s chin. At the moment of the beep he was focused mainly on the whiteness, but somehow he was also noticing
the goatee-like shape of the tuft. This sensory awareness “blend” also seemed to occur at beep 3.5 described above in which FM was noticing both the redness and the shininess of the red Christmas bulb.

FM experienced body-based sensory awareness in four of the 12 sensory awareness samples. For example, at beep 2.3 he was aware of the soft step of his right foot on the ground as he walked to class. At beep 4.4 FM had a headache and he experienced the pain, describing metaphorically as the sound of a fire alarm ringing in his head. At the same time FM was holding his head, feeling the sensation on the pads of his fingertips as they pressed into his temples. Here FM experienced two distinct body-based sensory awareness experiences at the same time: first, he felt directly the quality of the pain in his head (like a fire alarm), and second, he felt the sensation on his fingertips as they pressed into his temples.

Inner Speech

FM experienced inner speech in seven of his 29 samples (24%). He was skilled at identifying his exact innerly spoken word(s) at the moment of the beep, and he could mimic the tone of his inner speaking. The content of FM’s inner speech always was a type of commentary related to what he was doing or experiencing at the moment. For example, at beep 2.4 FM softly muttered to himself in his head, “Wow, this is boring” as the teacher droned on about positive and negative numbers. At beep 3.6 FM said to himself in his head with relief, “Phew!” after finishing a moving job with his brother. At beep 4.5 FM commented to himself in his head with surprise, “Wow, they’re yellow!” while looking at the bright yellow color of his cereal. At beep 4.6 FM said to himself in his head with endearment, “Aw, he’s so cute,” while looking at his cat. And at 5.3 FM
said to himself in his head matter-of-factly, “The edge of my phone is blue.” Overall, FM’s inner speech was clear and straightforward.

*Unsymbolized Thinking*

Unsymbolized thinking occurred in six of FM’s 29 samples (21%). For example, at beep 1.1 he was thinking something like, What should I get to eat?, but the thought was not symbolically represented in any way. At beeps 1.4 and 1.6 FM was wondering when the beeper would sound, but his wondering was not in words, images, or represented in any other symbolic form. At beep 2.2 FM experienced an unsymbolized thought process about reaching around the back of the computer to turn it on so that he could play a game, but the thought was not pictured and did not involve words. At beep 2.3 FM was thinking about having to get to class, but he did not experience any words or images along with that thought process. And at beep 2.6 FM was thinking to himself that he had been planning to play football but that the DES meeting he was attending instead was more important. Again, this thought was clear but it did not involve words, images, or any other form of symbolic representation. Notably, all of FM’s instances of unsymbolized thinking occurred within his first two sampling days. Most adult DES subjects take a few days to be able to identify and talk about unsymbolized thinking; it is a difficult form of inner experience to apprehend because the experience is not symbolically represented. Because FM did not experience unsymbolized thinking in his later samples, we have reason to suspect that these early samples may not have captured instances of unsymbolized thinking but instead instances of FM not clearly apprehending his inner experience. Other interpretations are possible.
**Worded Thinking**

Worded thinking, which is similar in some ways to inner speech and unsymbolized thinking, occurred once (3%) across FM’s samples. At beep 3.1 he was eating cereal with his little brother, A, when A spilled some of his milk and cereal. As FM reached for a napkin for A, he thought to himself, “A needs to clean up that mess.” FM’s thought involved those exact words, and all of those words were simultaneously present in his inner experience, yet the words were not innerly spoken, heard, or seen.

**Feelings**

Feelings were infrequent across FM’s samples; two of his samples (7%) involved feeling experiences but only one of these (Beep 3.3) was a true feeling experience. At Beep 3.3 FM was at his mom’s house, looking around at how she had set things up. (FM’s mom and dad had just separated and his mother had moved into a new house, which FM was visiting for the first time.) At the moment of the beep FM was saying to himself out loud in a lowered, almost breathless, voice, “I need to go talk to my Mom,” and at the same time was feeling sad. The sad feeling was somehow known to be located in his mind, but he could say no more about it.

FM’s second feeling experience occurred at beep 1.2. Although not a true feeling, like the one in beep 3.3 above, FM’s inner experience at beep 1.2 was feeling-related. FM was in his room watching the TV show, *American Dad.* On the show, Roger, an alien, squirted reproductive fluid into the potato salad as a mayonnaise substitute. Unknowingly, the *American Dad* family ate the potato salad, and FM found this funny. At the moment of beep 1.2 FM was completely absorbed in the TV show while somehow
reacting to the show’s humor. He was not directly feeling funny-ness/laughter/joy/belly heat/etc., but he was experiencing some ongoing humor in reaction to the funny show.

Both samples involving feeling revealed FM’s commitment to reporting his inner experience with fidelity, no matter how difficult the subject matter. He bravely discussed his experience of sadness regarding his parents’ recent separation, and he also risked discussing possibly embarrassing subject matter (reproductive fluid) with the interviewers.

*Inner Seeing*

FM’s inner experience involved inner seeing (aka images), though only twice (7%) across all samples. Both image experiences were vivid and detailed. First, at Beep 1.6 FM was picturing the car accident his teacher was describing. In his head, he saw a white car stopped at a stoplight with a van just about to hit it from behind. It was a moving image and FM could see several cross traffic cars going through the intersection as if viewed from the back. FM didn’t know the color of his teacher’s car, or what kind of vehicle had hit her, but in his inner seeing of the accident those details were clear: she was driving a white car and a van hit her from behind.

FM’s second inner seeing experience, which occurred at beep 3.4, was markedly different from the moving image of his teacher’s car accident in that it involved an image of a word. Word images are fairly uncommon forms of inner experiences across subjects. In this instance, FM’s older brother had just said out loud, “Let’s go eat.” At the moment of the beep FM saw “eat” printed in big, bold, lower case orange letters against a black background. He saw “eat” clearly, straight on, from the front. When first describing this sample, FM reported that his mind was “stuck on the word eat.” When asked what he
meant by “stuck on,” FM described the lowercase, bold, orange lettering against a black background and as he did so, his face erupted in a series of small yet impossible-to-hold back smiles, which we interpreted to indicate that he was now actually telling us what was in his experience—that “stuck on” had been a rather broad, general description; the seeing the image was the direct, actually occurring-at-the-moment-of-the-beep experience. The qualitative difference in his demeanor/expression between his initial description of his experience (“...my mind was stuck on the word 'eat'...”) and his telling us of the exact details of his experience (“...I saw the words in letters...they were orange...”) was striking; in the former he was passively delivering information to us but in the latter he seemed to be enlivened from the inside out, connected to his experience, open, joyful, and clear. We take this qualitative difference in his reporting to mean that FM was telling us about his actual inner experience—and liking it.

Organizing Perceptual Stimuli

Five of FM’s samples may illustrate FM facing an inner experience developmental challenge: organizing perceptual stimuli. While it is common for adults to have more than one form of inner experience in a sampled moment, it is not common for adults to describe those simultaneous inner experiences as interfering or competing with one another. Three (3%) of FM’s samples involved his attention being pulled away from one inner experience toward hearing/listening in/trying to make out a sound—essentially one inner experience competing with another unrelated inner experience. For example, at beep 1.5 FM was in the act of taking some papers from his teacher but at the same time he could hear kids talking in the background and he was trying to make out what they were saying. He later deduced that the kids were wondering what he had in his ear (the
earpiece to the DES beeper). At beep 1.6 FM’s teacher was talking about her recent car accident. At the moment of the beep FM was trying to pay attention to what she was saying, but his image of the car accident was forefront in his inner experience, inhibiting his ability to listen to what the teacher was saying. And at beep 2.5 FM was in his 6th period class watching *The Grinch*. At the moment of the beep he was watching and listening to the movie, but he also heard the sound of the guy next to him playing with a skateboard. FM experienced the sound of the skateboard pulling his attention away from the film. FM may experience his attention being “pulled away” by sound as a result of not yet being able to organize his inner experience, or focus on one theme in his inner experience.

Two other samples feature FM having two simultaneous but distinct inner experiences: At beep 4.6. FM was finishing innerly saying, “Aw, he’s so cute” and simultaneously beginning a sensory awareness experience of staring at the white goatee-like tuft of fur on his cat’s chin. Similarly, at beep 5.2 FM experienced two overlapping and unrelated sensory awareness experiences: he heard the person he was talking to say the sound “-ey” (as in “money”) and also, in the background, he heard the “clunk, clunk” sound of the car’s driver changing gears.

Discussion

FM was a motivated and diligent subject. He was eager to participate in DES from the moment he heard about the study and he organized the initial meeting between investigators and his father to discuss his participation. He kept track of his expositional interview appointments himself, and was always prepared for those interviews with fresh
samples. FM’s initiative and discipline was noteworthy not only for his age (12 years old) but also in light of his family/home situation. FM’s parents were separating at the time of his sampling and his home life was in disarray. He appeared to be enduring a lot of stress, but he was stoic about his personal life and he remained unwavering in his commitment to the study. We speculate that DES may have given FM a break from the stresses of his home life. Although he did not explicitly express that, he did express his delight in discovering his sensory awareness, which he thought was “very cool.”

Table 1
Frequency and instances of characteristics in FM’s samples of inner experience

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Frequency(^a)</th>
<th>Total instances(^b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feelings</td>
<td>2 (7%)</td>
<td>2 (7%)</td>
</tr>
<tr>
<td>Inner Seeing</td>
<td>2 (7%)</td>
<td>2 (7%)</td>
</tr>
<tr>
<td>Inner Speech</td>
<td>7 (24%)</td>
<td>7 (24%)</td>
</tr>
<tr>
<td>Just Doing/Watching/Talking</td>
<td>2 (7%)</td>
<td>2 (7%)</td>
</tr>
<tr>
<td>Listening Process</td>
<td>3 (10%)</td>
<td>3 (10%)</td>
</tr>
<tr>
<td>Meta Awareness</td>
<td>1 (3%)</td>
<td>1 (3%)</td>
</tr>
<tr>
<td>Perceptual Awareness</td>
<td>3 (10%)</td>
<td>3 (10%)</td>
</tr>
<tr>
<td>Sensory Awareness</td>
<td>12 (41%)</td>
<td>14 (48%)</td>
</tr>
<tr>
<td>Speaking Aloud to Self</td>
<td>1 (3%)</td>
<td>1 (3%)</td>
</tr>
<tr>
<td>Unsymbolized Thinking</td>
<td>6 (21%)</td>
<td>6 (21%)</td>
</tr>
<tr>
<td>Worded Thinking</td>
<td>1 (3%)</td>
<td>1 (3%)</td>
</tr>
<tr>
<td>Total characteristics(^c)</td>
<td>38</td>
<td>40</td>
</tr>
<tr>
<td>Characteristics per sample(^d)</td>
<td>1.31</td>
<td>1.38</td>
</tr>
</tbody>
</table>

\(^a\) Number of samples in which characteristic occurs (there may be two or more different characteristics per sample)

\(^b\) Number of instances of a characteristic (there may be two or more instances of one characteristic in a sample)

\(^c\) Total characteristics excludes the DES category “just doing” (just doing is not actually a “characteristic” of inner experience, so it is not included in the total characteristics count)

\(^d\) Characteristics per sample is calculated by dividing total characteristics (excluding just doing) by the number of samples, which yields a statistic describing the average richness/fullness/complexity of FM’s inner experience across samples.
CHAPTER 6

“RD”

RD was a 13 year-old male who sampled in December 2006. During this time he collected 34 samples over six separate days and participated in an expositional interview after each sampling day. RD’s inner experience is best characterized as “thinking.” As shown in Table 2, 23 of his 34 samples (68%) involved inner speech and nine samples (27%) involved unsymbolized thinking, for a total of 32 samples (94%) that involved the experience of thinking. In 17 of 32 thinking samples (53% of his thinking samples), RD used idiosyncratic terminology to describe his inner speech and unsymbolized thoughts, including descriptors such as “solid,” “light,” “passing through,” and “coming up”; we will discuss those terms below. RD also experienced perceptual awareness in 12 of his 34 samples (35%), sensory awareness in two of his samples (6%), and meta-awareness in two samples (6%). RD experienced feeling in only two samples (6%), but eight of his samples (24%) involved tangential feeling (for example, inner speech in an angry tone).

_Idiographic Description of RD’s Inner Experience_

_Inner Speech_

Inner speech was RD’s dominant form of inner experience. Twenty-three of 34 samples (68%) involved his commenting, expressing, wondering, or otherwise experiencing the thinking of some particular thought to himself inside his head using
specific words in his own voice. In 11 of these 23 inner speech samples (48%), inner speech was the sole form of RD’s inner experience. In the other 12 of these 23 samples (52%), inner speech occurred along with another characteristic of inner experience, but even within these samples, inner speech was the dominant form of his experience.

RD’s inner speech was crystal clear and readily apparent to him—he knew exactly what he was saying as well as exactly how he was saying it to himself. For example, at beep 2.4 RD was saying to himself, very slowly, the cadence dripping with mind-numbing boredom, “What should I do?” As RD continued to improve at the sampling task, his awareness of the characteristics of his inner speech became more and more refined. For example, when describing beep 4.1 RD conveyed very fine details of his musing to himself in his head, “I wonder what this tastes like?” He said these words a little dramatically, with a slight accent on the word “taste;” his inner speaking sounded stylized and melodic, yet was low and quiet, definitely spoken to himself, for himself.

Unsymbolized Thinking

In addition to inner speech, RD frequently experienced another type of thinking: unsymbolized thinking. In nine of 34 samples (27%), RD was thinking a specific thought but that thought was not represented in words, images, or any other type of symbols. Beep 3.6 illustrates one of RD’s pure unsymbolized thoughts: His friend was dancing and RD was thinking a wordless thought that conveyed something like, What on earth is she doing? No words were spoken, heard, pictured, or otherwise known, yet the thought itself was clear. Similarly, at beep 6.4 RD was thinking a definite thought: The Saints can’t win, dude. They can’t. RD recognized that it was a disappointing thought (he badly
wanted the Eagles to win), but despite knowing this, the thought was not represented symbolically to him in any way. In each of these samples, RD was very clear that his thoughts conveyed specific meanings but that his experience of each of these thoughts was distinctly different from his thoughts involving words (i.e., thinking experiences involving inner speech).

Idiosyncratic Thinking Terminology

In 17 of RD’s 32 “thinking” samples (that is, 53% of his inner speech and unsymbolized thoughts together), he used idiosyncratic terminology to describe his experiences. Specifically, RD’s terminology described two distinct yet related characteristics of his thinking experiences: density and movement. In the sections that follow we first discuss RD’s descriptions of thought density (his terms were “solid,” “medium,” and “light”). RD characterized all 17 of these thinking samples in terms of density. Next we discuss his descriptions of thought movement (his terms were “passing through” and “coming up”). He characterized eight of these 17 thinking samples as moving in some way. Finally, we discuss RD’s descriptions of how thought density and thought movement are related in his thinking experiences.

RD characterized 17 of his thinking samples in terms of density, that is as “solid,” “medium,” or “light.” According to RD, a solid thought captured 100% of his attention and concentration, and seemed to be located deep within his head. When having a solid thought, RD was so deeply focused within himself that, he said, a person would have to physically grab and shake him to get his attention. RD described three instances of solid thoughts in total.
One example occurred at beep 2.1: RD was in the act of bowling, in the windup (arm swinging backward) before the release of the ball. At the moment of the beep he was deeply focused on one solid thought: *I have to get a strike.* Though the meaning of his thought was unambiguously clear to him, the thought was not composed of specific words; its meaning could have been rendered by *I gotta get a stike,* or *I need a strike,* or *please let me get a strike;* thus this was an unsymbolized thought. RD characterized this thought as solid because he was locked into this thinking to the exclusion of all other possibilities. He was completely absorbed in it, and it occupied his entire awareness in a thorough, steady, extended in time way. Nothing else could penetrate his awareness at that moment.

At the other end of the spectrum, a light thought involved little if any of RD’s attention, focus, and concentration. A light thought could be absolutely apparent to RD, but it did not require him to be deeply focused or to become impenetrable to external stimuli. Additionally, RD experienced light thoughts on the outer surface of his mind as opposed to deep within his head. He experienced eight light thoughts in total. For example at beep 2.2, RD was doing a trick on his skateboard and experiencing a light unsymbolized thought: *I gotta land this trick; please, let me land this trick.* The thought was close to the surface of his mind and while thinking it RD remained quite permeable to external stimuli.

RD also had five medium thoughts and one light-medium thought. He deemed these thoughts “medium” apparently because he experienced them as being somewhere between “solid” and “light.” For example, at beep 3.2 RD was angrily saying to himself in his head, “Stupid cat, get away!” RD explained that this was a medium thought.
because while it was not a focused, concentrated thought, it was substantially more than a light and fleeting thought. He was partially absorbed in the thought. Similarly, at beep 4.3 RD was wondering to himself, *How do I look?* He described his experience as a medium thought, because it was lighter than “solid” but solider than “light.”

In eight samples, RD described the movement of his thoughts: they moved through his head in different ways, either “passing through” (5) or “coming up” (3). According to RD, thoughts that passed through started somewhere outside his head, floated though his head (often from left to right), and then passed out of his head. For example, at beep 4.4 RD was quietly exclaiming to himself in his head, “Oh crap, that *really does* smell!” The thought just passed through, not requiring a lot of concentration. Furthermore, the thought did not lodge in his head to be focused on, or attended to for any longer than the one to two seconds it took to pass through.

On the other hand, RD experienced a thought as “coming up” when it originated deep within his head and moved forward toward the surface of his head. For example, at beep 6.5 RD was thinking to himself, *21 to 20.* It was an unsymbolized thought that came up from the depths of his mind toward the surface. At the moment of the beep, the thought was closer to the surface, but still coming up from the inside toward the outside.

It appeared that the density of RD’s thoughts (“solid,” “medium,” and “light”) was related to the movement of his thoughts (“passing through” or “coming up”). RD believed (as a self-characterization that was corroborated by samples) that “coming up” thoughts originated deep within his head and were originally experienced to be solid. (Recall that when RD was engaged in a solid thought he was deeply focused, almost entranced, and it would be hard to get through to him.) As that solid thought came up, it
became increasingly lighter. The coming up process seemed to take a second or two. Furthermore, RD believed he could “grab” the thought anywhere along this coming up process and suspend the becoming-lighter of the thought; the longer he waited to grab it, the lighter it would have become. Beep 5.3 illustrated this grabbing of a “coming up” thought: RD was saying to himself in his head, in a quiet yet surprised voice, “Wow, those are nice shoes.” It was light thought, but it had started off as a solid thought deep inside his head, and then came up through his mind getting progressively lighter the closer it got to the surface. As this thought made its way up from the depths of his mind to the surface it transformed into a medium thought, and then into a light thought—at which point he grabbed it. Thus this thought originated from within the depths of his mind and floated forward, apparently changing density along the way.

RD believed (although this was neither corroborated nor disconfirmed by samples) that the density of “passing through” thoughts changed in the opposite direction: thoughts that originated outside his head were originally light, and as they passed through they became more and more solid. However, none of the five passing-through thoughts that actually appeared in his sample showed this solidifying tendency: all the sampled thoughts that passed through were characterized as being light. For example, at beep 2.2 the unsymbolized thought, I gotta land this trick, is a light thought floating though his otherwise open mind. Again at beep 5.6 he is saying to himself in his head, “I don’t want to watch this, it looks scary,” and that inner speech is a light thought that just passes through.
Feelings

We now turn to discuss RD’s emotion. In eight of RD’s 23 inner speaking samples (35%), RD recognized his voice as being emotional such as angry, excited, sad, or happy. Strikingly, in all but one of these samples, he did not experience any feeling, even though his voice had an emotional sound, tone, and speed. For example, at beep 3.1 RD was saying to himself in his head, in a pissed off voice, “Why did he kick me in my sore knee?” His inner speech was angry and rapid, yet he was not feeling pissed off. Immediately after the beep, RD recognized that his voice was pissed off, and he acknowledged that his pissed-off tone of voice reflected that somehow he was pissed off. However, at the moment of the beep RD was not experiencing being pissed off, not experiencing tenseness in his body, seeing red, or any other aspect of experience that might be indicative of anger. Beep 5.2 illustrates a similar set of characteristics: RD’s mom was showing him some DVDs she brought home. At the moment of the beep he was exclaiming to himself in his head, “Oh crap! You got Rocky?!” His voice contained a mix of delighted surprise and excitement, but he did not experience that delight, surprise, or excitement directly in the moment.

RD’s inner-speech-with-feeling-tone-but-no-feeling-experiences may reflect his developing capacity to experience feelings fully and directly. These instances may reflect, we speculate, an adolescent condition in which a nascent feeling exists in the body but is not fully formed enough to manifest as its own inner experience. Perhaps the best RD can do in his stage of development is to express his nascent feelings through inner speech, which is his primary—and most well-developed—form of inner experience.
Though RD frequently (in 8 of his 34 samples) expressed emotions in his inner speaking tone, he experienced emotion as a distinct inner experience only twice in 34 samples (6%). Here are those two examples of experienced feeling. At beep 5.1 RD was saying to himself in his head, “Aw, man...dude, that really sucks,” and was feeling sorry for his friend, J, who had just fallen and appeared to be hurt. The tone of his voice was sympathetic; it had a feeling-bad-for-J sound to it. Most of his awareness (about 70%) was on this inner speech itself, but the rest (about 30%) was on actually feeling sorry for J. The sorry feeling seemed natural to RD, his natural response to seeing someone get hurt. It was similar to a sad feeling, but not exactly the same. He felt it on the inside surface of his chest and in his head, but not in any other part of his body. In beep 6.6 RD’s feeling experience was less differentiated but still an entity distinct from his tone of voice. At the moment of the beep he was exclaiming out loud with frustration, “How could they lose?” after the Eagles lost the game he had been watching on TV. RD felt a tiny bit of disappointment, and though he was not aware of how the disappointed feeling manifested in his inner experience, he experienced the disappointment as separate and distinct from his speech. These samples suggest that RD may be just beginning to have feeling experiences, and that somehow his inner and outer speech may be assisting this developing capacity.

Open Space

RD had two samples (6%) in which he experienced “open space” in his mind. Both instances occurred along with “light” thought moving through his head. For example, at beep 2.2 roughly half of his awareness was devoted to a “light” thought floating through, and about a quarter of his awareness was devoted to checking the
position of the skateboard and visually confirming that his stance was okay to successfully execute the trick. The remaining quarter of his awareness was just open. He was not meta-aware of being mentally open but a portion of his mind was simply “free of thoughts.” RD’s second mention of this phenomenon occurred at beep 6.5: RD was thinking to himself, 21 to 20. There were no specific words even though the concept was perfectly clear. It was a light thought that came up from inside his head. Although it was the only thing in his awareness at the moment of the beep, only about 50% of his awareness was dedicated to the unsymbolized thought. The other 50% seemed to be space for something else, but at the moment there was nothing else there.

Perceptual Awareness

Perceptual awareness occurred in 12 of RD’s 34 samples (35%). RD’s perceptual awarenesses always occurred along with a more dominant inner speech or an unsymbolized thinking experience. For example, at beep 2.5 RD was looking at his skateboard, which was flipped on its side. He had just sent the front right wheel spinning, and was unsymbolizedly wondering, How fast can I go? At the same time, he was hearing the wheel spin; this hearing was part of his ongoing awareness, so we call it perceptual awareness. Similarly, at beep 3.4 RD commented on a pretty girl walking by. He said to himself in his head, “Oh snap! She’s hot!” Simultaneously, he was tracking the girl with his eyes, but not focused on any specific part of her. These instances illustrate RD’s characteristic propensity to perceive sounds and sights in his inner experience, but not to be explicitly drawn into the perceptual stimuli, as is characteristic in sensory awareness.
**Sensory Awareness**

RD had sensory awareness in two of his 34 samples (6%), both body based. At beep 4.2 RD was in a hurry, and his body felt a little jittery and anxious as he rushed to get ready. At beep 6.3 he was standing up, yelling at the TV screen while watching a game, and he was aware of his weight in his feet and how that felt different than how his body felt when sitting a moment before.

**Discussion**

Overall RD showed sophistication in his ability to do the DES tasks. He was able to capture, report, and discuss the phenomena, features, and characteristics of his inner experience clearly, and very quickly to identify and discuss hard-to-know-and-explain experiences like unsymbolized thinking. For example, RD was able to discriminate between awareness vs. meta-awareness, a discrimination that is exceedingly difficult to make for many subjects. At Beep 6.2 RD was observing himself watching the football game on TV. He confidently understood that to be very different from merely watching the game; in this case he was actually aware of himself watching the game. Furthermore RD was committed to uncovering and telling the truth—exactly as it was for him—about his experience. On more than one occasion he risked his own embarrassment to reveal the details of his inner experience. For example, at beep 3.3 RD was on his bed, arms folded behind his head, arms, head, and upper body pulsing to music. RD was singing/chanting along in his head to the song on the radio, “I-like-big-butts...” Most of his awareness (75%) was on his singing in his head while the rest (25%) was on listening to the song. It was quite embarrassing for RD to say he was singing about butts; he had to fight down
the urge to avoid telling us about this. But he went forward anyway, despite his embarrassment, to tell us about his inner experience.

Finally, RD seemed to grasp the importance of adhering to the moment of the beep and to remain faithful to that, even to the point of telling the investigators on more than one occasion, “But that doesn’t really matter because it was after the beep.” He appeared to surprise even himself regarding some aspects of his inner experience, for example, his discovery that many of his thoughts “float through” his mind. Despite the strangeness/absurdity/foreignness (to him) of this type of unexplainable and heretofore unknown aspect of his very own inner experience, he bravely stood behind it.

Table 2
Frequency and instances of characteristics in RD’s samples of inner experience

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Frequency</th>
<th>Total instances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feelings</td>
<td>2 (6%)</td>
<td>2 (6%)</td>
</tr>
<tr>
<td>Inner Speech</td>
<td>23 (68%)</td>
<td>23 (68%)</td>
</tr>
<tr>
<td>Meta Awareness</td>
<td>2 (6%)</td>
<td>2 (6%)</td>
</tr>
<tr>
<td>Open</td>
<td>2 (6%)</td>
<td>2 (6%)</td>
</tr>
<tr>
<td>Perceptual Awareness</td>
<td>12 (35%)</td>
<td>12 (35%)</td>
</tr>
<tr>
<td>Sensory Awareness</td>
<td>2 (6%)</td>
<td>2 (6%)</td>
</tr>
<tr>
<td>Unsymbolized Thinking</td>
<td>9 (27%)</td>
<td>9 (27%)</td>
</tr>
<tr>
<td>Total characteristics</td>
<td>52</td>
<td>52</td>
</tr>
<tr>
<td>Characteristics per sample</td>
<td>1.53</td>
<td>1.53</td>
</tr>
</tbody>
</table>

| a Number of samples in which characteristic occurs (there may be two or more different characteristics per sample) |
| b Number of instances of a characteristic (there may be two or more instances of one characteristic in a sample) |
| c Characteristics per sample is calculated by dividing total characteristics by the number of samples, which yields a statistic describing the average richness/fullness/complexity of RD’s inner experience across samples. |
CHAPTER 7

“BC”

BC was a 12 year-old female who sampled in February and March of 2007. She sampled on five separate occasions, collecting a total of 22 samples. BC had difficulty mastering the sampling task and because of this her first three samples were eliminated due to task errors. Thus 19 samples are included in our discussion and analysis of BC’s inner experience. Fifteen of these 19 samples (79%) contained little of what we usually call inner experience. In 11 of the 19 samples (58%) BC reported that she was just doing things (listening, talking, watching, cleaning, etc.) without any inner experience. In three of her samples (16%) BC was doing nothing and having no inner experience at all, and in one sample (5%) she thought she had some inner experience but she did not know what it was. However, four of BC’s samples (21%) did feature inner experience: two samples (11%) involved perceptual awareness, one sample (5%) involved sensory awareness, and one sample involved inner seeing (5%), though this occurred a few seconds after the moment of the beep. We elected to include this example of inner seeing in our consideration of BC, even though it occurred after the beep and would therefore typically be excluded, because it provided us with additional information about the existence/state/frequency of her inner experience itself and her ability to describe experience.
Sampling with BC was remarkably different from our experiences with other subjects in this study. She had prolonged difficulty mastering the sampling task, and she appeared to have very little inner experience overall. Thus, unlike previous and subsequent idiographic chapters, the present chapter is structured as chronological narrative rather than an inner-experience-by-characteristic analysis.

_Day-By-Day Account of BC’s Inner Experience_

DES subjects often struggle to note and talk about their inner experience during the first few sampling occasions but with practice they become increasingly skilled at doing so. Initially, BC appeared to struggle with the sampling task as most subjects do: she was visibly surprised by the detailed interview questions, she could not locate the exact moment of the beep, and she could not identify her inner experience, and she resorted to describing outer events instead. Despite this struggle, BC appeared to have one sample involving inner seeing (aka image) on the first day of sampling. At beep 1.5 BC’s brother was talking to her about playing basketball. BC was not sure what was in her experience at the moment of the beep—maybe nothing. After the beep, however, BC described having an image of herself and her brother playing one-on-one on a basketball court. In the image BC had the basketball and was standing in front of her brother, who was gesturing in frustration because BC won. Though she knew it was a basketball court, she did not see the basketball hoops or any other distinctive features of the court in her image. The image was still (i.e., not moving) and appeared in black and white. Despite this exposition, it was not possible to establish whether BC actually experienced an image at the moment of the beep; she may have been experiencing an image at the time of the
expositional interview and describing that as it unfolded. In some ways, her report was
typical of descriptions of images in inner experience as discovered by DES, but it
occurred on BC's first day of sampling and may have been substantially shaped by our
training-aimed questions, so there are many good reasons to doubt whether there was any
image present whatsoever.

By the end of Day 2 BC decidedly was not reporting her inner experience as most
subjects do. Instead, she communicated to us with increasing frequency and confidence
that she was just doing things, without any corresponding inner experience. Beep 2.5
illustrates this: BC was scrubbing the counter closest to the stove. At the moment of the
beep there was nothing in her awareness. She had finished doing the dishes—specifically,
finished washing the last knife—and had begun to wipe down the counters. It was a fact
of her universe at the moment of the beep that she was scrubbing the counter hard, but
she was not aware of that, or of anything else at that moment. In this sample BC was
confident in describing the details of her outer experience; she reported the sequence of
events without hesitation and she could accurately pinpoint her activity at the moment of
the beep (scrubbing the counter closest to the stove). Yet there was nothing in her inner
experience at the moment.

There was, however, some inkling of inner experience on Day 2 when BC was
able to describe two instances in which she may have been experiencing perceptual
awareness. At beep 2.1 she was looking at the leaves on a tree in her front yard, though
she was not focused, drawn in, or "into" the leaves in any sensorial way—she just
happened to have her eyes pointed at the leaves at that moment. It is difficult for us to be
confident about the accuracy of this description. For example, we couldn't (or at least
didn’t) distinguish unequivocally between “looking at the leaves” as meaning that she was interested in the leaf-ness of her perception or as meaning that she was looking at the top half of the tree (the part where the leaves were as opposed to the trunk).

Similarly, at beep 2.3 BC was perceptually aware of pain in her front tooth, but she was not aware of the pain in any deeper way than knowing it was there at the moment. In both of these instances, BC had trouble discriminating whether these perceptual awarenesses were just facts of the universe or actually present in her experience in some way. We elected to call these experiences perceptual awarenesses because there seemed to be something more than nothing at all.

On Day 3 we decided to alter the protocol format. Instead of BC’s collecting beeps and then coming to the lab for the interview, we waited outside her house while she sampled so that we could interview her directly after each beep. The idea was to eliminate retrospection. It was possible that BC’s difficulty stemmed from the writing or the remembering, not the lack of experience itself; we sought to minimize that by eliminating the writing and shortening the remembering to its limit. However, even with the change in format, BC did not report much inner experience at the moment of the beep. For example, at beep 3.1 BC was talking to her cat, telling him how handsome he was. At the moment of the beep she had paused and was just waiting, with no inner experience. At beep 3.2 BC was walking home from next door, just passing her mailbox at the moment of the beep, with no inner experience. In both instances BC described outer events with detail (talking to her cat, passing her mailbox) but denied the presence of inner events.
BC’s increasing reports of “nothing” in her inner experience led us to wonder whether, A) she did have inner experience but was incapable, for whatever reason(s) (e.g., developmental stage, cognitive deficit, chaotic environment), of capturing and reporting said inner experience, or B) she simply did not have inner experience at those sampled moments. A clue to this question arrived at the end of the third sampling day. At beep 3.4 BC was watching Halle Berry on TV. At the moment of the beep, she was paying attention to the way Halle Berry was speaking, that is, with an accent that BC recognized as unusual. When describing her inner experience, BC was uncharacteristically clear, precise, and confident that her attention was focused on the sound of Halle Berry’s speaking, not Halle Berry’s white dress or the Oscar statuettes that were also on the screen at the same time. BC was also uncharacteristically enthusiastic during the interview about this beep. She was animated and energetic, and defended the fact that she was listening to Halle Berry’s accent at the moment of the beep, not looking at her dress or the Oscar statuette or anything else. This was a markedly different sample from any other encountered over three full days of sampling with BC.

As a result of the Halle Berry sample, a few possibilities occurred to us: A) perhaps it had taken BC a little longer than the average subject to master the sampling task and now that she had done it once, she would describe more inner experience, or B) perhaps BC didn’t have much inner experience, but once and a while she did, and when she did she could report it clearly and confidently.

On Day 4 we continued the wait-outside-BC’s-house-and-interview-immediately-after-the-beep procedure. BC collected three samples, each finding nothing in her inner experience. For example, at beep 4.1 BC was spending time with her family at home. The
music was playing loud and everyone was dancing. At the moment of the beep BC had stopped dancing and was watching everyone else, laughing at the way they were dancing, but she was not aware of anything at the moment of the beep. At beep 4.2 she was walking next door to her sister’s house, holding her little brother in her arms. At the moment of that beep she was just walking; there was nothing in her inner experience. And at beep 4.3 BC was watching the end of the movie, *The Land Before Time*, on TV. Again, she was not aware of any inner experience. BC requested that we end sampling early that day after just three samples, as she was bored and irritated with the procedure.

Overall, Day 5 sampling also yielded very little inner experience, although there were a few instances in which we speculated that BC might be experiencing inchoate and incipient forms of inner experience. At beep 5.2 BC was hitting her friend in the face with her right hand. Although BC maintained that she did not have any inner experience at that moment, we wondered if this sample might indicate the presence of an inchoate feeling. That is, perhaps BC was feeling something that caused her to hit her friend in the face, but that feeling was so undeveloped that she could not identify it directly. At beep 5.3 BC was picking out a movie to take to her friend’s house. At the moment of the beep BC was saying out loud to her friend, “Do you want the *Winnie the Pooh* or the *Tigger* movie?” BC was quite sure that there was something in her awareness at the moment of the beep but she was unable to identify it. This sample lead us to speculate whether, (a) BC’s inner experience was only partially formed and thus not identifiable; (b) BC had had a fully formed inner experience but her recall was inadequate; or (c) some other possibility.
In the spirit of discovery, mid-way through sampling Day 5 we relaxed the DES procedure and reminded BC of her inner experience of attending to Halle Berry’s accent a few days back (Sample 3.4) and asked her if she had any inner experience similar to that in any of her more recent samples. BC enthusiastically recalled her experience at the Halle Berry beep, but maintained that none of her samples since included inner experience.

Discussion

One potential explanation for BC’s reporting no inner experience is that she does not have the capabilities to capture and/or describe it even though she has it. Another possibility is that BC does not have inner experience very often, and that her inner experience occurs only intermittently. Four of BC’s samples (21%) suggest that her inner experience occurs in fits and starts rather than continuously. Immediately preceding beep 2.4, BC had taken an aspirin for her tooth pain, but at the exact moment of the beep nothing was in her awareness. In her description of her experience, she suggested that the aspirin taking had somehow factored into her inner experience, but now, after that was done, she was left with nothing in her inner experience until the next stimulus came along. Similarly, at beep 2.6 BC’s mom had just finished musing aloud about how long it would take the researcher to get to their house. BC had heard and comprehended what her mother said, but at the moment of the beep she had moved on from it. BC explained that her attention had not yet landed on something new, so she was not aware of anything at the moment of the beep. At beep 3.1 BC was in the middle of a “conversation” with her cat, telling him how handsome he was. To the best of her knowledge, at the moment of
the beep she was “waiting” for her to meow back in reply. She was engaged in the just
doing of the conversation, but she was also seemingly “in-between” experiences. Finally,
at beep 3.3 BC was writing her sister a letter. At the moment of the beep she had stopped
writing and was paused, waiting to see what to write next. At that moment there was
nothing in her inner experience yet she was waiting for something to come next. This
sample suggests that BC’s inner experience comes in fits and starts and that she must
wait for it, so that she can act on it. It is very possible that these samples illustrate what it
is like for a young person who does not yet have well-developed, ongoing inner
experience.

Though it is difficult to interpret the meaning of BC’s characteristic pattern of
nothing in inner experience, it is interesting to note that over the course of sampling she
became an unenthusiastic participant in DES. She was initially excited by the prospect of
sampling, but almost immediately seemed bored by the task. During the initial few
interviews, BC yawned profusely and fidgeted in her chair. By the third sampling day she
began making excuses to end early and wanted to know how many more times she “had
to do this.” On the final day of sampling BC reported that she found DES to be “weird”
and “boring.” The weirdness seemed to be in response to our real-time sampling-
interview format, and the boring was simply a reflection that she did not enjoy the task,
which is fairly unusual. However, in light of our speculations that she may not be able to
do the task or that she may not have much inner experience it makes sense that a person
would be bored by repeatedly trying to do something they cannot do.

Overall, our best understanding of these interviews is that BC had no inner
experience at most of her samples. Only one of BC’s samples (beep 3.4, the Halle Berry
sample) revealed inner experience similar to that reported by other subjects. In four others, there may or may not have been some kind of rudimentary inner experience.

Table 3

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Frequency a</th>
<th>Total instances b</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incipient Inner Experience</td>
<td>1 (5%)</td>
<td>1 (5%)</td>
</tr>
<tr>
<td>Inner Seeing</td>
<td>1 (5%)</td>
<td>1 (5%)</td>
</tr>
<tr>
<td>Just Doing/Watching/Talking</td>
<td>11 (58%)</td>
<td>11 (58%)</td>
</tr>
<tr>
<td>No Inner Experience</td>
<td>3 (16%)</td>
<td>3 (16%)</td>
</tr>
<tr>
<td>Perceptual Awareness</td>
<td>2 (11%)</td>
<td>2 (11%)</td>
</tr>
<tr>
<td>Sensory Awareness</td>
<td>1 (5%)</td>
<td>1 (5%)</td>
</tr>
<tr>
<td>Total characteristics c</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Characteristics per sample d</td>
<td>.26</td>
<td>.26</td>
</tr>
</tbody>
</table>

a Number of samples in which characteristic occurs (there may be two or more different characteristics per sample)
b Number of instances of a characteristic (there may be two or more instances of one characteristic in a sample)
c Total characteristics excludes the DES categories “just doing” and “no inner experience” (just doing and no inner experience are not actually “characteristics” of inner experience, so they are not included in the total characteristics count)
d Characteristics per sample is calculated by dividing total characteristics (excluding just doing and no inner experience) by the number of samples, which yields a statistic describing the average richness/fullness/complexity of BC’s inner experience across samples.
AV was an 11 year-old female who sampled with us in early April 2007. She collected a total of 25 samples on five separate days and met with us for five corresponding expositional interviews. Inner speech was the most frequently occurring characteristic of inner experience across AV’s samples, occurring in seven samples (28%), as shown in Table 4. Sensory awareness occurred in three samples (12%) and perceptual awareness occurred in five samples (20%). In six samples (24%), AV was just doing various activities without any separate inner experience. Two samples involved unsymbolized thinking (8%), and she had no samples involving inner seeing (aka images). Remarkably, none of AV’s samples featured feeling experiences directly, despite the fact that one of her classmates unexpectedly had died the week before and in casual conversation she had often reported feeling sad about this. However, feeling did play a very important indirect role in eight of AV’s samples (32%), being expressed as a secondary characteristic of other inner experiences and/or appearing as the content of her experiences.
Idiographic Description of AV’s Inner Experience

Inner Speech

Inner speech was the most frequently occurring characteristic discovered in AV’s samples. It appeared in seven of her 25 samples (28%), and three of these seven samples (43%) featured straightforward inner speech. Her remaining four inner speech samples (57%) involved emotion, and thus are discussed in the Feelings section.

AV’s very first sample of inner experience, at beep 1.1, captured her inner speech. She was watching TV and a big bald man in a tuxedo had just appeared on screen. AV was looking at the man’s head, noticing a small patch of hair that apparently had missed being shaven. At the moment of the beep, AV was saying to herself in her head in a dramatic voice, “Oh my god, they cut his hair wrong... I don’t know why he went to those people...” This was AV’s first sample on her first sampling day and though she was not yet skilled enough to pinpoint her exact word(s) at the moment of the beep, she was clear that her experience was of innerly speaking these exact words to herself. With practice over time AV developed into a very accurate observer of her inner speaking at the exact moment of the beep. By her fifth day of sampling AV had was able to make fine-grained discriminations regarding her inner speaking in relation to the onset of the beep. For example, at beep 5.3, AV was asking herself in her head in her usual speaking voice, “Should I sleep?” At the exact moment of the onset of the beep she was saying the word, “I” and she continued innerly speaking, saying the word, “sleep?” as the beep was sounding.
Feelings

AV had a feeling experience in only one of her 25 samples (4%), although even in this sample it was the sound of the beep that triggered her to realize that she was feeling sad. At beep 1.4 AV was reading *Bridge to Terabithia*, specifically the part in which the main character finds out that his best friend is dead. When AV heard the beep, she noticed that she felt sad deep inside her eyes and that she was trying not to cry. She also became aware that she somehow was debating in her head about whether or not to go ahead and cry, because she didn’t want her parents to notice her crying and become worried. However, the feeling and the thinking were in her awareness just after the beep—apparently brought into awareness by the beep. At the moment of the beep (i.e., the last undisturbed moment before the beep) AV’s inner experience was just reading.

Although beep 1.4 was AV’s only “true” feeling sample, seven of her 25 samples (four inner speech, two speaking aloud to another, and one speaking aloud to self, or 28% of all samples) were emotionally toned. For example, just before beep 1.5 AV had been wondering whether to eat ice cream or cereal. The beep sounded as she was saying to herself in her head, “I should eat both.” Her inner voice sounded sad; it was softly lilting—like a sad little girl—yet AV did not feel sad at the moment. She had been sad all day, crying off and on about her friend’s sudden death. But at the moment of the beep, she was not experiencing sadness despite the sad tone of her voice. Similarly, at beep 2.1 AV was watching a TV show in which her favorite contestant was about to lose a competition. At the moment of the beep AV was innerly saying to herself in a sad tone, “Melrose is going to lose.” In this sample AV was less descriptive about the tone of her
voice, but she was confident that it sounded sad while at the same time confident that she was not actually feeling sad.

Another example of AV’s expressiveness-without-actually-feeling occurred at Beep 4.4: AV was having her blood drawn for the first time ever. Her eyes were squeezed shut as the needle was just beginning to pierce the skin in the inside crease of her right arm. At the moment of the beep AV was commanding herself in a rapid, high-pitched, dramatic squeaky little voice, “I’m not going to cry!” She felt the uncomfortable sensation of the needle entering her skin. Next, she quickly reminded herself in her head in her normal speaking voice, “Remember AV, don’t put [squeeze] your hand too strong because then it’s gonna hurt more.” This utterance came after the beep, just after the more desperate-sounding, “I’m not going to cry!” At the moment of this sample, AV clearly was undergoing a stressful experience yet she did not directly experience any of the anxiety/panic/worry/fear that was expressed in her little squeaky voice. Thus in these two samples, as in the other five speaking samples that included emotional tone, AV did not experience her feelings despite the fact that her inner speech expressed feelings.

Emotionality infiltrated many of AV’s speaking samples, sometimes expressively in tone of voice (as in 1.5, 2.1, and 4.4 above), and sometimes thematically in the content of what she was saying. Before beep 4.5, AV’s younger brother had messed up a computer game being played by her older brother, Marco. As the beep sounded, AV was asking, “Marco, are you sad?” Thematically, this sample suggests that AV not only is in the process of developing her own feeling skills, but that she is also learning to recognize feelings in others. This sample further illustrates the developmental difficulty of acquiring the emotion-recognition skill. It is likely that Marco is not sad, but rather angry

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or frustrated at his younger brother. AV, however, is sad, the result of her friend’s death. She may well be unable, or at least unskilled, at differentiating another’s feelings from her own.

Another striking example of how AV’s speech thematically expressed feeling that was not directly experienced occurred at beep 2.4. In this sample one of AV’s favorite TV show characters died. AV had turned off the TV, gone into her room, turned off the lights and lay down on her bed. She stared at the ceiling while repeating out loud to herself, “I’m sad, I’m sad, I’m sad, I’m sad…” At the moment of the beep, AV was saying the final, “I’m sad” in the chain. Remarkably, even though AV was saying she is sad, she was not actually feeling sad at that moment.

One way to understand this sample, and AV’s preoccupation with sadness throughout her samples, is that she’s telling herself repeatedly “I’m sad” because she hasn’t yet acquired the ability to feel sadness directly; so “I’m sad, I’m sad” is a way of practicing organizing sadness, in the same way that repetitively building block towers is a way of practicing organizing fine motor coordination. If this is the case, it’s not merely a disconnect between what one tells oneself and what is occurring; it is that there is only an incipient, dis-coordinated, inexpert set of occurrences that later (as an adult) will be immediately, skillfully recognized as sadness. Of course it is also possible that AV’s repertoire of inner experience does include experiencing differentiated feelings and that our 25 samples simply did not capture it. If this is the case, this sample, as well as the other examples we have given, may simply represent the frequency of this disconnect in AV’s inner experience.
AV was, apparently, able to feel sadness—she could do so just after beep 1.4 (the *Bridge to Terabithia* sample)—or at least she was able to feel the component parts of sadness (her eyes, etc.). But she apparently did not routinely feel sadness as it was occurring. This leads us to speculate that sadness-recognizing is a skill that is learned gradually, that is difficult, slow, awkward at AV’s stage, but that later might be quick and facile. This sample also leads us to speculate, Might DES be useful in helping adolescents (and adults) learn to identify and experience their feelings (or other budding forms of inner experience) clearly? If adolescence is indeed a time of storm and stress, perhaps one of the reasons for this is that inner experience is not yet developed and/or not yet as clearly experienced as it is in adulthood. If DES could facilitate such development, might that reduce some of the apparent inner turmoil adolescents grapple with?

*Sensory and Perceptual Awareness*

We now turn our discussion toward AV’s sensory and perceptual inner experiences. Sensory awareness occurred in three (12%) of AV’s samples and perceptual awareness occurred in five (20%) of her samples, which suggests that these forms are highly characteristic of her inner experience. AV described four instances of sensory awareness across three samples, which means in one sample, beep 1.2, she experienced two distinct yet simultaneous sensory awarenesses. At beep 1.2 AV was standing in the grass in her yard while the sprinklers were on. At the moment of the beep she was feeling her right foot slowly become soaked by water seeping into her tennis shoe and through her sock. At the same time she could feel the sensation of wet grass clippings stuck to her right ankle, partially lodged in her somewhat wet sock. She was completely focused on these two sensations at the moment of the beep.
At beep 3.1 AV’s sensory awareness was a visual experience. She was typing on the computer keyboard in the family room. At the moment of the beep she was looking at the “D” key, specifically staring at the size and shape of letter “D.” Prior to the beep, AV had been typing steadily until she got to “D.” She paused as she noticed that this particular letter “D” was smaller than the “D” on her brother’s keyboard. However, at the moment of the beep she was no longer comparing “D” keys; she was simply engrossed in the size and shape of the “D.”

AV’s beep 3.2 was a visual sensory awareness. AV opened a drawer to see if her missing wallet might be in there. The drawer was filled with a tangle of computer and media cables and controls. At the moment of the beep AV was noticing the sheer amount of “stuff” packed in the drawer. She was aware of the tangle of stuff as a whole; she was not focused on any of the individual items, and she was not thinking about her wallet at that particular moment. In this instance, AV’s visual experience of the tangled mess in the drawer had momentarily drawn her away from her wallet-finding effort. We note here that this sample was difficult to code because it seemed to be on the border between sensory awareness and perceptual awareness. We elected to code it sensory awareness because her perception of the tangled mess in the drawer somehow captivated her, and we weighted that captivation significantly in our coding. However, this sample easily could be argued to be a perceptual awareness, as AV was not captivated by a particular quality (like color), aspect (like shape), or feature (like one particular cord) of the tangled mess in the drawer. Thus it might be most accurate to say that her inner experience at the moment of the beep was of being drawn away from the wallet-finding task toward her visual perceptual awareness of the tangled mess in the drawer.
Perceptual awareness occurred in five (20%) of AV’s samples. For example, at beep 3.3 AV was playing with a button on the table in front of her. She was poking the tip of her pen in and out of the holes, fitting it in to one hole, pulling it out, fitting it in to another, and so on. At the moment of the beep, AV was noticing the particular hole that the tip of her pen was in. She was mostly aware of the hole, not the pen, though the pen is in the hole at the moment. As in beep 3.2 above (in which AV was drawn to the tangled mess in the drawer), this sample seems to exist on the border of sensory awareness and perceptual awareness. We elected to code it perceptual awareness rather than a sensory awareness because she was not engrossed in any specific sensory characteristics of the hole as she was, for example, when looking at the “D” key in Beep 3.1.

Similarly, at beep 3.5 AV was noticing the mole on a cartoon character’s face but was not drawn in by any particular sensory aspect of the mole. At beep 4.4 AV felt the needle pierce her skin when having her blood drawn. Although she noticed the sensation, she was not engrossed in the sensory feeling of the experience. At beep 5.2 AV was looking at the blue dress bordered with floral print worn by a girl on TV. At the moment of the beep AV was looking at the bottom portion of the dress, but not at anything in particular—not the blueness, or the flowered border, or the billow of the fabric, etc. And finally, at beep 5.4 AV was looking at a bite of pancakes on her fork, getting ready to eat it. She was not absorbed in any particular feature of the bite of pancakes, she was simply seeing it on the way to eating it.

Just Doing

AV had six samples (24%) in which she was just doing various activities without any other separate inner experience. For example, at Beep 4.1 AV was logging on to
millsberry.com, typing in her username and password. At the moment of the beep she was pressing “A” on the keyboard, not particularly aware of the letter A or of anything else. Similarly, at beep 1.5 she was just reading; at 2.2 she was just coloring in a coloring book; at 2.5 she was just talking to her mother; at beep 5.1 she was just dressing her virtual pet dog on Nintendo DS; and at 5.5 she was just lining up during talent show practice. In each of these samples AV’s inner experience simply was of the activity she was engaged in at the moment.

*Unsymbolized Thinking*

Unsymbolized thinking occurred in two of AV’s samples (8%), and both instances appeared somehow to be involved in her problem-solving efforts. At beep 2.3 AV had just finished singing a song by T Pain to herself in her head. At the moment of the beep she was just beginning to wonder, Should I sing another song? The beep caught her at the outset of that thought but just after the beep, apparently in response to that thought, AV heard in her head the rapper Aeon singing “Smack that on the floor” along with the rhythm of the song. It was as if her hearing “Smack that” was the answer to her wondering what song she should sing next. Another unsymbolized thinking instance occurred at beep 3.4. This time AV was working on a word find puzzle, trying ways to find the word “neur.” Her strategy was to search for the letter “n” row by row, thus at the moment of the beep she systematically was scanning the horizontal rows (specifically the 3rd row) for a letter “n.” AV was sure that at that moment the letter “n” was “in mind.” It was hard for her to articulate how it was in mind—there was no image of the letter, and she was not saying the letter to herself—but the letter “n” was somehow present in her awareness at the moment of the beep. In both of AV’s unsymbolized thinking instances,
the unsymbolized thoughts (Should I sing another song? and “n”) were part of problem solving processes. In the former, AV was trying to decide whether or not to sing another song and the unsymbolized thought was the question itself, which was subsequently answered by another form of inner experience (inner hearing). In the latter, AV had the letter “n” in mind as she searched for it in her word find puzzle. It would have been interesting to see what AV’s inner experience would have been if she had found the “n” in the word search. In any case, one possible explanation for the unsymbolized thinking-problem solving connection is that for AV unsymbolized thinking is a useful way to lightly hold information in her mind so that she can be open to receiving an answer.

Discussion

Overall AV was an outstanding DES participant. She was timely, organized, and committed, but most importantly she was earnest in her efforts to learn the task and to do it well. Though she was the youngest subject to participate in the current study, her inner experience was further developed and broader across forms than some of her older peers. It appears that at AV’s current stage of development, her feelings are known and expressed through her speech, though her capacity to experience feelings as distinct experiences may be on the cusp of emerging (as evidenced in beep 1.4, when she was triggered by the beep to recognize her sad feeling). AV is a strong inner speaker and tends toward frequent sensory-perceptual inner experiences. Unsymbolized thinking is also solidly within her inner experience repertoire. It is notable that AV did not describe any experiences of images; this may be because image making occurs in later stages of inner experience development.
Table 4

*Frequency and instances of characteristics in AV’s samples of inner experience*

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Frequency</th>
<th>Total instances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inner Speech</td>
<td>7 (28%)</td>
<td>7 (28%)</td>
</tr>
<tr>
<td>Just Doing/Watching/Talking</td>
<td>6 (24%)</td>
<td>6 (24%)</td>
</tr>
<tr>
<td>Perceptual Awareness</td>
<td>5 (20%)</td>
<td>5 (20%)</td>
</tr>
<tr>
<td>Sensory Awareness</td>
<td>3 (12%)</td>
<td>4 (16%)</td>
</tr>
<tr>
<td>Speaking Aloud to Self</td>
<td>1 (4%)</td>
<td>1 (4%)</td>
</tr>
<tr>
<td>Unsymbolized Thinking</td>
<td>2 (9%)</td>
<td>2 (9%)</td>
</tr>
<tr>
<td><strong>Total characteristics</strong></td>
<td><strong>18</strong></td>
<td><strong>19</strong></td>
</tr>
</tbody>
</table>

Number of samples in which characteristic occurs (there may be two or more different characteristics per sample)

Number of instances of a characteristic (there may be two or more instances of one characteristic in a sample)

Total characteristics excludes the DES category “just doing” (just doing is not actually a “characteristic” of inner experience, so it is not included in the total characteristics count)

Characteristics per sample is calculated by dividing total characteristics (excluding just doing) by the number of samples, which yields a statistic describing the average richness/fullness_complexity of AV’s inner experience across samples.

Number of samples = 25
JT was a 14 year-old male who sampled in late April 2007. During that time he collected 25 samples on five separate days, and discussed 22 of these samples (two samples were lost to interference and one sample was deemed private) in five separate expositional interviews. Sensory and perceptual experiences appeared to dominate JT’s inner experience. As shown in Table 5, sensory awareness occurred in 15 of JT’s 22 samples (68%), and perceptual awareness occurred in 10 samples (45%). JT also experienced unsymbolized thinking in eight samples (36%), inner speech in four samples (18%), images in three samples (14%), feeling in two samples (9%), and inner hearing in one sample (5%). Twenty of JT’s samples featured more than one characteristic of inner experience; 11 samples featured two characteristics, seven samples featured three characteristics, and two samples featured four characteristics. In five of these “complex” samples, all of the occurring characteristics were thematically related, while in the remaining 15 complex samples, some of the occurring characteristics were unrelated.

Idiographic Description of JT’s Inner Experience

Sensory Awareness

JT’s samples featured sensory awareness more frequently than any other form of inner experience. Fifteen of his 22 samples involved sensory awareness (68%), and 7 of
these fifteen samples (47%) featured more than one sensory awareness per sample. Thus, as shown in column 2 of Table 5, JT had 23 separate instances of sensory awareness within these 15 samples. Ten of JT’s 23 sensory awareness instances (43%) involved bodily sensory awareness in which he was specifically attending to a sensation in or on his body. For example, at beep 2.1 JT was aware of the cool breeze on his cheek, at beep 2.4 he was aware of his stomach feeling full, at beep 3.5 he was aware of a burning sensation in the white of his right eye, at beep 4.2 he was aware of a painful fire-like burning in his hands, and at beep 5.2 he was aware of the sensation of sneezing, noticing how the pressured air was blowing out of his nose and mouth.

Thirteen of JT’s 23 sensory awareness instances (57%) were external sensory awarenesses of visual, auditory, or olfactory characteristics. JT experienced seven instances of visual sensory awareness (30% of his 23 sensory awareness) in which he was engrossed in the visual characteristic(s) of something in his environment. For example, at beep 1.4 JT was looking at a box of comics. At the moment of the beep he was staring at one face of the box, engrossed in the white color and, separately, at the brightness/vibrancy of the white. He was focused on one central area on the face of the box, but the whiteness/brightness seemed to occupy his entire visual field. JT had been staring at the face of the box for a few seconds, so the sound of the beep penetrated an ongoing process. Similarly, at beep 1.5 he was noticing the pixilated quality of a book cover rendering of Oliver Twist, at beep 2.4 he was engrossed in the reflection of a light bulb in the shiny silver stripe of a coke can, and at beep 3.5 he was examining the characteristics of a patch of blue stucco wall. In beep 4.1 JT was examining dark blue
lettering on a sign, while at beep 5.1 he was staring at the pouffy texture of the carpet, and finally at beep 5.4 he was noticing the shininess of a candy wrapper on his floor.

Additionally, JT had five instances of auditory sensory awareness (22%) and one instance of olfactory sensory awareness (4%). Examples of his auditory sensory awarenesses occurred at beep 2.2 when he was hearing the sound of mustard pushing out of the bottle as he squeezed it, at beep 2.2 when he heard the clanging sound of pots and pans, at 3.2 when he heard the metallic rattle of mints in a can, at beep 5.1 when he heard the grinding noise of the air conditioner, and at beep 5.3 when he heard the “crunch” sound as he bit into a hard pretzel. JT’s olfactory sensory awareness occurred at beep 2.1 when he was smelling hamburgers cooking on the grill. Overall it appears that JT’s capacity for sensory awareness was skilled and well differentiated as his reports were frequent, clear, and diverse (bodily, visual, auditory, olfactory).

Perceptual Awareness

Perceptual awareness occurred in 10 of JT’s 22 samples (45%). These instances appeared to be similar to his sensory awareness experiences in that they involved bodily sensation, hearing, and seeing. However, in these perceptual awareness instances, JT was not engrossed, drawn in or captivated by the sensory stimuli. For example, at beep 2.3 JT felt a burning sensation in his throat, but he was not focused on the burning sensation itself. Instead, he was simultaneously wondering (unsymbolized thinking) why the water he had just sipped was causing his throat to burn. At beep 3.1 JT heard the sound of the bathroom door latching shut. He was listening for the sound so that he could know when the door had completely closed; he was not interested in the sensory quality of the sound of the latch clicking shut. Similarly, in beep 4.4 JT noticed a bug flying, and that it
looked like a speck. His seeing of the bug was in his awareness, but only as a perceptual stimulus that he was considering whacking, he was not sensorily interested in the bug-as-speck visual experience.

Unsymbolized Thinking

Unsymbolized thinking occurred in eight samples (36%), which suggests that it is fairly characteristic of his overall inner experience. His unsymbolized thoughts were typical and unremarkable in form and content. For example, at beep 1.1 JT was thinking to himself something like, here we go again, but not in words or images. At beep 2.5, JT was thinking he ought to clean up the strawberry juice dripping out of the corner of his mouth. At beep 4.5, JT was wondering if he should kill the bug flying around the room, and at beep 5.3 JT was thinking that he should probably move his legs off of the footboard since they were beginning to burn from the friction.

Inner Speech

JT also experienced inner speech in four samples (18%), images in three samples (14%), feelings in two samples (9%), and inner hearing in one sample (5%). JT’s instances of inner speech were clear and straightforward: at beep 3.3 he was saying to himself, “Tomorrow is the last time I’ll get to wear a Speedo...”; at beep 4.2 he was asking himself, “How many [push-ups] do you wanna do?”; and at 5.5 he queried himself, “Why would the tree be moving?”

Inner Seeing

JT’s inner seeing experiences, though infrequent, were very detailed—particularly his image at beep 1.5: JT was looking at the cover of the book *Oliver Twist*, which included a large portrait of the young Oliver. Foremost in his experience, JT was looking
at Oliver’s eyes and recognizing the eyes to be sad. At the same time, in his own head he saw three screens depicting different scenes that depict JT’s way of thinking about what Oliver’s life was like, and what events might have caused Oliver’s sadness. The screens in JT’s head were at right angles to each other, with one screen directly in front of him, much like the side and front walls of an office. The screen directly in front of JT depicts Oliver as a little boy in a dreary orphanage cafeteria begging for food, his hands cupped and outstretched. The image was similar to a still photograph with only the little boy in focus. The other two screens flanked JT to the right and left at right angles to the front screen. These screens also depicted sad scenes, one of a dog dying and the other of a person dying. It was difficult for JT to recall which scene was on what side, but he knew they were all there in his mind.

JT experienced two other images over the course of sampling, and though they were not as elaborate as the *Oliver Twist* related image, they were also well formed (i.e., not in the process of being formed) and clear. At beep 1.1 JT saw an image of his father angrily mouthing to him to clean up his messy room; and in beep 3.2 JT was imagining himself turning his head to the left to see the red numbers, 5:30, lit up on his digital clock. Overall, images do not appear to be frequent occurrences in JT’s inner experience, but when they do occur, they are mature.

*Feelings*

Four of JT’s 22 samples involved feelings (18%). He reported direct inner experience of feelings in two samples (9%) and recognition of another person’s emotion in two samples (9%). At beep 3.3 JT experienced sadness in his head: at the moment of the beep he was saying to himself, “Tomorrow is the last time I’ll get to wear a Speedo.”
The sad feeling was about swim season ending and JT experienced it as a separate accompanying phenomenon to his thought. JT’s report of his experience of feeling sad was confident but he was unable to describe the feeling itself. We have noticed a similar reporting style regarding feelings with other adolescents in which they are able to identify an experience of a specific feeling but unable to discuss/verbalize/describe the characteristics and/or qualities of the feeling itself. Additionally, we have noticed that other adolescent subjects report experiencing feelings in their heads.

In beep 4.1 JT experienced another feeling, this time partly in his head and partly in his body; he was lying down on the couch and his dog was lying on top of him. At the moment of the beep, he felt the dog’s weight pressing down on his stomach and the pressure was slightly painful. At the same time JT was annoyed, which involved wanting to throw the dog off of him. This annoyance seemed to be a feeling in his head, which somehow was expressed in his arms. JT was sure that this annoyance was not an explicit thought, and he was sure that there was some sensation like throwing the dog off in his arms, but he was less sure of the annoyance in his head.

It appeared that JT was able to recognize other’s emotions with more ease than he was able to experience his own feelings. At beep 1.1 JT saw an image of his Dad and immediately recognized that his Dad was angry with him (for not having cleaned up his messy room). Similarly at beep 1.2 JT looked at a rendering of Oliver Twist and effortlessly was aware of sadness in Oliver’s eyes. In contrast, JT labored to describe his own experience of sadness and annoyance, ostensibly because he had to struggle to use words to describe his own feeling experience—which he is probably not accustomed to doing. JT reported his recognition of his father’s anger and Oliver Twist’s sadness easily,
as he has likely had plenty of practice reading facial cues and matching them to the names of feelings. This discrepancy suggests that the skills of recognizing emotion in others may come easier and precede the skills of experiencing and articulating one’s own feelings.

*Inner Hearing*

Inner hearing occurred in one sample only (5%). At the moment of beep 2.3 JT heard himself saying that it was peculiar that water would cause his throat to burn. He was not innerly speaking, yet he innerly *heard* himself comment on the water burning his throat. This sample is noteworthy for two reasons. First, inner hearing is a rare form of inner experience. It requires finely tuned introspective discrimination, particularly when the sound internally heard is the subject’s own voice, as is the case in JT’s example. Second, JT described that he heard his musing float through his mind in the background, terminology closely resembles that of our second subject, RD. Although this is the only instance in which JT refers to “floating though,” it does seem an unlikely random coincidence.

*Complexity Discussion*

Twenty of JT’s 22 samples (91%) featured more than one characteristic of inner experience in his awareness at the moment of the beep. That represents an unusually high number of “complex” samples as compared to the other adolescent participants in this study. These complex samples featured two, three, and sometimes up to four aspects of inner experience occurring at the same time. One possible explanation for this is that JT is our oldest (14 years) adolescent subject. If inner experience itself develops over the
course of adolescence, it would make sense that older adolescents would have more inner experiences than younger adolescents — after all they’ve had more practice.

However, just because JT has more characteristics packed into his inner experience at any given sample does not mean that his capacity for mature inner experience is as developed as it would be in an adult. Adults tend to have singular or thematically related complex inner experience. Five of JT’s “complex” samples mirrored adult samples: they featured aspects of inner experience that were thematically related. However, fifteen of JT’s “complex” samples featured aspects of inner experience that were not all thematically related. That is, some aspects of inner experience were thematically clustered, but one or two aspects were completely unrelated, almost as if they were interferences. For example, at beep 4.3 JT was in the car with his mom at a drive-thru. At the moment of the beep he was looking at the very dark blue lettering on the drive-thru window (sensory awareness), wondering whether the lettering is blue or black. His thought was clear yet it did not manifest in words or images (unsymbolized thinking). At the same time JT’s mom was talking to him. Although he was in some way taking in her talking (perceptual awareness), the meaning of what she was saying was not impacting him. He had not “latched onto” what she was saying; he was not thinking about what she was saying.

In this sample, JT had three ongoing characteristics of inner experience occurring: sensory awareness, unsymbolized thinking, and perceptual awareness. Clearly, his sensory awareness and his unsymbolized thinking experiences were related to the same theme (deciphering the color of the lettering.) However, JT’s perceptual awareness of his mother’s talking (as well as the heretofore uncoded experience of “not yet latching onto”
the meaning of her words) is/are relative to a separate unrelated-to-the-sign-lettering theme. Put another way, the foreground experience in this sample was JT’s looking at/wondering about the dark blue lettering, while the background experience was his low-grade awareness of his mother’s talking to him. From a Gestalt perspective, this sample illustrates JT’s inability to destroy background phenomena to make way for clear foreground experience—singular or complex. Instead, JT ends up with background-noise-inner-experience (his perceptual awareness of his mother’s talking) bleeding through to contaminate what would otherwise be clear foreground inner experience (deciphering whether or not the blue-black lettering was actually dark blue or black).

This incomplete foreground/background phenomenon occurs in an additional 14 of JT’s samples; for example at beep 2.2 JT was paying attention to the sound of the mustard bottle blowing air and bits of mustard onto his hamburger, but he was also separately drawn into the sound of pots and pans clanging in the background; at beep 3.5 most of JT’s awareness was on his eye burning, but another portion of his awareness was on noticing a patch of blue stucco wall; at beep 4.4 he was speaking aloud to himself but a tiny part of his awareness heard the TV in the background; at beep 5.2 he was engrossed in looking at the pouffy texture of the carpet but he also heard the grinding of the air conditioner in the background; at beep 5.3 his legs were hurting and he was thinking about moving them, but separately he heard the crunch of the pretzel he was biting into at that moment.

Notably, many of JT’s “complex” or “incomplete figure/ground” samples involve a variable form of inner experience in the foreground, but almost always an auditory
inner experience in the background (i.e., *hearing* the pots and pans clanging, the murmur of the TV, the grinding of the air conditioner, his mother talking in the background).

There are, of course, other possible explanations for JT's thematically unrelated complex samples. These samples could be interpreted as multiple inner experiences, but that nomenclature does not quite fit because true multiple inner experience is characterized by many equally salient inner experiences all competing for attention. Another possibility is that JT characteristically is and will always be a sophisticated inner experiencer, able to attend to many things in his experience at one time, and able to notice the background phenomena that most subjects are unable to capture. The only way to rule this out would be to sample with JT in a few years. It is also possible that JT was exhibiting a response bias toward reporting something in the environment (i.e., background noise) for some unknown reason. However, we find it most plausible that JT's foreground/background pattern across samples suggests that he may be in the process of learning how to have clear and thematically singular inner experience; that is, he may not (yet) be capable of destroying the background noise in his inner experience in order to focus on the foreground/main figure in his inner experience. We propose this interpretation of JT's inner experience based on inner experience sampling with adults; psychologically healthy adults typically have clear and thematically singular inner experience (Hurlburt & Heavey, 2006).
Table 5
Frequency and instances of characteristics in JT’s samples of inner experience

Number of samples = 22

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Frequency (^a)</th>
<th>Total instances (^b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feelings</td>
<td>2 (9%)</td>
<td>2 (9%)</td>
</tr>
<tr>
<td>Inner Seeing</td>
<td>3 (14%)</td>
<td>3 (14%)</td>
</tr>
<tr>
<td>Inner Speech</td>
<td>4 (18%)</td>
<td>4 (18%)</td>
</tr>
<tr>
<td>Inner Hearing</td>
<td>1 (5%)</td>
<td>1 (5%)</td>
</tr>
<tr>
<td>Perceptual Awareness</td>
<td>10 (45%)</td>
<td>10 (45%)</td>
</tr>
<tr>
<td>Sensory Awareness</td>
<td>15 (68%)</td>
<td>23 (105%)</td>
</tr>
<tr>
<td>Speaking Aloud to Self</td>
<td>1 (5%)</td>
<td>1 (5%)</td>
</tr>
<tr>
<td>Unsymbolized Thinking</td>
<td>8 (36%)</td>
<td>9 (41%)</td>
</tr>
<tr>
<td>Total characteristics</td>
<td>44</td>
<td>53</td>
</tr>
<tr>
<td>Characteristics per sample(^c)</td>
<td>1.51</td>
<td>1.83</td>
</tr>
</tbody>
</table>

\(^a\) Number of samples in which characteristic occurs (there may be two or more different characteristics per sample)

\(^b\) Number of instances of a characteristic (there may be two or more instances of one characteristic in a sample)

\(^c\) Characteristics per sample is calculated by dividing total characteristics by the number of samples, which yields a statistic describing the average richness/fullness/fullness/complexity of JT’s inner experience across samples.
“JW”

JW was a 13 year-old female participant who sampled with us throughout June and July of 2007. She collected 32 samples during this time and met with us on five separate occasions to discuss her inner experience. As shown in Table 6, JW was just doing in 17 of those 32 samples, or 53% of the time. Feelings occurred in six of her samples (19%), and feeling fact of body, or ongoing emotion present in her body (left over from a just prior inner experience of feeling), occurred in three of her samples (9%). Additionally, perceptual awareness occurred in five samples (16%), inner speech in three samples (9%), sensory awareness in one sample (3%), and unsymbolized thinking in one sample (3%). JW did not have any inner experience of inner seeing (aka images) across samples but she did have one sample (3%) in which she was reading, providing us a glimpse of her reading process.

_Idiographic Description of JW’s Inner Experience_

_Just Doing_

JW’s most frequently occurring inner experience was just doing. In more than half of her samples (17 of 32, or 53%), she was engaged in everyday activities, such as talking on the phone, watching TV, playing on the computer, caring for her dog, and fixing food. For example, at beep 1.5 JW was talking on the phone to her friend T,
discussing when she could see T’s newly dyed hair; at beep 2.6 she was watching a movie, seeing the title *Monster’s Inc.* appear on the TV screen; at beep 3.5 she was clicking the Spider Solitaire icon listed on the Start menu of her computer; at beep 4.5 she was buckling a collar around her dog’s neck, fitting the prong into a hole; and at beep 5.1 she was putting hot sauce on her taquitos. In each of these instances, and in all of her instances of just doing, JW was unaware of any inner experience separate from/other than her engagement in those activities. There were instances of just doing on all five sampling occasions, further indicating that just doing is a principle form of JW’s inner experience at this stage of her development.

*Feelings*

Feeling was also a prominent form of inner experience in JW’s samples. Six of her samples (19%) involved her experience of feeling, including being excited, sad, proud, and shocked. In 5 out of 6 feeling instances, JW experienced her feelings in various parts of her body. For example, at beep 1.2 JW experienced excitement as an intense sensation of butterflies in a small area just above her belly button. At beep 1.3, she experienced a similar, though less intense, excited feeling in the same upper stomach area. At beep 2.1 JW experienced feeling sad everywhere throughout her head and upper body. At beep 2.2 she experienced a feeling somewhere between happiness and pride, located in her head only. And at beep 3.4 JW experienced feeling sad, again in her upper body and head. However, in her sixth feeling instance, at beep 5.4, JW felt shocked/surprised but she did not locate this feeling in any part of her body as she had done in all prior instances of feeling experience.
JW's descriptions of her feeling experiences ranged from precise and confident to sometimes vague and uncertain. For example, at beep 1.2 JW gave a very detailed, succinct description of her experience of excitement as butterflies in her stomach area. During the interview she described the feeling as occupying a 2-inch by 2-inch area located about two inches above her belly button and one inch inward. Moreover, she confidently named her experience “excitement.” In contrast, at beep 2.2 JW reported that her inner experience was a feeling but when asked about the qualities and characteristics of the feeling experience she had trouble describing her felt sense of the experience (finally settling on it being in her head only), and she had some difficulty naming the feeling experience itself (settling on somewhere between happy and proud). Even further down the spectrum of precision and confidence, at beep 5.4 JW struggled to discuss her inner experience at all. By this time JW was skilled at sampling her inner experience and participating in expositional interviews. She clearly understood that our interest was in knowing the precise details of her inner experience, and she had become skilled at describing her inner experience with fidelity. Yet in discussing her 30th sample, she struggled with whether her experience was a thought or a feeling (settling on it being somewhere between a thought and a feeling), she struggled with knowing what her feeling was (settling on somewhere between shock and surprise), and she had no bodily awareness of the thought/feeling of shock/surprise whatsoever.

One possible explanation for JW's range of feeling experience descriptions is that JW experiences feelings in a range of ways. That is, sometimes JW experiences clear, mature, robust feelings while other times she experiences partially formed, nascent, or inchoate feelings. This range of feeling experiences may be idiosyncratic to JW, but it
may also be indicative of an adolescent in the process of developing her capacity to have clear and consistent feeling experiences. Although inner experience of feeling across adult DES subjects varies in form (i.e., some adults experience emotion in the body, others in the head, still others experience emotion cognitively as a type of thinking), adult feeling experiences are typically (a) very clearly feelings and (b) consistent in form within a single subject (Hurlburt & Schwitzgebel, 2007). In contrast, JW’s range of feeling experiences reveals that she is neither clear that her experiences are feelings nor consistent in the form of experience her feelings take. Again, perhaps that is simply a characteristic of JW and how she will experience feelings across her life, or perhaps the variability in her emotional experience points to a developmental phase.

Another possibility to explain JW’s range of feeling experiences is that as she became a more accurate observer and reporter of her experience, she found feelings more difficult to apprehend and/or describe. JW’s clearest feeling experience occurred on the first day (at beep 1.2 when she felt excitement manifesting as butterflies in the 2 x 2 inch small area above her belly button), yet her feeling experiences on days two and three were less specific (for example, at beep 3.4 she felt sad throughout her upper body). On the last sampling day, JW was least sure about her last feeling experience. On the last day, at beep 5.4, she was shocked/surprised, but the experience was between a thought and a feeling, and she did not know anything else about how it was manifesting in her experience. Thus the decline in JW’s ability to report feelings could suggest that she was actually becoming a more accurate observer of her inner experience and that she was finding out that feeling experiences were far less clear to her than she had originally thought.
Feeling Fact of Body

Feeling fact of body occurred in three samples (9%). In these instances a recently experienced feeling was somehow still lingering in her body though not expressly in her experience at the moment of the beep. For example, at beep 1.1 JW was playing solitaire on the computer, moving the king card down, not aware of anything in her inner experience other than the task at hand. Yet at the moment of the beep she had a sense that her feeling of anger, experienced a few moments before the beep, was somehow still present in her, though not expressly in her experience. Similarly, at beep 4.3 JW was playing with her puppy, noticing the spots on the puppy’s nose and head. Just prior to the beep she had been feeling the joy of having a new puppy. JW thought that state was probably still bodily present in her at the moment of the beep, though again it was not expressly in her experience. A final example of feeling fact of body occurred at beep 5.3. In this instance JW was watching her puppy playfully running toward her. JW stated that her feeling of happiness was somehow present as she watched her puppy barreling toward her, but that she was not experiencing her feeling at that moment. These instances of feeling fact of body may be further evidence to suggest that JW is in the process of developing her capacity to experience feelings.

Perceptual Awareness

Perceptual awareness was JW’s third most frequently occurring form of inner experience. All of JW’s five perceptual awareness experiences (16%) occurred on the second to last day of sampling (Day 4). It is therefore possible that JW learned to describe perceptual awareness only toward the end of sampling and that she may actually experience perceptual awareness more frequently than is represented here. For example,
at beep 4.1 JW was eating the last bite of her eggs. Though she was not noticing any particular aspect of the eggs’ taste, such as saltiness, or texture, she somehow tasted the eggs in that moment—she was not just eating the eggs. At beep 4.2 JW caught sight of her reflection in the bathroom mirror at the moment of the beep. She saw herself from the waist up. At beep 4.3 JW was noticing the spots on her puppy’s nose and head. And at beep 4.6 JW felt pain on her right back ankle where her brother’s puppy was biting her with its tiny new teeth. Although she was not engrossed in the sensation of the tiny teeth biting into her ankles, she felt the tiny-teethness of the biting. JW’s perceptual awareness of tiny teeth biting her ankle actually may have been a sensory awareness; it was difficult to discern. JW did experience one instance of unambiguous sensory awareness at beep 4.6 in which she was pouring dry dog food in her dog’s bowl. At the moment of the beep JW was noticing the bone-shaped-ness of the food pieces; her experience in this instance was sensory awareness rather than perceptual awareness because she was drawn in by the specific bone-shaped characteristic of the food pieces.

Inner Speech

JW experienced inner speech in three samples (9%), and while it was not a frequently occurring form of her inner experience, her capacity for inner speech appeared to be skilled. Two instances of her inner speech co-occurred with corresponding feeling experiences. For example, at beep 1.2 JW was saying to herself excitedly in her head, “Ohmigod, I’m gonna talk to my boyfriend...what should I say?” while feeling excited with butterflies in her stomach. Similarly, at beep 2.1 she was cooing sadly to herself in her head, “Ooh, that’s so sad, he died...” while feeling sad in her upper body and head. In each of these samples JW experienced two forms of inner experience simultaneously
(inner speech and feeling), which illustrates a developing capacity for complex inner experience. Furthermore, the two co-occurring forms of inner experience (inner speech and feeling) were cohesively related (i.e., her inner speech expressed/matched her feeling), which illustrates a developing capacity for rich, multi-faceted inner experience.

However, JW’s third instance of inner speech conspicuously did not feature a matching feeling experience despite the fact that the situation appeared to warrant some feeling. At beep 2.5 JW was logged onto MySpace, noticing that she had received a new email message from a girl who had been sending her mean messages for no apparent reason. At the moment of the beep JW was saying to herself in her head, “Okay, what’s gonna happen now?” but she did not experience any feeling, despite the unpleasant situation. The absence of feeling experience seemed unusual in light of two things: 1) JW was one of our most emotionally sophisticated participants, and 2) JW’s other two instances of inner speech co-occurred with matching feeling. This could indicate that JW’s inner experience fluctuates in terms of maturity: sometimes it is complex and rich, other times it is partial or not fully fleshed out, not running on all cylinders.

**Unsymbolized Thinking**

Regarding other forms of inner experience, only one of JW’s samples featured unsymbolized thinking (3%). At beep 3.2 she was playing an Xbox 360 game with her brother and was thinking that she’s got to beat him, but that thought was not in words, images, or any other kind of mental representation. Thus, though unsymbolized thinking was not a frequently occurring characteristic of JW’s inner experience, she was capable of experiencing it.
Reading Process

In one sample (3%), JW was reading text off a website, and her inner experience at that moment was more than just reading. At beep 2.4 JW was looking at the Burkholder Middle School homepage on the internet. She was reading the first line of text to herself, comprehending the meaning of what she was reading word by word. JW seemed to understand the words one at a time, as if each word entered her consciousness in sequence, one at a time, attached to its meaning. That is, she did not grasp a whole phrase, or fluidly grasp the meaning of the read words; she linked each individual word to its own individual meaning. The words were not spoken or heard. Additionally, she was aware of struggling slightly to read the text as the font was small and she was not wearing her glasses. The beep interrupted her in the middle of this reading process, allowing us a glimpse of JW reading at her current skill level, which is likely to improve and change over time. Perhaps as she becomes more skilled at reading, she will cease taking in words one at a time in favor of a smoother, more efficient, masterful reading strategy.

Discussion

Overall, JW’s samples of inner experience suggest that she is just doing much of the time but that she does have a fair repertoire of inner experience including feelings, perceptual awareness, sensory awareness, inner speech, unsymbolized thinking. At times her inner experience appeared to be mature and sophisticated, as evidenced in her detailed descriptions of some feeling experiences and her multi-faceted samples featuring simultaneous inner speech and corresponding feelings. However, JW also appears to be in the process of learning to have mature and sophisticated inner experience, as evidenced
in her more vague and partially-formed descriptions of feelings and inner speech. It is notable that JW did not have a single imaging experience. Perhaps imaging is not characteristic of JW and will never be characteristic of JW’s inner experience. But it is more likely that the absence of imaging reflects that JW, while ahead of her peers in terms of feeling experiences, has not yet learned how to make images as many of her peers have to varying degrees, and that that capacity will emerge in JW’s inner experience over time.

Table 6

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Frequency</th>
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<tbody>
<tr>
<td>Feelings</td>
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<td>6 (19%)</td>
</tr>
<tr>
<td>Feeling Fact of Body</td>
<td>3 (9%)</td>
<td>3 (9%)</td>
</tr>
<tr>
<td>Inner Speech</td>
<td>3 (9%)</td>
<td>3 (9%)</td>
</tr>
<tr>
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<td>17 (53%)</td>
</tr>
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</tr>
<tr>
<td>Reading Process</td>
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<td>1 (3%)</td>
</tr>
<tr>
<td>Sensory Awareness</td>
<td>1 (3%)</td>
<td>1 (3%)</td>
</tr>
<tr>
<td>Unsymbolized Thinking</td>
<td>1 (3%)</td>
<td>1 (3%)</td>
</tr>
<tr>
<td><strong>Total characteristics</strong></td>
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<tr>
<td><strong>Characteristics per sample</strong></td>
<td><strong>.63</strong></td>
<td><strong>.63</strong></td>
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</table>

- **a** Number of samples in which characteristic occurs (there may be two or more different characteristics per sample)
- **b** Number of instances of a characteristic (there may be two or more instances of one characteristic in a sample)
- **c** Total characteristics excludes the DES category “just doing” (just doing is not actually a “characteristic” of inner experience, so it is not included in the total characteristics count)
- **d** Characteristics per sample is calculated by dividing total characteristics (excluding just doing) by the number of samples, which yields a statistic describing the average richness/fullness/complexity of JW’s inner experience across samples.
CHAPTER 11

ACROSS-SUBJECTS RESULTS & DISCUSSION

The previous six chapters were devoted to separate idiographic analyses of our six subjects’ (FM, RD, BC, AV, JT, JW) individual inner experience. In this chapter we consider the collective pool of samples across all subjects and present the characteristics, patterns, and trends that emerged. We compare these results to Heavey and Hurlburt’s (in press) findings across a sample of 30 young adults, and to Christy Monson’s (1987) findings across a sample of five adolescents. We also discuss some possible implications and interpretations of our results.

As shown in Table 7, our across-subjects results are based on a total of 161 samples of inner experience; FM contributed 29 of these samples (18%), RD contributed 34 samples (21%), BC contributed 19 samples (12%), AV contributed 25 samples (16%), JT contributed 22 samples (14%), and JW contributed 32 samples (20%). Sampling began in December 2006 and was completed in July 2007. We worked with one subject at a time; five subjects (FM, RD, BC, AV, and JT) completed sampling within one month and one subject (JW) completed sampling over a period of two months. Each subject collected an average of five (range: three to eight) samples on at least five separate occasions (the one exception was RD, who collected samples on six separate occasions). Additionally, each subject participated in an expositional interview within 24 hours of
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<td>(2.76)</td>
<td>(2.41)</td>
<td>(1.63)</td>
<td>(1.17)</td>
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</table>

**Note.** Bold typeface delineates the five main characteristics of inner experience (as found in adult samples; Heavey & Hurlbut, in press).

a Total characteristics excludes just doing and no inner experience.

b Parenthesized values count multiple instances of characteristics occurring at single samples.

c Characteristics per sample is total characteristics divided by the number of samples.
each sampling occasion; that is, there were five expositional interviews per subject (again, with the exception of RD who participated in six expositional interviews).

This chapter is divided into five sections. The first section presents our results regarding the five main characteristics of inner experience, which are inner speech, sensory awareness, unsymbolized thinking, feelings, and inner seeing. The second section is devoted to two other characteristics of inner experience found frequently across our subjects: perceptual awareness and just doing. Next, we discuss the phenomena of meta-awareness and speaking aloud to self, two characteristics of inner experience found infrequently but that occurred in more than one subject’s samples. The fourth section of this chapter discusses differences in the complexity of inner experience across subjects. Finally, the chapter closes with a discussion of limitations of this study and directions for future research.

Five Main Characteristics

The five main characteristics are the five most frequently occurring forms of inner experience consistently found across DES subjects over time (Heavey & Hurlburt, in press; Hurlburt & Heavey, 2002; 2005). These characteristics are known as inner speech, inner seeing (aka images), unsymbolized thinking, feelings, and sensory awareness. Each of these characteristics occurs in approximately one quarter of all samples of inner experience, and current understanding of the phenomenology and frequency of these characteristics primarily is based on research conducted with adult subjects.

One of the questions posed at the outset of the present study was, Is adolescent inner experience the same as or different from adult inner experience? Historically, DES
studies have focused on adult inner experience with few forays into adolescent or child inner experience; the two exceptions are Monson’s 1987 study, which examined the inner experience of five adolescents, and Hurlburt’s sampling with one youngster (see Hurlburt & Heavey, 2006). Overall, our findings in this study corroborate both Monson’s and Hurlburt’s findings: it appears that adolescents can and do experience the same five main characteristics of inner experience experienced by adults. However, our findings also suggest that some of these characteristics are not consistently as fully formed and differentiated as they are in adults, and that some characteristics may develop prior to others.

The five main characteristics and corresponding frequencies across subjects appear in boldface type in Table 7. We discuss our across subjects’ results in terms of each of these five characteristics here, beginning with the most frequently occurring (inner speech) and ending with the least frequently occurring (inner seeing).

*Inner Speech*

Inner speech was the most frequently occurring characteristic across subjects in our sample. It occurred in 44 of 161 samples across subjects, or 27% of the time. Heavey and Hurlburt (in press) found an overall frequency of 26% inner speech across 30 young adult subjects (mean age = 19.0 years), which is very similar to the 27% frequency found across our adolescent subjects (mean age = 12.5 years) here. Monson (1987) found inner speech occurred 21% of the time across her sample of adolescents (mean age = 13.2 years); all five of her subjects experienced inner speech during sampling.

Five of our six subjects (FM, RD, AV, JT, and JW) experienced inner speech. A similar variability in frequency was reported for young adults, where the within-
participant frequency of inner speech ranged from 0% to 75% (Heavey & Hurlburt, in press). Inner speech dominated RD’s inner experience, occurring in 23 of his 34 samples (68%), and it occurred fairly frequently for FM (7/29 or 24%) and AV (7/25 or 28%). JT (4/22 or 18%) and JW (3/32 or 9%) reported inner speech less frequently. BC did not, apparently, have any instances of inner speech.

Overall, the instances of inner speech described by our adolescent subjects were quite similar in nature and content to those reported by adults. Our subjects’ inner speech sounded like outer speaking except it occurred internally, and the inner speech content related to their ongoing experiences/activities/situations occurring in the moment. For example, FM innerly commented, “Wow, this is boring,” during an in-class math lesson on positive and negative numbers; RD asked himself in his head, “What should I wear?” while getting ready to go to the movies; AV exclaimed to herself in her head, “That mole is big!” upon seeing a lady with a big mole on her face on TV; JT mused to himself in his head, “Why is the tree moving?” while tracking a reflection of a wind-blown tree in the window; and JW asked herself in her head, “Okay, now what’s gonna happen?” when noticing an anticipated new message in her MySpace inbox.

However, two noteworthy patterns did emerge across instances of inner speech in our subjects, both related to the tone of the inner speaking voice. First, just as in adults, some inner speech was recognized to have emotional characteristics (tone, manner of speaking); there were a total of 13 such experiences (FM=1, RD=7, AV=3, JT=1, and JW=1). In three of those emotionally toned inner speech experiences, RD (1), JT (1) and JW (1) also experienced a simultaneous emotion. However, in ten of those emotionally toned experiences, RD (6), AV (3), and FM (1) denied, even under careful questioning,
the simultaneous experience of emotion. One example of this emotionally toned inner speech occurred at RD’s beep 3.2: he was saying to himself in his head with frustration and irritation, “Stupid cat, get away!” but he did not feel the frustration or irritation that was so clearly conveyed in his manner of speaking. We discuss this phenomenon in detail in the *Feelings* section of this chapter.

The second pattern we noticed, although infrequently and only in two subjects (RD=1 and AV=2), was inner speaking in dramatic character-like voices. On one occasion RD mused, “I wonder what this tastes like?” in a slightly melodious but decidedly snobby English accent. Similarly AV reported two instances of innerly speaking in a high-pitched, rapid, squeaky little voice: once while commenting on a bad haircut on TV (“Oh my god! They cut his hair wrong!”), and once more while trying to stay stoic when having her blood drawn (“I’m not going to cry!”). During expositional interviews, both RD and AV took care to explain the characteristics of these dramatic voices, and they were able to mimic the voices for us. Neither RD nor AV seemed to find their use of these character-like inner voices strange or surprising.

The prevalence and well-formed quality of inner speech across our subjects suggests that it may be one of the first characteristics of inner experience to develop in young people. However, the instances of emotionally toned inner speech suggest that our adolescent subjects may be in the process of learning to differentiate their inner speaking from their emotional experience. Furthermore, the instances of inner speaking in dramatic voices may indicate that inner speaking is in a more flexible-whimsical state of development in which character-like voices erupt instead of one’s own voice. Perhaps as
their inner speech skills mature, RD and AV will settle into consistently using inner speaking voices that sound like their outer speaking voices.

Sensory Awareness

Sensory awareness was the second most frequently occurring main characteristic of inner experience across subjects. (Perceptual awareness was the second most frequently occurring characteristic across subjects [36/161 or 22%], but because it is not one of the five main characteristics, these results are presented in a separate section below.) Sensory awareness occurred in 34 of 161 samples (21%) and all six subjects experienced it at some point in their sampling. Heavey and Hurlburt (in press) found an overall frequency of 22% sensory awareness across their sample of young adults, and a within-participant frequency that ranged from 0% to 100%.

Monson (1987), however, did not report any instances of sensory awareness; twenty years ago, when her study was conducted, sensory awareness had not yet been identified as a form of inner experience (Hurlburt, personal communication, 2007). Yet, from Monson’s descriptions of her subjects’ inner experiences, it appears that sensory awareness did occur but that she referred to it as either unsymbolized experience or feeling, evidently due to the lack of a sensory awareness category. For example, Monson wrote:

At the moment of the beep Sally was thinking about calling her next door neighbor, Nicole, and hoping she would be home. This thinking about Nicole and hoping she would be home had no words or images; it was just a thought, a knowing that she was thinking about Nicole and hoping she would be home. At the same time she was also wiggling her fingers and feeling undecided about
whom to call. This indecision seemed to be located in her fingers and not anywhere else in her body [italics added]. (Monson, 1987, p. 116)

This sample was coded as unsymbolized experience and feeling; however it may actually illustrate an instance of bodily sensory awareness experience. In order to determine that for sure, we would need to go back in time to the expositional interview and ask more questions of Sally about the located-in-her-fingers portion of her inner experience. From the information we do have, it seems likely that she was experiencing sensory awareness in her fingers at the moment of the beep.

Monson described two more samples that she called feeling, but that seem likely to be sensory awareness:

Anita experienced only a couple of Feeling moments (2 samples out of 18)… in Sample #33… Anita was feeling the warmth of her cat on her lap and the softness of its fur as she stroked it. In Sample #29 she was feeling the hot sauce in her mouth as she ate her snack and watched TV. (Monson, 1987, p. 169)

It is likely that Anita’s experience of warmth on her lap and softness of fur were both sensory awareness experiences, not feeling experiences. Likewise, the feeling of hot sauce in her mouth did not involve affect or emotion, and therefore seems likely to be a sensory awareness experience. We cite these examples to further illustrate that Monson’s subjects probably did experience sensory awareness, but that it was coded as unsymbolized experience and/or feeling at the time. Thus Monson’s frequency counts and percentages for both unsymbolized thinking and feeling may be inflated as those categories accounted for sensory awareness experiences, too.
In the present study, sensory awareness was the most frequently occurring characteristic in two subjects’ inner experience: JT experienced it in 15 of his 22 samples (68%) and FM experienced it in 12 of his 29 samples (41%). AV experienced sensory awareness somewhat frequently, in three of her 25 samples (12%), and RD experienced it in two of his 32 samples (6%). BC and JW experienced sensory awareness only once each; for BC that translated to 5% of the time (1/19), and for JW, 3% of the time (1/32).

The descriptions of sensory awareness were consistently clear, definite, and precise across subjects. Five subjects (FM, BC, AV, JT and JW) experienced at least one instance of external sensory awareness. For example, FM was engrossed in the shiny quality of a single red bulb on a strand of Christmas lights hanging in a restaurant; BC was focused on the sound of actress Halle Berry’s accent; AV was staring at the size and shape of the “D” key on her computer keyboard; JT was engrossed in the vibrancy and brightness of a white colored side of a box; and JW was dawn into the bone-shaped quality of the individual pieces of dog food. Four subjects (FM, RD, AV, and JT) experienced bodily sensory awareness. For example, FM felt intense pain in his head which he metaphorically described like “a fire alarm ringing in my head”; RD felt the weight of his body press through his feet as he stood up; AV felt the uncomfortable sensation of the phlebotomist’s needle pierce her skin; and JT felt his upper lip burning, right along the lip line.

Similar to inner speech, the prevalence and mature quality of sensory awareness across all six of our subjects suggests that it may be one of the first forms of inner experience to take hold developmentally. Remarkably, even BC, our subject who struggled most with DES because she rarely had any fully-formed inner experience at all,
reported a sensory awareness experience that was clear, definite, detailed, and differentiated. As mentioned above, in that sample BC was watching Halle Berry on TV. At the moment of the beep she was paying attention to the way Halle Berry was speaking; specifically, BC was focused on the sound of Berry's accent, and this was at the exclusion of all the other ongoing sensory stimuli in BC's environment at that moment. When describing this experience during the expositional interview, BC was uncharacteristically enthusiastic, and that seemed to be because she had an actual experience to tell us about. That is, it seems likely that BC typically had no inner experience but on this one occasion, she did have an actual experience to report the characteristics of (that is, to answer our questions about)—and she enjoyed doing so. That this actual experience was a sensory awareness lends support to the hypothesis that sensory awareness may be more easily experienced, accessible, or somehow developmentally characteristic of youngsters than the other main characteristics of inner experience.

Unsymbolized Thinking

Unsymbolized thinking was the third most frequently occurring main characteristic across subjects. It occurred in 26 of 161 samples (16%), and five of six subjects (JT, RD, FM, AV, and JW) experienced it. However, unlike inner speech and sensory awareness, unsymbolized thinking was not the dominant characteristic in any individual subject's inner experience. JT experienced unsymbolized thinking in eight of his 22 samples (36%), RD experienced it in nine of his 34 samples (26%); it occurred in six of FM's 29 samples (21%), in two of AV's 25 samples (8%), and in one of JW's 32 samples (3%).
Heavey and Hurlburt (in press) reported an overall frequency of unsymbolized thinking of 22%, and a within-participant frequency of inner speech that ranged from 0% to 80%. Monson (1987) reported an average overall frequency of 37% across her subjects and each of her five subjects experienced unsymbolized thinking in their samples. (As discussed above, one possible reason for Monson's higher average is that she was coding some sensory awareness experiences as unsymbolized experiences.)

As Hurlburt reported (Hurlburt, 1993; Hurlburt & Heavey, 2006; Hurlburt & Schwitzgebel, 2007; Hurlburt & Akhter, submitted) unsymbolized thinking initially is the most difficult type of inner experience for adult subjects to identify and articulate. Eventually, however, because there are unsymbolized experiences to report, adult subjects learn how to characterize the details of those experiences with confidence, if not ease. As would follow, our five adolescent subjects with unsymbolized thinking initially struggled to describe it. Once they figured out how to talk about it, however, their experiences were found to be similar to those of adults. For example, FM was thinking specifically that he had to get to class, but that thought was not in words, images, or any other form; RD was thinking she better not turn the channel/ don’t tell me she’s gonna turn the channel/ I hope she doesn’t turn the channel, but not in specific words; AV was wondering whether or not she should sing another song, but her wondering was not in words, images, sounds, or any other form; JT was seeing a bug fly around the room and was wondering whether or not he should try to hit it, but that thought did not include words, images or any other symbolism; and JW was thinking that she had to beat her brother at the video game, but her thought, though clear and present, was symbolically unrepresented in her mind.
Feelings

Feelings occurred infrequently across our adolescent subjects in this study; only 12 feelings occurred in 161 samples (7%), a substantially lower frequency than the 26% found in Heavey and Hurlburt (in press) or the 42% found in Monson (1987). (Here again, Monson’s overall frequency may be inflated as she was coding some sensory awarenesses as feelings). In the present study, four of our six subjects experienced feelings; JW experienced feelings in six of her 32 samples (19%), while JT (9%), RD (8%), and FM (7%) each reported two instances. Eight of the 12 feeling experiences reported across subjects were fully formed and differentiated; the other four were underdeveloped, partially emergent, or simply ambiguous. In light of these four instances of quasi-feelings, the 7% reported above actually may be too high; the percentage of true feelings may be closer to 4%, far less than the 26% reported by Heavey and Hurlburt (in press) and the 46% reported by Monson (1987).

Psychologically healthy adult DES subjects typically experience feelings clearly and confidently (Hurlburt & Heavey, 2006). Adults quickly recognize their specific experienced feeling (for example, sadness, happiness, anger, joy, love, embarrassment, etc.), and adults do not have any doubt about their experience of particular feelings. The form of feeling experience varies across adult subjects; there are body based feeling experiences (spreading warmth in the chest), head-based feeling experiences (sadness in the head), thinking-based feelings (thinking angry thoughts), and phenomena-less feelings (experiencing fear but without any phenomenal features). Although adults may experience different forms of feeling experience, they are typically consistently clear and confident about such experiences and they are readily able to distinguish their feeling
experiences from other forms of inner experience such as inner speech or unsymbolized thinking. However, even for adults, feelings are often more difficult to describe than other forms of inner experience (Hurlburt & Schwitzgebel, 2007).

The eight “true” feelings experienced by our subjects appeared similar to adult experiences of feelings in that they were clearly recognized and confidently known. Several examples of true feelings follow here: JW felt intense excitement just before talking with her boyfriend on the phone. The excitement manifested as a sensation of butterflies in her stomach, and the locus of the feeling was in a small area just above her belly button, about an inch inside of her body. On another occasion JW was excitedly blurting out baby names to her mother (who was on the phone with a newly pregnant friend), and she felt a similar but less intense feeling of excitement in the same stomach-area location. On one occasion, FM was feeling sad about his mother and father splitting up, and described the sad feeling as being located in his head. RD experienced feeling sorry for his friend J, right after J took a bad fall and hurt himself. The sorry feeling was similar to sadness, but not exactly like sadness, more along the lines of sympathy. RD experienced this feeling on the inside surface of his chest. Finally, JT reported feeling sad as he contemplated the end of swim season. As with FM, JT reported that the sad feeling was located in his head.

In contrast to “true” feeling experiences, four instances of feelings appeared to be underdeveloped, partially formed, or ambiguous. In these samples, our subjects were certain that they were experiencing a specific feeling but they could not describe the quality, location, corresponding body sensations, or any other details about the experienced feelings, and they were uncertain as to how to clearly label the feelings (i.e.,
sadness, anger, nervousness). In the first example, FM felt humor while watching TV, but could not say anything more about what that experience was like for him; he simply said the show was funny and that his reaction to that funniness was somehow a part of his inner experience at the moment of the beep. In a second example, RD felt disappointment when the Eagles lost a game, but he didn’t know how or where he felt this feeling, just that it was there. In a third example, JT felt annoyed by his dog’s weight pressing down on his stomach; at first he reported that the annoyed feeling was in his head, but then later said he wasn’t sure where it was. Eventually it developed that the strongest part of this sensation was a kinesthetic sense in his arms as if they were throwing the dog off him. And in a final example, JW experienced shock and surprise as her pit bull ripped a toy in half. JW struggled to describe her experience of shock and surprise, but she was unable to say whether the experience was more cognitive (thought) or emotional (feeling).

Thus we have seen that feelings in our adolescents were infrequent (occurring in 12 of 161 samples, or 7% overall), and that when feelings occurred, 30% of the time (4/12) they were less differentiated or complete than in adults. More than that, however, there were 11 samples across subjects where our best understanding was that some kind of emotional processes was ongoing but that our subjects were not directly experiencing their feelings. The most striking examples of this came when our subjects were speaking, either aloud or innerly, and recognized from their own tone of voice and their manner of speaking that they were in an emotional state. There were nine instances of emotionally toned inner speech without corresponding experienced feelings. For example, FM lovingly innerly spoke about how cute his cat was, and described the endearing tone of his inner voice, but denied actually feeling loving or endearing or anything at all.
Similarly, RD angrily spoke about his friend kicking him in his sore knee, reported the pissed-off tone and explosive quality of his voice, but felt nothing at the moment. On another occasion RD was about to leave for the movies, excitedly whispering-hissing to himself in his head, “I can’t wait!” yet he did not experience any accompanying feeling of excitement or anticipation. In one sample AV sadly spoke about her favorite model’s losing a competition and described the sad, little sound of her voice—even replicated it for us—, but maintained that she didn’t feel sad at the moment. On another occasion, when having her blood drawn for the first time ever, AV commanded herself in a rapid, high-pitched inner voice, “I’m not going to cry!” yet reported that she did not feel anything (no anxiety/fear/worry—nothing).

This same kind of separation between emotional speech and the inner experience of emotion occurred twice in instances of external speech. RD had jumped off of the couch and was yelling excitedly at the TV, “C’mon, pick up that fumble!” He did not, however, experience any emotion despite the fact that he had jumped up and he was excitedly yelling. Similarly, AV had found out that one of her favorite TV characters died. She had gone to her room, turned off the lights, lay down in her bed, and stared at the ceiling while repeating out loud to herself, “I’m sad, I’m sad, I’m sad, I’m sad...” At the moment of the beep AV was saying the final, “I’m sad.” Remarkably, despite repeatedly articulating her emotional state, she was not actually feeling sad—she apparently had no inner emotional experience at that moment.

On four occasions, however, three subjects did report experiencing emotionally toned inner speech along with an accompanying emotional experience. For example, JW, felt excitement in the form of butterflies in her stomach while saying to herself, “I’m
gonna talk to my boyfriend!” and on another occasion she felt sad in the upper part of her body (waist up and head) while saying to herself, “Ooh, that’s so sad, he died…” JT felt sad (in his head) while saying to himself, “This is the last time I’ll get to wear a Speedo.” And finally, RD felt sorry for his friend (when the friend fell and hurt himself) while saying, “Aw dude…man, that really sucks.” That observation eliminates the interpretation that our subjects simply do not report feelings when they report inner speech, or that our interviewing techniques somehow prohibit that kind of reporting.

Thus, overall our subjects experienced few feelings (12/161 or 7%), and those that they did experience were often incomplete experiences. Furthermore, feelings seemed to be expressed frequently via inner and outer speech, specifically tone of speech—and even when the feeling being expressed was not being experienced. Such findings seem to run counter to the prevailing view that adolescence is a time of emotional turbulence and lability. One possible understanding of our observations is that it may be easier for youngsters to (a) engage in emotional behavior and (b) recognize/interpret emotion in others than it is to (c) experience one’s own emotion directly. As a result, the experience of emotion may appear developmentally later, perhaps acquired somewhere around adolescence. This potential understanding is quite different from the common view that the development of the understanding of the feelings of others comes later than the development of one’s own feelings (Saarni, Campos, Camras, & Witherington, 2006).

Of course, our sample size is small and non-random, so all of our conclusions must be viewed cautiously; however, we propose that this kind of understanding may make the careful observation of lived phenomena worthwhile.
Here is the (rough, speculative) logic of this theory: (a) Emotional behavior is innate: infants cry when hungry or in pain, and this suggests that one does not need to have a clear inner experience of emotion to engage in a behavior that can be called emotional. The (b) third-person skill of observing/recognizing/interpreting emotional expression in others is taught directly by the verbal community early in development. When Mom appears in a certain way and says, “I love you,” the child learns to match her smiling face and warm body language with her words. On other occasions, when Mom’s eyebrows furrow, and her arms cross while she snaps, “I’m angry at you,” the very young child learns to match this different emotional expression with these different words. Thus the child learns to recognize and interpret signs of emotion in others by watching facial configuration and body language and by listening to vocal characteristics. However, our proposed theory asserts that the child receives little, if any at all, direct training of (c) the first-person skill of recognizing emotion in himself/herself. Yet that skill is actually quite complicated, perhaps involving the recognition that this feature of my heart rate goes along with that feature of my skin sensitivity goes along with that other feature of my muscle tension goes along with yet that other feature of my visual perception and so on. These are disparate microprocesses, represented quite separately in different regions of the body and the brain. Eventually, that pattern recognition becomes second nature, and the healthy adult recognizes his or her own angry feelings directly. That recognition thus is a skill that has to be acquired somewhere between infancy and adulthood; the developing child/adolescent has to figure out, on his or her own, with no help from outsiders, that this skin temperature recognition is associated with anger while that stomach gurgle is not. Furthermore, that developmental acquisition has to be made
Despite suppressions or interference with the nascent skill of emotion recognition: “Don’t use that tone with me!”

If this is indeed how emotional development works, or at least one way that it can develop, children/adolescents may learn the first-person recognition of their own emotional states by observing their own behavior in the same third-person way as they would observe the behavior of others. For example, when RD angrily spoke about his friend kicking him in his sore knee, he discovered he was angry by observing in a third-person way the angry tone of his voice, much as he would have observed the angry tone of his father’s (or any other external person’s) voice, not by recognizing the first-person experience of his own feelings. Eventually (i.e., some number of years in the making) RD’s pattern recognition abilities may enable him to integrate the features of his own voice along with his heart rate monitor (whatever that is), his muscle tension proprioceptors, etc., and he will become quickly, clearly, and confidently able to first-person recognize anger and other emotions when they occur. But perhaps that has not yet happened for him at age 13.

This understanding also affords one interpretation of AV’s lying in bed after discovering her TV character had died and saying repeatedly out loud to herself, “I’m sad, I’m sad, I’m sad, I’m sad…” On this understanding, AV was stating a fact (I am sad) and not stating a feeling (I feel sad). This is different from experiencing feeling as a mental event; here AV is not mentally experiencing a feeling, she is experiencing inner speech in abstract reference to a feeling. On this understanding, she is saying I am sad precisely because she does not feel sad: this is a glimpse into emotional skill building as it takes place in the instant. Thus her simple “I’m sad” actually may mean something like:
"I am sad as a fact of the universe. I have observed that when my parents say they are sad they seem to be referring to something inside them. What is going on with me that I should recognize as part of this sadness thing? Is it the itch in my shoulder—no, yesterday when I was sad my shoulder didn’t itch. Is it the teary eyes? Yeah! That seems likely.” Of course that stylized version is much more science-like than actually was occurring. In reality it is emotional play, the learning how to coordinate emotional observation, expression, and feeling, much like the stacking of blocks leads to fine motor coordination.

Of course emotional development may proceed along different pathways than the one suggested here. However, our findings confidently suggest that the nature of emotional experience in adolescents may be much different from emotional experience in adults; specifically, adolescents may be in the process of developing the capacity to experience emotions directly while adults have already mastered that capacity.

*Inner Seeing*

Inner seeing (informally known as seeing images) was the least frequently occurring form of inner experience across subjects. It occurred in six of 161 samples (4%) and only three subjects experienced images. This is a substantially lower frequency than the 34% found in adults in Heavey and Hurlburt (in press) and the 26% in adolescents reported by Monson (1987). JT experienced inner seeing in three of his 22 samples (14%), while FM experienced it in two of his 29 samples (7%). BC reported a single instance of inner seeing across her 19 samples (5%), although this instance may not have occurred strictly at the moment of the beep.
Despite the low frequency of inner seeing across our subjects, those that were reported represented a range of ways to experience inner seeing. Of the three subjects who experienced inner seeing, JT’s experiences were the most elaborate. In his first instance of inner seeing JT had an image of his dad, looking angry while mouthing something like, clean up your room and don’t make me ask you again. His second instance was by far the most complex as it involved him seeing in his mind three screens at right angles to one another. Each screen depicted a different scene relating to poverty and death circa the time of Oliver Twist. JT experienced himself as being surrounded by these three screens, facing one directly while another was on his right side and the other was on his left side. JT’s third and final inner seeing was of his digital clock registering the numbers “5:30” in red light. In his inner seeing, JT was turning his head to the right so that he would see his digital clock. FM experienced one very detailed moving image of his teacher’s car accident as she was describing it to the class. He pictured a white car stopped at a stoplight and a van coming up from behind, just about to hit the car. FM’s other inner seeing experience was of seeing the word “eat” spelled out in bright orange lower case letters. The inner seeing of letters and words is an infrequent occurrence even in adult subjects. BC’s inner seeing involved her picturing herself standing on a basketball court with the ball in her hands. Her brother was behind her, frustratedly gesturing because BC had won their one-on-one game. Though BC’s image occurred just after the beep, we report it here, as it is noteworthy that our subject with scant inner experience was able to produce, identify, and describe an image at all.
Both Monson (1987) and Hurlburt (Hurlburt & Heavey, 2006) reported on adolescent subjects who were “slow-image-builders.” For example, Monson described one of her subject’s incomplete images:

[Wendy] was reading the book *Five Little Peppers* about a little girl who got a nail stuck through her foot just behind the toes. Wendy had just put the book down when the beep occurred. An image was present in her imagination at that moment, and was black and white and dark and fuzzy, a little out of focus. The image was of a foot, side view, with a dark spot on it just above the toes. The foot was located a bit above Wendy’s eyes so that she had to look up to see it; Wendy did not notice the ankle or leg. *She was of the opinion that this image was in the process of forming* (italics added); that if the beep had not interrupted her, this image would have become clear and in color. Furthermore, the dark spot on the foot in the Image would likely have become the nail that stuck through the foot in the story. (Monson, 1987, p.88)

Although there were no samples involving slow-image-building discovered in the present study, there were instances of movement and change in one of our subject’s inner experience. RD experienced his inner speech and unsymbolized thoughts to “come up” or “pass through” his head, changing density and sometimes even meaning, along the way. These samples appeared similar to Wendy’s image-building samples in that both reflect in-process forms of inner experience.

Taken together, the low frequency of inner seeing in our subjects, the much higher frequency in adults, and the slow-image-forming found in Monson (1987) and Hurlburt (Hurlburt & Heavey, 2006), leads to a speculation about inner seeing that is
similar to that for feelings discussed above: Inner seeing ("image making") is a skill that, like the experience of feelings, may need to be acquired gradually over a long period of time. It seems quite possible that many if not most people do not develop facility in the quick creating of inner seeings until relatively late in adolescence. This speculation is based on very few subjects and therefore needs much additional investigation, but if true, it would be (like the observation of the development of feelings) an important contribution to the understanding of human development.

Summary

Three-quarters of all samples across subjects (121/161 or 76%) involved at least one of the five main characteristics of inner experience. Thus our adolescent subjects did experience the five main characteristics found in adults, although with somewhat different frequencies. While adults experience each of the main five characteristics, on average, 25% of the time, our six adolescent subjects experienced inner speech 27% of the time, sensory awareness 21% of the time, unsymbolized thinking 16% of the time, feelings 7% of the time, and images 4% of the time. This suggests that inner speech and sensory awareness may be among the first phenomena of inner experience to develop and mature, while unsymbolized thinking, feelings, and inner seeing may take longer to develop. Furthermore, the low frequency of feelings and the underdeveloped quality of 30% of the feeling experiences strongly suggests that emotions are among the more complex forms of inner experiences to master. Likewise, the low frequency of images found in our sample, combined with Hurlburt’s (2006) and Monson’s (1987) observations of slow-image building in adolescents, suggests that images, too, may be among the more complex inner experience skills to acquire. Thus although adolescents can and do
experience the five main characteristics, there seem to be substantial differences in the maturity of these experiences.

*Other Frequently Occurring Characteristics*

In addition to experiencing the five main characteristics of inner experience, our six adolescent subjects also frequently experienced perceptual awareness (23%) and just doing (22%) when sampled.

Perceptual awareness is not a main category of inner experience, nor a well-established category of inner experience, and therefore it is not cited in many previous DES publications and manuals. The inner experience of perceptual awareness is the noticing of perceptual stimuli as a function of whatever a subject is doing at the sampled moment. Perceptual awareness is similar to sensory awareness in that it involves noticing characteristics of internal or external stimuli, but unlike sensory awareness, perceptual awareness does not involve being engrossed in/drawn to/taken in by the sensory characteristics themselves. Instead, perceptual awareness is the experience of consciously perceiving things as a natural function of being/living/doing/acting in the world. For example, at the moment of the beep I may be noticing the red stop sign in conjunction with my slowing down to stop at the intersection; although the red sign is a specific part of my inner experience, I am not engrossed in the redness only for the sake of the redness, as I would be if I were experiencing sensory awareness.

However, perceptual awareness also is different from the experience of just doing (results discussed below). In just doing a subject is simply being/living/doing/acting without any separate sensory-perceptual awaremesses or other forms of inner experience.
For example, at the moment of the beep my inner experience is of just driving the car. It may be objectively true that I am looking at the red stop sign and slowing down at the intersection, but those things are not distinctly or separately in my experience at that moment. Also, I am not having another form of inner experience such as an inner speech or an unsymbolized thought. Instead, my inner experience is of just driving. In contrast to perceptual awareness, just doing is a well-established and frequently cited category of inner experience.

In the two subsections that follow, we discuss our perceptual awareness and just doing results across subjects.

*Perceptual Awareness*

Perceptual awareness was the second most frequently occurring characteristic found across subjects (that is, it was second in frequency after inner speech). It occurred in 37 of 161 samples, or 23% of the time. Neither Heavey and Hurlburt (in press) nor Monson (1987) reported instances of perceptual awareness. Although perceptual awareness was not the dominant characteristic in any subject’s inner experience, all six subjects experienced perceptual awareness while sampling. It occurred frequently for JT (10/22 or 45%) and RD (12/35 or 35%), fairly frequently for AV (5/25 or 20%) and JW (5/32 or 16%), and sometimes for FM (3/29 or 10%) and BC (2/19 or 11%).

JT experienced perceptual awareness when he heard the metal latch scrape across the strike plate of the bathroom door. At that moment he was listening for this sound in order to know that the door had closed completely. Thus he was perceptually aware of the sound, not engrossed in any characteristic of it, but not oblivious to it either. Similarly, FM experienced perceptual awareness when wiping off a *Pirates of the Caribbean* DVD.
At the beep, he was noticing a half-wiped away fingerprint on the DVD. FM was perceptually aware of the fingerprint as part of his overall effort to get the disk to work—but he was not engrossed in a particular quality or characteristic of the fingerprint itself (like the smudgedness or the pattern of the fingerprint—that would have been sensory awareness). Other examples of perceptual awareness included RD noticing a pretty girl walk by while commenting on her “hotness,” AV looking at a small bite of pancakes on the tip of her fork while eating breakfast; JW noticing the spots on her puppy’s nose and head as the puppy ran toward her.

As perceptual awareness is not a well-established category of inner experience, it is hard to determine whether the 23% frequency we found across our subjects is typical of adults as well, or if perceptual awareness occurs with greater frequency during adolescence for some developmentally relevant reason. It is possible that perceptual awareness is related to the process of developing mature inner experience. One hypothesis is that perceptual awareness is actually a nascent form of sensory awareness; that is, an adult JW would have been engrossed in the brownness of the spots on her puppy’s head but the adolescent JW only perceptually notices the spots because her sensory awareness apparatus is not yet fully mature. Another perhaps more likely hypothesis is that the phenomenon of perceptual awareness actually represents a failure to destroy background inner experience in order to focus on a singular foreground inner experience. The samples themselves seem to support this second hypothesis: thirty-two of the 37 total instances of perceptual awareness across our subjects (86%) co-occurred with other forms of inner experience at the moment of the beep. This suggests that the inner experience of perceptual awareness in adolescents reveals a developmental phase in
which background awareness bleeds through into foreground awareness. This theory is discussed further in the section below on variations in the complexity of inner experience.

**Just Doing**

As mentioned above, just doing is an established DES category of inner experience defined as “being engaged in some activity but with no awareness of thinking about it, and no other aspect of inner experience is in awareness” (Hurlburt & Heavey, 2000). In the present study our subjects were just doing in 36 of 161 samples, or 22% of the time. Thus just doing was the third most frequently occurring inner experience across subjects (that is, it was third in overall frequency after inner speech and perceptual awareness). Monson (1987) discovered a similar overall frequency of 21% across her adolescent subjects, however Heavey and Hurlburt (in press) reported an overall frequency of only 2% across their adult subjects. Thus just doing appear to occur more frequently in adolescents than in adults.

In the present study, four out of six subjects (BC, JW, AV, and FM) experienced just doing, and two (RD and JT) did not. Just doing was the dominant inner experience across BC’s samples (11/19 or 58%) and JW’s samples (17/32 or 53%), and it occurred less frequently across AV’s samples (6/25 or 24%) and infrequently across FM’s samples (2/29 or 7%). We note that our female subjects reported just doing more frequently than our male subjects (34 to 2).

In a sample that illustrates just doing, JW was in the process of walking out of the front door of her apartment. Her hand was on the doorknob, but she was not aware of anything at that moment—she was just walking out the door. Similarly, in a just doing sample, AV was logging on to Milberry.com. She was pressing the letter “A” while
looking at the keyboard but she was not aware of anything else at that moment. In another instance of just doing, BC was scrubbing the part of the kitchen counter next to the stove. It was a fact of the universe that she was scrubbing the counter hard, but she was not explicitly aware of that or anything else at the moment. In a final example of just doing, FM was unwrapping a package of cheese to make a quesadilla, but he was not explicitly aware of any thematic thing.

Our finding that adolescents are just doing 22% of the time (in Monson, 21%) may help explain why when parents ask an adolescent what they’re doing, the recurrent answer is, “Oh, nothing.” Adolescents are often criticized (sometimes harshly) for their apparent doing nothing (think of the prototypical mom yelling at her son to be useful once and a while). But what if the adolescent’s supposed doing nothing actually reflects an inner experience of just doing? How is an adolescent supposed to explain that he spends a fifth of his time in an inner experiential state of just doing? And how is he supposed to explain that to an adult, who, according to Heavey and Hurlburt only experiences just doing 2% of the time? Thus when criticized for saying, “Oh, nothing” the adolescent is perhaps put in a position of having to defend himself for being in a developmental phase, something he doesn’t even know about himself. This finding may shed at least a small beam of light into the giant chasm in communication between teens and their parents. Maybe teens’ and parents’ inner experiences are fundamentally different enough from each other that each feels that talking to the other is like talking to a Martian. (How many times have parents heard teenagers scream, “How could you possibly understand me?”)
Less Frequently Occurring Characteristics

Ten other characteristics of inner experience emerged across subjects in the present study. Eight of these characteristics occurred in single subjects only and were discussed in the idiographic chapters; those characteristics are feeling fact of body (JW=3), incipient inner experience (BC=1), inner hearing (JT=1), listening process (FM=3), no inner experience (BC=3), open (RD=2), reading process (JW=1), and worded thinking (FM=1). However, two of these characteristics (meta-awareness and speaking aloud to self) occurred in more than one subject, and thus are addressed here.

Meta-Awareness

Meta-awareness occurred in three of 161 samples (2%), and only in two subjects (FM and RD). Neither Heavey and Hurlburt (in press) nor Monson (1987) reported any instances of meta-awareness in their subjects' inner experience, so we are unable to make comparisons of meta-awareness frequency across studies. However, meta-awareness is known to occur in some adult subjects, as described by Hurlburt and Heavey (2000; 2006). RD experienced meta-awareness twice in his 34 samples (6%). The first instance occurred while he was looking at his friend's moon sand, and at the same time he was aware of himself looking at the moon sand. RD's second experience of meta-awareness occurred while watching an Eagles game on TV. He was saying to himself in his head, "C'mon, the Eagles have to win," but most of his awareness was focused on himself watching the game; that is, at the moment of the beep he was meta-aware of himself watching the game. Similarly, FM experienced meta-awareness when the headphone fell out of his ear and he was catching it. At that moment (which, incidentally, was also the moment of the beep), FM was thinking about himself catching the headphone while
actually catching it. Although this may have been a case of induced-by-the-beep meta-awareness (there was a lot happening related to sampling at the moment of the beep, which may have facilitated FM to meta-think about his experience), it illustrates that at least some adolescents, like adults, have the capacity for meta-awareness.

Speaking Aloud to Self

Speaking aloud to self occurred in three of all 161 samples (2%) across subjects. Although Flurlburt and Heavey (2000) acknowledge the phenomenon of speaking aloud to oneself, they did not find any instances in their study of young adults (Heavey and Hurlburt, in press). Monson (1987) did not report instances of this phenomenon either. Three subjects experienced this phenomenon once each. The first example of this occurred in one of FM’s samples (1/29 or 3%). He spoke aloud to himself in a lowered, breathless tone, saying “I need to go talk to my mom.” At the same time he was feeling sad. The second example occurred in AV’s experience (1/25 or 4%). One of AV’s favorite characters on a TV show had died. She turned off the TV, went into her room, turned off the lights, and lay down in her bed. She stared at the ceiling while repeating out loud to herself, “I’m sad, I’m sad, I’m sad, I’m sad…” At the moment of the beep AV was saying the final, “I’m sad.” Although AV was not feeling sad at the moment of the beep, her speech itself was about feeling. The third and final example of speaking out loud to self occurred in one of JT’s samples (1/22 or 5%). In this instance JT was thinking about what he should watch next on TV. At the same time, he was saying to himself out loud, “That movie is going to be over soon.” In this example, there was no feeling experience or implied emotion; JT’s speaking out loud to himself was in a matter of fact tone. One possible explanation for the phenomenon of speaking out loud to
oneself in adolescence may be that it is actually a nascent form of inner speech. Clearly the speech is private, meant for self only, much like inner speech is.

Variations in Complexity of Inner Experience

This section of this results-across-subjects chapter presents differences in the complexity of our subjects' inner experience. We measured complexity of inner experience as the average number of characteristics experienced per sample. As shown in Table 7, 161 total samples of inner experience were collected across subjects. However, as it is possible for more than one characteristic to occur in any one sample of inner experience, the total characteristics count for each subject not always is equal to the total number of samples collected. In the present study, 177 characteristics of inner experience occurred across 161 samples. (The calculation of 177 characteristics across subjects excludes the categories of just doing and no inner experience, as these do not constitute apparent and present characteristics of inner experience.) The following two samples illustrate the difference between a single characteristic sample and a complex sample in which three characteristics occurred at the moment of the beep:

AV Beep 5.4: AV is eating breakfast before going to school. At the moment of the beep she is looking at a bite of pancakes on her fork, getting ready to eat the bite. She is not interested in any particular characteristic of the bite of pancakes; instead she is simply looking at it on the way to eating it. (Coding: Perceptual Awareness)

JT Beep 3.3: JT is thinking about the end of swim season sort of retrospectively. At the moment of the beep he is saying to himself, "Tomorrow is the last time I'll
get to wear a Speedo.” At the same time, JT feels sad, and the sadness is in his head. The sadness is about swim season ending and JT experiences it as a separate accompanying phenomenon to his thought. Additionally, at the moment of this beep, a good deal (50%) of JT’s awareness is on noticing the messiness of his room. He sees the mess of everything in his room at once and he cannot see the floor for all the stuff on it. However, JT is not noticing anything in particular, nor explicitly thinking anything about the messiness at the moment. (Coding: Inner Speech; Feeling; Perceptual Awareness)

Thus we see that among subjects there were differences in the complexity of inner experience samples. To describe the relative complexity of each subject’s inner experience, we calculated a characteristic-per-sample (cps) statistic by dividing the number of characteristics (177) by the number of samples (161) to arrive at an average complexity rating of 1.10 across subjects, as shown in the bottom right-hand corner of Table 7. Although this cps statistic has not been referred to in previous DES literature, we introduce it here so that we have a grounded way to discuss differences in the complexity of inner experience across our subjects. We then calculated a characteristic-per-sample statistic for each individual subject by dividing the number of characteristics reported by each subject by that subject’s total number of samples, as shown in the last row of Table 7. There are two ways that these cps statistics can be calculated; we illustrate using JT as an example (see the third-from-right column of Table 7). As the table shows, JT had 15 samples in which sensory awareness occurred. But in 7 of those 15 samples, there were multiple instances of sensory awareness (for example, in beep 3.5, there were three separate sensory awarenesses: the sensation of his right eye burning, his absorption in the
blue color of the wall, and his interest in the stucco texture of the wall. The question becomes, should the numerator of the cps statistic count the number of occasions in which sensory awareness occurred (in which case, beep 3.5 counts as one occasion) or the number of instances of sensory awareness (in which case, Beep 3.5 counts as three instances). Arguments can be made for both ways, so the last two rows of Table 7 present both ways of counting, putting computations based on the number of instances in parentheses. Thus JT’s total number of characteristics based on the 15 occasions that sensory awareness occurred is 44, resulting in a cps of 44/22 = 2.00. However, JT’s total number of characteristics based on the 23 instances of sensory awareness and the nine instances of unsymbolized thinking (instead of the eight occasions in which unsymbolized thinking occurred) is 53, resulting in a cps of 53/22 = 2.41. As the last row of Table 7 shows, these two different ways of counting give approximately the same results: JT is the only subject where the two ways provide substantially different results, and by either measure, JT has easily the most complex inner experience. Therefore, in what follows we will use the occasion (non-parenthesized) method of computing cps.

As discussed above, the average cps across subjects was calculated to be 177/161 = 1.10; that is, for every sample of inner experience, there were an average of 1.10 characteristics reported (excluding just doing and no inner experience). Three subjects (JT, RD, and FM) exceeded this average. JT had the most complex inner experience among subjects, with a cps of 2.00 (44 characteristics/22 samples). Twenty of his 22 samples (90%) featured more than one characteristic. RD had the second most complex inner experience among subjects, with a cps rating of 1.53 (52/34). Twenty-two of his 34 samples (65%) featured more than one characteristic. FM had the third most complex
inner experience among subjects, with a cps rating of 1.31 (38/29). Sixteen of his 29 samples (55%) featured more than one characteristic. All three subjects who exceeded the cps average across subjects were male.

Each of the three female subjects in this study (AV, JW, and BC) had a characteristic-per-sample average less than the average across subjects (1.10) and less than one characteristic-per-sample (1.00). AV’s cps was calculated to be .72 (18/25). Only one of her 25 samples (4%) featured multiple characteristics. JW had a cps rating of .63 (20/32) and five of her 32 samples (16%) featured multiple characteristics. And finally, BC had cps of .26, which was the lowest among all subjects. She did not have a single sample in which she experienced multiple characteristics.

One possible explanation for finding greater complexity of inner experience in some subjects, for instance JT, is that highly complex inner experience in adolescence suggests a failure to organize perceptual stimuli. That is, an overabundance of inner experience might reflect a developmental stage in which one cannot yet achieve clear and singular inner experience. Hurlburt (Personal communication, 2007) drew on Fritz Perls’ Gestalt Therapy theory (Perls et al., 1951) to better understand JT’s complex inner experience. Perls (Perls et al., 1951) was of the opinion that healthy people create clear, differentiated, vivid figures (or Gestalten) out of the undifferentiated general perceptual world. That process, Perls held, is both constructive and destructive. It is constructive because no Gestalt exists in nature; a Gestalt is the result of a person’s construction superimposed on natural bits of sensation. For example, consider the well known faces/vase ambiguous figure. It is not the case that the face and the vase exist on the paper; instead, bits of black ink and white patches exist. The viewer constructs now the
faces, now the vase out of the raw material of the ink bits and paper patches. The healthy process is also destructive in the sense that when one now constructs the vase, one must destroy the faces that one had been seeing.

For Perls, psychological health is thus the continual, fairly rapid (every second or so) destruction of the past and the creation of a present clear, vivid, Gestalt. From that point of view, a healthy person selects one thing or cluster of things out of the welter of available stimuli and makes that thing or cluster of things her figure or Gestalt (Perls (and Hurlburt) use the terms figure and Gestalt interchangeably). That thing might be an inner speaking, or an image, or a visual perception, whatever. And it may be an organization of disparate things, such as the smelling of the aroma and the simultaneous imaging of a barbecue. But healthy Gestalten are clear and vivid, and the healthy Gestalt-building process destroys the competing Gestalt opportunities that exist in the welter.

From that point of view, JT’s inner experience (at beep 5.3) of simultaneous burning in the back of his legs, thinking to himself that he should move his legs, hearing the pretzel crunch as he bites into it, and hearing droning of the TV in the background is an example of an incompletely formed Gestalt. A healthy adult would construct a Gestalt of the painful burning sensation, perhaps along with the thought of moving his legs. The crunch of the pretzel would be destroyed into the ground, as would the undifferentiated noise coming from the TV. Perhaps a second later, that healthy adult would create a Gestalt that consisted of the pretzel crunch/taste, which would entail the total destruction of the leg-burning experience. Then in the next second, the TV sound might become the Gestalt, entailing the destruction of the pretzel crunch/taste. Then in the next second, the pain in the legs might return, entailing the destruction of the TV sound. And so on.
Our observations of JT’s pattern of inner experience are, lightly held, consistent with the view that Gestalten may be much slower to form in adolescents than they are in adults. Perls took for granted the almost instantaneous creation of Gestalten, but that may be an adultomorphic point of view. If one accepts the possibility that children/adolescents have to learn to create Gestalten, then that makes it seem quite reasonable that they have to learn to coordinate the constructive/destructive elements of that skill. That makes it reasonable that JT’s leg-burning/thinking/pretzel-crunch/TV-hearing is the result of his not-yet-skillful destruction of the pretzel and the TV aspects of the welter of his experience. Assuming he is healthy, which he appeared to be, he will learn to perform that constructive/destructive skill faster and more completely, although it may take him a few more years of practice to become rapidly skilled at it, as is the healthy adult.

On the other end of the spectrum from JT’s possible failure to organize an overabundance of inner experience, a paucity of inner experience suggests a different type of immaturity in inner experience. BC, for example, apparently had very little inner experience at all: only five of her 19 samples involved salient characteristics of inner experience, and she never experienced more than one characteristic of inner experience at a time. Her cps of .26 thus may reflect a profound lack of inner experience overall. Clearly BC had the ability to identify and articulate her inner experience when it was there—in fact, she did so with enthusiasm and specificity when discussing her sensory awareness experience of Halle Berry’s accent in one of her samples. That BC enjoyed discussing her experience of Berry’s accent far more than repeatedly reporting “nothing” in her inner experience strongly suggests that her reports of no inner experience were accurate. Why else would an 11-year-old choose to take the harder/duller road of
reporting "nothing"? We feel confident that if BC had had other inner experiences to report to us, she gladly would have.

Thus we speculate that BC’s lack of inner experience reflects her early stage of development with regard to inner experience. Furthermore, although she experienced it in only one sample, BC was the only subject to have an incipient inner experience. In that instance she was sure that something was in her inner experience but she had no idea what it was; something coalesced enough for her to recognize its presence, but her skills were not yet developed enough to form the experience into something recognizable or describable. Perhaps in a year or two her inner experience capacities will have matured enough to produce identifiable characteristics.

JT and BC can be viewed as working on different developmental challenges with regard to inner experience. BC is just learning to have inner experience while JT has mastered the capacity to have several forms of inner experience (including the five main forms), yet his current challenge seems to be to figure out how to have clear and singular inner experience, to focus on the figure and allow the ground to fall away.

**Nascent Inner Experience**

Based on our adolescent subjects’ samples of inner experience, we have speculated that the experiences of feelings and of inner seeing are skills just beginning to be acquired in adolescence. As a way of focusing on those nascent skills, let us examine the work of the Flavells (1995), who, more than any other researchers, have explored the thinking of children. They find in their studies that kids of age 5 or 6 consistently report having no thinking, but they assert that their young subjects report no thinking because
they lack the attention/cognitive capacities/language skills necessary to be able to describe their thoughts. Thus the Flavells do not believe their child subjects’ reports of no thinking. Instead they construct a theory to explain why the kids aren’t telling the truth. This theory is based on a presupposition: It can’t possibly be true that kids don’t experience thinking—everyone experiences thinking!

However, Hurlburt (in Hurlburt & Schwitzgebel, 2007) proposed the possibility that the kids that participate in Flavell’s studies are accurately describing their inner experience: that they in fact did not experience themselves as thinking, even in situations where most if not all adults would experience thinking.

In a typical Flavell experiment, the child is seated on a carpet and the experimenter says:

I’m going to ask you a question, but I don’t want you to say the answer out loud. Keep the answer a secret, OK? Most people in the world have toothbrushes in their houses. They put their toothbrushes in a special room. Now don’t say anything out loud. Keep it a secret. Which room in your house has your toothbrush in it? (Flavell, Green, & Flavell, 1995, p. 57).

The child is then moved to a table and asked if she had been thinking while seated on the carpet, and if so, about what. Adults and older children typically say they were thinking—saying “bathroom” to themselves or seeing an image of their bathroom.

However, the majority of 5-year-olds deny they were thinking. Flavell and his colleagues conclude that, “children lack the disposition and the ability to introspect. Lacking introspective skills, they would be unlikely spontaneously to notice and reflect on their
own mental experiences and, consequently, unlikely to attribute such experiences to others” (Flavell, Green, & Flavell, 1995, p. 52).

Hurlburt (in Hurlburt & Schwitzgebel, 2007) disagreed with this interpretation, reasoning that inner experience (including thinking, feeling, and so on) does not automatically occur when a person is born. Like other basic skills and capacities, for instance walking or talking, he asserted that perhaps children learn, gradually over time, how to experience (how to experience thinking, how to experience feeling); that the ability to have differentiated inner experience may be the end result of a developmental process that begins at birth and stretches into young adulthood. Thus it is reasonable to interpret that the Flavells, with painstaking care, have demonstrated precisely the absence of thinking in young children. That is diametrically counter to the Flavell’s interpretation, the result, perhaps, of the Flavells’ failure to bracket presuppositions about inner experience (Hurlburt, in Hurlburt & Schwitzgebel, 2007).

Hurlburt further suggested that if inner experience is built via slow skill acquisition with practice over time, this process may occur in fits and starts, contingent on other ongoing developmental processes (such as cognitive development) and environmental opportunity. On this view, it would make sense that (a) young children may not have inner experience at all; and that (b) as youngsters begin acquiring the skills necessary for inner experience, the inner experience they do have may not be full-formed, and thus may be quite different from adult inner experience. The present study was designed to explore these issues, specifically targeting young adolescents to try to “catch” inner experience in the middle of this proposed developmental process.
The results of this study lend support to Hurlburt's assertions. We observed that among the five main characteristics, feelings and images occurred in much lower frequencies than they occur in adults. Of the feelings that did occur across our adolescent subjects, one-third of these were remarkably underdeveloped. Instead, we found that our subjects most often came to know their feelings through the tone and content of their own inner and outer speech rather than through direct experience of emotion. This suggests that feelings are complex forms of inner experience that require skill building over time, and that young adolescents appear to be smack in the midst of that feeling acquisition process. Similarly, Hurlburt (Hurlburt & Heavey, 2006) and Monson (1987) both observed slow-image-building in their adolescent subjects. Those findings, combined with the low frequency of inner seeing among subjects in the present study suggests that inner seeing is also a complex form of inner experience that develops over time with practice. In contrast, inner speech, sensory awareness, and unsymbolized thinking were found to occur with similar frequencies as found in adults. Thus these forms of inner experience may develop and mature earlier on, perhaps in late childhood; future DES research with younger subjects is needed to bear this out.

In addition to our findings on the five main characteristics, we also observed that perceptual awareness and just doing occurred with far greater frequency than found in adults. This suggests that young adolescents spend many moments not generating inner experience; that is their organisms are not presenting or selecting or coalescing abstract or symbolic or complex forms of inner experience. The prevalence of perceptual awareness and just doing in our subjects’ samples suggests that young adolescents are just living/being/doing a good deal more of the time than adults.
Finally, we observed differences in the overall prevalence and complexity of inner experience in our subjects. One of our subjects, BC, had very little inner experience at all, which suggests that she is in the process of developing her basic capacities for inner experience. Our subject with a great deal of inner experience, JT, also appeared to be in the process of developing his inner experience skills. Unlike BC’s challenge to develop inner experience, JT’s developmental task appeared to be focusing on one dominant form of inner experience while allowing background interference to fall away. Both cases reveal young adolescents in the midst of inner experience developmental processes, lending strong support to Hurlburt’s views.

Study Limitations and Suggestions for Future Research

Because DES studies are time and labor intensive, the sample size was small (N=6). To apply the DES method thoroughly, as described in the Methods section (Chapter 3), approximately 50 hours were devoted to “running” each subject (coordinating meeting logistics and transportation, introducing the method, training the subject, expositional interviews, digitizing the interviews, several iterations of writing narrative descriptions of each sample, coding the samples where appropriate, several iterations of writing idiographic narrative descriptions of each subject’s inner experience, considering all samples across all subjects, several iterations of writing a narrative description of the salient characteristics across all subjects). Furthermore, two investigators worked on all aspects of the process. Future studies might be streamlined by conducting on-site investigations in settings where there is access to several adolescents at one time, for example in schools, camps, mental-health facilities, juvenile detention
facilities. This might allow investigators to sample with more adolescents in a shorter period of time.

Another limitation of this study related to the small sample size is that statistically significant conclusions cannot be drawn from the data. Because the proper data of this study are the samples of inner experience, these data cannot be reduced to mere numbers and analyzed accordingly. The closest we came to statistical analysis was our coding of the samples for salient characteristics and then taking frequency counts of those salient characteristics. To conduct tests of statistical significance, larger samples of adolescent subjects are needed. However, even with larger sample sizes yielding more samples of inner experience, any statistical analysis would be of codings only as the actual experiences themselves cannot be reduced to numbers.

A third limitation of the present study is that the data were not correlated with any extant standardized psychological measures. Although statistical correlations would have been impossible (as stated above, because of inherent reductionism in codings and small sample size), it might be worthwhile qualitatively to compare subject’s inner experiences to performance on standardized tests (for example, the WISC-IV and the MMPI-A). Future studies might consider conducting standardized assessments with subjects after sampling has occurred so as not to “contaminate” DES. For a more rigorous design, investigators could remain blind to standardized testing results throughout DES (both sampling and analysis phases), and only consider testing results after all DES narrative descriptions had been written.

A fourth limitation of the present study is that it was not theoretically grounded and no hypotheses were made at the outset of the study. In the present study we elected to
conduct basic exploratory research, that is, to apply DES to adolescents to see (a) if they were capable of doing the method and, if so, (b) to explore their samples of inner experience. Our rationale for this approach was that by conducting atheoretical basic research we might be free to discover aspects of adolescent inner experience that would otherwise be trampled by preexisting viewpoints and questions. Prior to conducting this study, methodologically relevant literature was reviewed but only in the service of understanding the types of data on adolescent experience derived from other methods. The aim here was to remain free of theoretical and hypothetical trappings; however this approach can also be seen as a major weakness in the sense that the study does not explicitly advance any psychological theory. Future research into adolescent inner experience may use theoretically-grounded hypotheses—but those hypotheses will be informed by clues derived from basic studies, such as the present study, in which there were no agendas or externally imposed influences.

A fifth limitation of the present study is the lack of interrater reliability. Although two investigators, a student and her advisor (Hurlburt, the originator of DES), collected the data and reviewed the data independently and together, the study may have benefited from additional data reviewed and rated by a third investigator. It is difficult to estimate how much benefit that would add to the clear seeing of the data themselves, but in terms of providing a measure of rating reliability, this step would have strengthened the study. Future studies may choose to build in such a step to the design.

Based on our findings in the present study, we believe that more research on adolescent inner experience using DES would be worthwhile. DES research is needed on healthy adolescents, but future studies might also consider exploring the inner experience
of special adolescent populations. One example of such a population is teenagers who suffer from as yet “undifferentiated” mental illness. Research exploring the inner experience of this population may shed new light on the etiology of psychopathologies, such as schizophrenia (particularly first breaks, which often occur during adolescence) or personality disorders (which often begin expressing during adolescence). Another direction for future DES studies on youngsters would be to use cross-sectional and longitudinal designs to explore the inner experience of different age groups of kids and teens. Basic research would need to be conducted first, addressing questions such as, At what age are children able to identify and discuss the phenomena of their inner experience? What are the developmental differences in inner experience across childhood and adolescence? How do those findings compare to the linchpin theories of development?
REFERENCES


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APPENDIX

SUBJECT SAMPLES

FM's Samples (See Chapter 5)

Interview: 1
Date: 12/11/06
Time: 3:45pm
Interviewers: SA & RH
Number of Beeps: 6
Date(s) Beeps Collected: 12/10/06, 5pm-6:30pm & 12/11/06, 7am-8:30am

1.1 (12/10/06): FM is a little hungry and is standing in the kitchen thinking about what to eat. At the moment of the beep he is thinking to himself a thought, which if expressed in words would be something like, “what should I get to eat?” but no words were actually present. At the same time, he is also saying to himself in his head, “I gotta hurry up and go watch my show” (American Dad on TV). This thinking is experienced as being in his own voice with its natural characteristics, just as if spoken aloud. Of the two thoughts present in his awareness, thinking about rushing because he doesn’t want to miss his show is more prominent than wondering what to eat. (Unsymbolized Thinking; Inner Speech)

1.2 (12/10/06): FM is in his room watching the TV show, American Dad. On the show, Roger, an alien, has squirted reproductive fluid into the potato salad as a mayonnaise substitute. The family eats the potato salad and likes it very much and FM finds this funny. At the moment of the beep FM is experiencing humor in reaction to the scenario. He is completely absorbed in the funny TV show. (Feeling)

1.3 (12/10/06): The TV show has ended and FM is back in the kitchen. He is hungry and his brother has just suggested he make a quesadilla. At the moment of the beep FM is unwrapping the cheese from the packaging, though he is not explicitly aware of this. Instead he is getting the cheese out knowing he’s gonna make a quesadilla. (Just Doing)

1.4 (12/10/06): FM is back in his room watching The Family Guy on TV. At the moment of the beep, FM is wondering to himself, though not particularly in words, when is the beep going to go off? Though the TV is on, FM is thinking about the beep and not really paying attention to the show. (Unsymbolized Thinking)
1.5 (12/11/06): FM is in homeroom at school. The substitute teacher is handing FM some papers to take to the front office. At the moment of the beep, FM is in the act of taking the papers from the teacher. Simultaneously, he is aware of hearing some kids saying something in the background and he is trying to make out what they are saying. He later deduces that they were wondering what he had in his ear (the earphone). (Doing; Listening Process)

1.6 (12/11/06): FM is in homeroom and his teacher is talking about her recent car accident. At the moment of the beep, FM is paying attention to his image of the accident. He is trying to pay attention to his teacher and he is picturing in his head a white car stopped at a stoplight with a van just about to hit it from behind. This is a moving picture and FM sees several cross traffic cars going through the intersection as if viewed from the back. The beep seems to stop the image from continuing. FM isn’t sure what color his teacher’s car actually is, or whether she was rear-ended by a van or some other kind of vehicle, but in his image those details are clear to him. Also at the moment of the beep, FM is thinking to himself—almost saying to himself, OK, when is the beep going to go off? (Listening Process; Image; Unsymbolized Thinking)

Interview:

Date: 12/13/06
Time: PM
Interviewers: SA & RH
Number of Beeps: 6
Date(s) Beeps Collected: 12/12/06 & 12/13/06

2.1 (12/12/06): FM is at school in orchestra class where the movie *White Christmas* is playing. His eyes are closed and he is not really watching the movie. FM starts to yawn when the beeper beeps. At the moment of the beep he is aware of yawning, though not in words or images. (Just Doing)

2.2 (12/12/06): FM is in the library at school. It’s lunchtime and he wants to play a computer game with his friend. At the moment of the beep FM is reaching for the power button (located on the back side of the machine) to turn on the computer. He is aware of a thought process about reaching back to turn it on, that he wants to get the computer on so that he can play the game. At that same moment he is saying out loud to his friend, “I wanna hurry up…” (Unsymbolized Thinking; Talking)

2.3 (12/12/06): The bell rings signaling the end of lunch and FM shut down the computer. He is walking out the library door on his way to class and he is looking at the classroom he is heading toward. At the moment of the beep FM is aware of his physicality engaged in the act of walking. He feels the soft step of his right foot on the ground. At that moment he is also aware of a thought process about having to get to class, though that thought is not in words or images. (Sensory Awareness; Unsymbolized Thinking)
2.4 (12/12/06): FM is in class and the teacher is explaining positive and negative numbers. At the moment of the beep FM is saying to himself in his head, “Wow, this is boring.” If he were saying this aloud it would have been a low muttering to himself. (Inner Speech)

2.5 (12/12/06): FM is in his 6th period class watching The Grinch. In the film the Grinch is pushing Cindy Lou into the package-sorting machine. At the moment of the beep FM is just watching and listening as Cindy Lou falls into the machine. FM also hears the sounds of the guy sitting next to him playing with a skateboard. The sound is pulling his attention away from the movie and FM is aware of being pulled away at the moment of the beep. (Watching; Listening Process)

2.6 (12/13/06): FM is in the car on his way to UNLV with SA. They are talking about the pick-up football game in the neighborhood that afternoon. SA has just finished speaking and they are just driving. At the moment of the beep FM is thinking to himself that he was going to go play football but this (DES meeting) is more important. This thought is not in words yet it is clear to him. FM is also noticing the building and wall they are passing, and the moment of the beep he is seeing the wall. (Unsymbolized Thinking; Perceptual Awareness)

Interview: 3
Date: 12/14/06
Time: 3pm
Interviewers: SA & RH
Number of Beeps: 6
Date(s) Beeps Collected: 12/14/06

3.1 (12/14/06): FM is eating cereal with his little brother, Adam, in the morning. Adam has just spilled some of his cereal and FM is getting a napkin for him. At the moment of the beep FM is reaching for a napkin and thinking, “Adam needs to clean up that mess.” He is thinking these exact words but he is not saying them nor seeing them. All of the words are there at the same time. Though FM is reaching for a napkin at the moment of the beep, he is not aware of it in the moment. (Worded Thinking)

3.2 (12/14/06): FM is lying on his couch, watching a movie, closing his eyes, about to fall asleep. At the moment of the beep FM is just being tired though he is somewhat aware that he is tired. His awareness of this is not a thought process. He is not paying attention to the TV. (Tired)

3.3 (12/14/06): FM’s mom and dad have just broken up. He is at his mom’s house, they’ve been talking, and he goes into his sister’s room to see what it looks like. At the moment of the beep FM is saying to himself out loud in a lowered, almost breathless, voice, “I need to go talk to my Mom.” He is aware of feeling sad and knows that the sadness is somehow in his mind. He is not aware of anything else at the moment of the beep. (Talking out loud to himself; Feeling)
3.4 (12/14/06): FM is talking with his older brother, Drew, and Drew has just spoken the phrase, “Let’s go eat.” At the moment of the beep FM’s mind is stuck on the word “eat.” He is innerly seeing the word “eat” printed in big, bold, lower case orange letters against a black background. He is seeing this word straight on from the front. He is hungry but that fact is not in his awareness at the moment of the beep. (Image of a word)

3.5 (12/14/06): FM is in a restaurant and his sandwich has just been brought to the table. He is looking up at the string of Christmas bulbs on the ceiling, noticing the different colors. At the moment of the beep FM is looking at the red bulb. He is somehow aware that the red bulb appears shinier than the other bulbs. (Sensory Awareness)

3.6 (12/14/06): FM has gone (with a family member) to his uncle’s house to drop off some board. He gets into the truck to go home and thinks to himself, “Phew! We’re done.” At the moment of the beep, FM is thinking, “Phew!” and is at the same time letting out a deep breath. (He is not saying an onomatopoeia-ish “Phew!” aloud; the thinking and the breathing are distinct processes, though connected.) Most of his awareness is focused on thinking, “Phew!” and only about 20% of his awareness is on his exhale. (Inner Speech; Sensory Awareness)

Interview: 4
Date: 12/16/06
Time: 12pm
Interviewers: SA
Number of Beeps: 6
Date(s) Beeps Collected: 12/15/06

4.1 (12/15/06): FM went downstairs to get the disk Pirates of the Caribbean: Curse of the Black Pearl. His Dad said that the disk didn’t work so FM was cleaning the disk off when the beeper beeped. He noticed a big fingerprint on the disk and was going over it with the cloth. At the moment of the beep FM picked up the rag and is noticing that the fingerprint is still halfway there. At the same time he is saying to himself in his head, “I hope I can get the disk to work.” (Inner Speech; Doing; Perceptual Awareness)

4.2 (12/15/06): FM has a stuffy nose and feels sick. He is in his room and his little bother, Adam, comes in. FM says, “Adam, I’m so sick.” The beep occurred in the middle of his saying the word “sick, right at the “i.” In a separate process at that moment FM is also mildly aware of Adam’s cowlick, specifically the circularness of it. After the beep he feels amused at the way Adam’s hair sticks up in that circular area, but this comes after the beep. (Talking; Sensory Awareness)

4.3 (12/15/06): FM finished watching the movie and is lying in bed wanting to get some sleep. Next to the power button (presumably to the TV or DVD player) there is a little green light, which means the power is on. At the moment of the beep FM is just staring at that little green light. The yellowish-green color is drawing his eye. He is not aware of anything else at that moment. (Sensory Awareness)
4.4 (12/15/06): FM has a bad headache. At the moment of the beep he is mostly (50%) aware of the pain in his head. The pain is like the sound of a fire alarm ringing in his head. He is also aware (25%) of holding his head, specifically of pressing his fingertips to his temples. He feels the sensation in his fingertips. The rest of FM’s awareness (25%) is on speaking words aloud about the pain in his head. Those words could be, “Oh, my headache” or “My headache” or “Oh, I have such a headache” but he is not sure of the exact phrasing. (Sensory Awareness; Sensory Awareness; Talking)

4.5 (12/15/06): FM is eating cereal. At the moment of the beep he notices the bright lemon yellowness of the Pops in his bowl. Nearly all of his awareness (90%) is on the color. The remaining portion of his awareness (10%) is on his saying to himself in his head with surprise, “Wow, they’re yellow.” (Sensory Awareness; Inner Speech)

4.6 (12/15/06): A minute or so before the beep, FM was lying down again when his brother’s cat, Kix, came in. Kix attacked FM’s hand and scratched it but eventually FM calmed Kix and got him to lie down. FM then sat up and was looking at how cute Kix looked curled up a little ball. At the moment of the beep FM is saying to himself in his head with endearment, “Aw, he’s so cute.” At the same moment a new process is beginning: FM’s eyes have just landed on the white tuft of fur on Kix’s chin. FM is focusing mainly on the whiteness, though he is also aware of the goateeness of the tuft. At the moment of the beep roughly half of FM’s awareness is on the latter end of the process noting Kix’s cuteness and the other half is on the rising of a process noting, in a different way, Kix’s goatee. (Inner Speech; Sensory Awareness)

Interview: 5
Date: 12/17/06
Time: 1pm
Interviewers: SA & RH
Number of Beeps: 5
Date(s) Beeps Collected: 12/16/06 & 12/17/06

5.1 (12/16/06): FM is fixing cereal for himself and the headphone fell out of his ear. At the moment of the beep FM is in the process of catching it and he is thinking about catching it. He cannot remember exactly what or how he was thinking about catching it but he knows he was thinking about it in addition to doing it. The onset of the beep is clear to him despite the headphone being mid-fall, approximately neck level. (Doing; Meta-Awareness)

5.2 (12/16/06): FM is in the car with SA and they are talking about getting his WII (video game system). At the moment of the beep FM hears SA say the “-ey” in the word “money.” Though he has been listening to what SA has been saying, at that moment he simply hears the sound “-ey.” At the same moment a small portion of his awareness (roughly 5%) is focused on hearing the “clunk, clunk” sound of SA changing gears. (Sensory Awareness; Sensory Awareness)
5.3 (12/16/06): FM is sitting on his bed looking down at his phone. At the moment of the beep he is in the midst of staring at the blue color on part of the phone. Most of his awareness is focused on the blue-ness of the phone but he is also aware of thinking in words to himself, matter-of-factly, “The edge of my phone is blue.” The beeper beeps on the word “edge.” (Sensory Awareness; Inner Speech)

5.4 (12/16/06): FM is staring at the green basket in his closet. At the moment of the beep he is absorbed in the yellow-green color of the basket. He is holding his cat but is unaware of this fact. (Sensory Awareness)

5.5 (12/17/06): FM is walking home from RD’s house and has just passed SA’s house. There is a blue van parked on the side of the road and at the moment of the beep FM is looking at the blue tire cover on the van. He is equally aware of the blue-ness and the tire-coverness. (Sensory Awareness; Perceptual Awareness)

RD’s samples (See Chapter 6)

Interview: 1
Date: 12/04/06
Time: 7:45pm
Interviewers: SA & RH
Number of Beeps: 5
Date(s) Beeps Collected: 12/03/06 & 12/04/06

1.1 (12/03/06): RD is skateboarding, flanked by two of his friends, J and S. At the moment of the beep RD is saying to himself, “please, don’t hit a rock.” He says this to himself in his own voice, inside his head, in those specific words. RD is also somewhat aware of his two friends, J and S, who are just slightly ahead of him. Although he is on his skateboard in motion he is not aware of the act of skating or of moving/speed/etc. RD is also watching out for J and S; should one of them fall, he knows he will stop skating to help, but this is more a fact of RD’s universe than in his awareness at the moment of the beep. (Inner Speech; Perceptual Awareness)

1.2 (12/03/06): RD is skateboarding, this time down a hill toward an intersection. At the moment of the beep he is thinking he hopes there isn’t a car coming and he experiences a sense of mental hesitation. This thought/mental hesitation is not in words, but instead encompasses the whole idea of hoping there isn’t a car with hesitation in his mind. After the moment of the beep, the hill steepens and RD gains speed. He feels some fear about the possibility of encountering an oncoming car but decides to himself to “just go for it; whatever happens, happens.” (Unsymbolized Thinking)

1.3 (12/03/06): RD is watching TV with his roommate. The roommate is just completing the act of taking the remote control from his hand. At the moment of the beep RD is thinking, she better not turn the channel/don’t tell me she’s gonna turn the channel/I hope she doesn’t turn the channel. The idea is not in specific words, though the idea itself is specific and apparent to him. RD’s experience at the moment of the beep is matter-of-
fact; he is not aware of any accompanying affect or bodily sensations. After the moment of the beep, he thinks/feels to himself, “I’ll get you back for that.” (Unsymbolized Thinking)

1.4 (12/04/06): RD is in his house working on polishing his mom’s table. At the moment of the beep he is saying to himself, “I gotta fix the table.” The notion that he has to and wants to is “solid” to him (as in, this notion is unquestioningly present to him), and this solid knowing is part mind, part body. Bodily, he feels this mainly in his arms, and mentally he is focused on the thought of having to fix the table. Close to the moment of the beep—but probably not at the exact moment of the beep—he is aware of hearing the sounds of his friend skateboarding in front of his house; part of him would rather be outside skateboarding with his friend. RD knows/understands/is aware that he is fixing the table because his mom had been sad about it earlier, but whether or not this is in his awareness at the moment of the beep is unclear. (Inner Speech)

1.5 (12/04/06): RD is still working on fixing his mom’s table, wanting to finish it as a surprise for her before she gets home. Just before the moment of the beep he hears the sounds of his mom’s car and realizes that she is home. At the moment of the beep he says to himself, in his head, in his own voice, “crap, she’s home!” (Inner Speech)

Interview: 2
Date: 1/8/07
Time: 3:45pm
Interviewers: SA & RH
Number of Beeps: 5
Date(s) Beeps Collected: 1/7/07 & 1/8/07

2.1: RD is in the act of bowling, in the windup (arm swinging backward) before the release of the ball. At the moment of the beep RD is deeply focused on a thought: I have to get a strike. This thought is not comprised of specific words, and its meaning could also be rendered by I gotta get a strike, or I need a strike, or please let me get a strike. The meaning is unambiguously clear to RD. Nearly all of his awareness is involved in this thought, which lies deep inside his head. Though his body is engaged in activity (arm pulling back, eyes on the pins at the end of the lane) he is not aware of anything other than the thought.

RD used two terms to describe his experience in this beep that seemed to have particular significance for him. He said his thought was “solid,” by which he apparently meant that he was absorbed in it, that it occupied his entire awareness in a thorough, steady, extended in time way. In attempting to define solid, he said that this thought was so solid that if one of his friends were to speak to him at this moment, the sound would not penetrate into his awareness.

The second term was “quiet”. He said that except for the solid thought, the rest of his thoughts were quiet, by which he apparently meant that there were other nascent, or soft, or incompletely articulated, or hinty thoughts ongoing at a very low level. The solid
thought occupied 90% of his experience, he said; the quiet part was 10%. We of course
don’t know what his understanding of 90% and 10% is, but it did seem that he was not
confusing 10% with zero. That is, he was not saying that there were no other thoughts,
only that the other thoughts were quiet. (Unsymbolized Thinking)

2.2: RD is doing a trick on his skateboard. The skateboard meets the ground on its thin
lateral side and RD is momentarily balanced on the opposing lateral side, mid-trick. At
the moment of the beep his mind is open and a light thought is floating through: I gotta
land this trick; please, let me land this trick. The thought is not in specific words, but it is
a clear thought. It is not a “solid,” heavily concentrated, deeply focused thought (as in
Beep 2.1) and he is quite permeable to external stimuli. Roughly half of his awareness is
devoted to this “light” thought floating through, and about a quarter of his awareness is
devoted to checking the position of the skateboard and visually confirming that his stance
is OK to successfully execute the trick. The remaining quarter of his awareness is just
open. He is not meta-aware of being mentally open but a portion of his mind is simply
“free of thoughts.”

In this beep RD described the state of his mind as being “open.” By this he seems to
mean that there is nothing occupying his mind, that it’s free from encombrances, there’s
no residue of past thoughts, worries about the future, or even stuckness on the present
thought.

RD describes the present thought as “light,” meaning that as the opposite to “solid,” as
used in Beep 2.1. A light thought means that he is not deeply focused on the thought or
working on the thought. If we could see into RD’s head, we’d see that thought easily,
whereas we’d have to look deep to find a solid thought.

Similarly RD says the present thought is “floating through.” When describing this he uses
his hands to show an imaginary thought passing through his head from left to right at
about forehead level. When asked if he has a sense of the thought traveling through his
head, he says no. In this instance it is plausible that the lightness of the thought is related
to it’s floating through his open mind. (Unsymbolized Thinking; Perceptual Awareness;
Open)

2.3: RD is hungry and is looking at various food items. At the moment of the beep he is
saying to himself in a low, slow, almost mumbled voice, “What - should - I - eat?” He is
not speaking aloud, but speaking inside his head, “kinda talking to myself.” (Inner
Speech)

2.4: At the moment of the beep RD is saying to himself, “What should I do?” As in Beep
2.3, he is speaking to himself internally rather than aloud but this time he is speaking with
an even slower, bored sounding cadence, “What ----- should ----- I ----- do -----?” (Inner
Speech)

2.5: RD is looking at his skateboard. He has it flipped on its side and just sent the front
right wheel spinning with his hand. At the moment of the beep he is wondering to
himself, how fast can I go? The thought isn’t in specific words. At the same time he hears the sound of the wheel spinning. His eyes are looking at the skateboard but he is not aware of that at the moment. (Unsymbolized Thinking; Perceptual Awareness)

Interview: 3
Date: 1/9/07
Time: 3:45pm
Interviewers: SA & RH
Number of Beeps: 6
Date(s) Beeps Collected: 1/8/07

3.1: RD is saying to himself in his head, in a pissed off voice, “Why did he kick me in my sore knee?” He internally speaks these exact words angrily and rapidly. All of his awareness is completely focused on this thought at the moment of the beep. In RD’s lingo, it was a “solid” thought. Solid means that all of his awareness is devoted to the thought, that he is completely concentrated on the thought, that the thought is perfectly clear to him, and due to being so deeply concentrated and focused on the thought, he is deep inside himself, insulated from the outside world, that it seems that someone would have to shake him by the shoulders to rouse him out of that thought. After the beep he is aware that he is angry and wants to take revenge by kicking J. Also after the beep, RD is aware of feeling pain in his sore knee. (Inner Speech)

3.2: RD is saying to himself in his head with frustration and irritation, “Stupid cat, get away!” The thought is less than solid in that it’s not a focused, concentrated thought, but it is more than light and fleeting. In R’s lingo, this constitutes a “medium” thought, which means he is partially absorbed in it and that it would not be very difficult to get his attention at that moment. RD knows that he is frustrated and irritated by recognizing those qualities in his inner voice and it seems his understanding of his emotional state is deduced by hearing the tone of his own voice. He does not feel the frustration/irritation in his body, nor is he aware of it in any other way. (Inner Speech)

3.3: RD is singing/chanting along in his head to the song on the radio, “I-like-big-bu...” He is innerly singing/chanting the lyrics quietly but with rhythm and in sync with the music. Most of his awareness (75%) is on his singing in his head while the rest (25%) is on listening to the song. RD is lying on his bed, arms folded behind his head, arms, head, and upper body pulsing to the music—but none of this is in his awareness at the moment of the beep. Note: It was quite embarrassing, difficult for RD to say he was singing about butts. It seemed evident that he had to fight down the urge to avoid telling us about this, and then went forward. He said the embarrassment was about the prospect of telling us, not a feature of the singing at the moment of the beep. (Inner Speech; Perceptual Awareness)

3.4: RD is looking out the car window. At the moment of the beep he is saying to himself in is head, “Oh snap, she’s hot!” The words are clear and specific and it’s a light thought in that it seems to be on the surface of his mind rather than deep within. If we could see inside RD’s mind we’d be able to access this thought easily because it’s right there on the
surface. Most of his awareness is on the thought (85%) but a small amount of his awareness is on the girl (whom his thought is referring to) crossing the road. He is looking at all of her, not a specific part or aspect of her. (NOTE: RD’s solid-medium-light continuum seems to have more to do more with focus/attention/deepness than with clarity. Here we have a light but clear thought.) (Inner Speech; Perceptual Awareness)

3.5: RD is saying to himself in his head, “Wow.” The “wow” is uttered slowly and is loaded with meaning: what-you-are-doing-is-unbelievably-stupid-looking-but-I-can’t-stop-watching-because-it’s-so-ridiculous. Roughly half of his awareness is on this thought, while the other half is on watching his friend, S, dance. After the beep he is aware of laughing at her. (Inner Speech; Perceptual Awareness)

3.6 (1/8/07): RD is thinking a wordless thought in his mind. If words were to be used to translate the meaning of the thought, they might be something like: What on earth is she doing? Though no words are spoken, heard, pictured, or otherwise known, the thought itself is clear. Simultaneously RD is making a face expressing his thought, though he is not aware of this at the moment of the beep. (Unsymbolized Thinking)

Note: the beeps appear at the end of each of these thoughts, whether worded or unwworded. That is, the beep is understood as arriving immediately after the conclusion of the thought (or a slight delay thereafter).

Interview: 4
Date: 1/10/07
Time: 4:45pm
Interviewers: SA & RH
Number of Beeps: 5
Date(s) Beeps Collected: 1/9/07

4.1: At the moment of the beep I’m wondering to myself what this cheese tastes like. Specifically, in my head I’m musing in my own voice, “I wonder what this tastes like?” The way I’m saying this is a touch dramatic, with a slight accent on “taste,” like a snobby English butler might pronounce the word. Also, my voice kind of has a stylized melodic lilt to it, similar to the voice you might use playing hide-and-seek with a little kid: “I-wonder-where-Rory-is?” But my voice isn’t loud as it would be in that situation where you want the little kid to “overhear” you. Instead my voice is rather low and quiet, definitely to myself, for myself. Don’t get me wrong, I’m not exactly paying attention to all of these vocal qualities, I just know that’s what my voice sounded like. At the moment of the beep, most of my awareness is on what I’m saying to myself, a medium thought, and I’m somewhat aware of looking at the cheese in my hand. (Inner Speech; Perceptual Awareness)

4.2: I’m mostly aware of asking myself in my own voice in my head, “What should I wear?” I’m in hurry, I don’t want to be late, and my body is a little bit jittery and anxious, but I’m only slightly aware of this, say 10%-15%. Most (85%-90%) of my awareness at
the moment of the beep is absorbed in my saying to myself, "What should I wear?" Just before the beep I was aware that I was going to the movies. I might have even said out loud to myself, "I gotta get to the movies." But that moment of the beep I'm no longer aware of the movies, only of asking myself about what I should wear and the slight jittery-anxiousness of needing to hurry. This is a medium thought. (Inner Speech; Sensory Awareness)

4.3: I'm wondering to myself, how do I look? This "medium" thought is not in words, unlike the thoughts in the previous two beeps, but it is clear and nearly all of my awareness is on thinking it. A small amount of my awareness, maybe 10%, is on looking at myself in the mirror, checking out the way I look overall. I'm in the midst of posing myself in various cool stances, but I'm not aware of this at the moment of the beep. (Inner Speech; Perceptual Awareness)

4.4: Just before the beep I heard J fart, and said aloud, "Oh! Snap! That smells!" But I had said that based on the sound of the fart, before I actually smelled the fart. Now, at the moment of the beep, I just caught wind of J's fart and I'm aware of smelling the fart and quietly exclaiming to myself in my head, "Oh crap, that really does smell!" About half of my awareness is on smelling the fart and the other half is on what I'm saying to myself. It's a light thought, in words, just passing through, not deeply focused. (Inner Speech; Perceptual Awareness)

4.5: I'm excitedly whispering-hissing to myself in my head, "I can't wait!" It's a small, light thought. I'm at the movies about to go in and what I can't wait for is the movie itself, but I'm not aware of that at the moment of the beep. (Inner Speech)

Interview: 5  
Date: 1/12/07  
Time: 3:30pm  
Interviewers: SA & RH  
Number of Beeps: 7  
Date(s) Beeps Collected: 1/11/07

5.1: My friend, J, just fell and is hurt. At the moment of the beep I'm saying to myself in my head, "Aw, man....dude, that really sucks," and I'm feeling sorry for him. Most of my awareness (about 70%) is on the thought/words. It's a light/medium thought and my voice has a feeling bad sort of sound. The rest of my awareness (about 30%) is on feeling sorry for him because I can see that he is really hurt. The sorry feeling seems natural to me, like my natural response to seeing someone get hurt. It is similar to a sad feeling, but not exactly the same. I feel it in my chest – definitely not in my heart or anything – but it's like on the inside surface of my chest. The feeling is a light/medium one, and if I were to rank it on a scale of black (heavy/solid) to white (light), it would be white. It's weird because the feeling is in my head too, so both in my chest and head, but not in any other part of my body. The feeling might be sort of connected to the thought but it also seems distinct from the thought I'm having. I've never had a beep quite like this before.
(where I’m having a feeling) so it’s hard for me to say exactly how it was. (Inner Speech; Feeling)

5.2: My mom is showing me the DVDs she got. At the moment of the beep I’m exclaiming to myself in my head, “Oh crap! You got Rocky?!” My voice is a mix of delighted surprise and excitement, but unlike Beep 5.1 I don’t experience my feelings directly. It is a fact that I am happy, and my voice in my head evidences happiness but I don’t experience the happiness separately from my thought. Even so, I know I’m happy and if you were to see me at that exact moment, you’d know just from looking at me that I was happy. It’s a light thought and most of my awareness (80%) is on this thought. A smaller percentage of my awareness (about 20%) is on looking at the cover of the Rocky DVD case that mom’s holding in front of me. I’m not looking at anything in particular on the case cover, just the overall thing. (Inner Speech; Perceptual Awareness)

5.3: I’m saying to myself in my head, in a quiet yet surprised voice, “Wow, those are nice shoes.” It’s a light thought, but it’s different than any other thought I’ve had while being beeped because it started off as a thought deep inside my head, and then came up through my mind getting progressively lighter the closer it got to the surface. So on it’s way from the depths of my mind to the surface of my mind the thought became a medium thought, and then became a light thought—and that’s when I grabbed it. Other light thoughts I’ve had seem to pass through, from somewhere (no specific location, could be from any direction, though in previous beeps I’ve gestured as though they’re coming in from the left and exiting right at about temple level) outside my head to inside my head and then out again. This thought, on the other hand, feels like it originated from within the depths of my mind and sort of floated forward, changing density along the way.

I’m not sure why this thought happened in this way but I do think that I can sort of control whether I’m going to have a solid, medium, or light thought. For example, when I’m having an argument with someone, I can focus really hard to think up deep, intelligent facts and angles that are very difficult for my opponent to dispute. If my opponent comes back at me with something just as deep and sophisticated—on the level—then the game is on and it’s a solid conversation.

In the case of this beep, however, there’s no deep or otherwise conversation happening in relation to my thought. Earlier my friend told me he had on really nice shoes, but he’s often wrong/misrepresents things so I didn’t really believe him. Before the moment of the beep I was gazing at his shoes and at some point I realized that his shoes really were nice. At the moment of the beep that thought had come forward in the way I described and I grabbed it at light, saying to myself, “Wow, those really are nice shoes.”

One last thing about this beep: I’m chillin’, just relaxed during this whole thought process. The fact that his shoes really are nice isn’t some huge, big deal. It’s just a chilled out noticing kind of process happening in me. (Inner Speech)

5.4: The game had just ended and I semi-yelled out loud with a mixture of glee and gloat to my friend, J, “I told you the Eagles would win!” At the moment of the beep I’m saying
to myself in my head—with a good deal more gloat—, “Uh! [As in, “take that” or “in your face, punk”] I told you the Eagles would win!” repeating what I had just said aloud. I’m not yelling this second thought in my head, but it’s not exactly quiet either. It has more force, more smartass-ness to it—especially in the “Uh!” which is a pretty big deal in my awareness. I’d say about 99% of my awareness is on the thought in my head and only about 1% of my awareness is on what I just said to J out loud. After the beep I’m thinking about the fact that J would probably have gotten mad at me had I waited to gloat about the Eagles’ win, but that came after the beep. (Inner Speech)

5.5: I’m looking at my friend’s moon sand and I’m saying to myself in my head, “What’s that stuff?” About 50% of my awareness is on this thought/question and the other 50% is divided between seeing the moon sand (25%) and knowing/being meta-aware of myself seeing the moon sand (25%). The quarter of my awareness devoted to just seeing the moon sand isn’t focused on any particular characteristic of the moon sand, I’m just seeing the moon sand overall. (Inner Speech; Perceptual Awareness; Meta-Awareness)

5.6: I’m saying to myself in my head, “That stuff is really cool,” (referring to the moon sand) and I’m looking at my friend, maybe even talking to my friend, I’m not sure exactly. About 70% of my awareness is on my thought, which seems to be just passing through but not from any particular direction. Another way to describe the passing through thing is to say the thought is like a pop-up – those mean pretty much the same things to me, either way would explain it. It seems to take a couple of seconds to pass through/pop up. The other 30% of my awareness is on looking at my friend overall. (Inner Speech; Perceptual Awareness)

5.7: I’m saying to myself in my head, “I don’t wanna watch this, it looks scary.” All of my awareness is on this thought. It’s a light thought, just passing through. There’s something wimpy about my saying this but that’s not in my awareness at the moment of the beep. (Inner Speech)

Interview: 6
Date: 1/15/07
Time: 7:30pm
Interviewers: SA & RH
Number of Beeps: 6
Date(s) Beeps Collected: 1/14/07

6.1: I’m asking myself in my head, “How is she doing that?” Shana is doing something freaky but at the moment of the beep all of my awareness is on my thought, none of it is actually on S. (Inner Speech)

6.2: Most of my awareness is on me, RD, watching the game. That’s different from my just watching the game; in this case I’m actually aware of myself watching the game—I know I’m watching the game. At the same time a little bit of my awareness is on my saying to myself in my head, “C’mon, the Eagles have to win.” It’s a medium thought, but I’m saying it in a hard and demanding way. (Meta-Awareness; Inner Speech)
6.3: I’m yelling out loud, “C’mon, pick up that fumble!” My voice is loud and excited, and this is a medium thought. I’m also aware of my standing as I’m yelling and I know this mentally and physically. I feel the weight in my feet and the difference in my body from how it was when I was sitting just a moment ago. (Talking; Sensory Awareness)

6.4: I’m thinking a definite thought, but the thought does not have words, unlike the last three beeps. If I were to put words to this thought, it would be something like: The Saints can’t win, dude. They can’t. It’s a disappointing thought, sort of sad, and it seems to come up from deep inside my head. I’m not separately aware of my sadness or disappointment; those things are part of the thought.

Thoughts like this that originate from deep inside my head are developing or evolving or transforming as they come up and they do not really have specific words to them. They start out solid, deep in my head, and as they come outward they become medium and then light, all the while developing. Depending on where I grab/catch the thought, it has a certain density (on the solid-medium-light continuum) and a certain meaning. In order for me to tell you the meaning of a thought I’ve grabbed, I put words to it—in this case the best words to articulate my thought are: The Saints can’t win, dude.

Thoughts that come up are different from the kinds of thoughts that pass through. The passing through thoughts can also be solid, medium, or light, but they seem to always come with specific words and those words don’t change as they pass through. Also, the passing through thoughts seem to come from outside of my head, enter my head, and then pass out of my head. I can grab them at any point as they’re passing through, and depending on the point, they’re either solid, medium, or light. But with passing through thoughts, the longer I wait to grab them, the solider they are. (Unsymbolized Thinking)

6.5: I’m thinking to myself, 21 to 20. Again, there are no specific words even though the concept is perfectly clear. This is a light thought that’s come up from inside my head. Although this is the only thing in my awareness at the moment of the beep, only about 50% of my awareness is dedicated to it. The other 50% is just room for something else, although at the moment there’s nothing else there. (Unsymbolized Thinking; Open)

6.6: I’m exclaiming-lamenting out loud with frustration, “How could they lose?!” It’s a light thought and it’s passing through. Also at that moment I’m a tiny bit aware of my disappointment about the Eagles’ loss. I don’t feel the disappointment anywhere in my body, I just know I’m disappointed and that is somehow distinct from what I’m saying out loud. This was a passing through exclamation and is an example of the fact that things spoken aloud can be passing through. (Talking; Feeling)

BC Samples (See Chapter 7)

Interview: 1
Date: 2/12/07

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1.1: BC is talking to her cousin, Angelic, on the phone. Angelic is telling BC about how her boyfriend ended up in jail. Angelic’s mother is yelling at her to get off the phone and at the same time, BC’s mother is yelling at BC to do the dishes. It is difficult for BC to pinpoint the moment of the beep and she is unable to report her experience at that moment. (Task Issue)

1.2: BC is cleaning her closet and eating a piece of ice. She is working on cleaning up the shoes and blankets on the floor of the closet and not particularly liking the task. She does not know what she is aware of at the moment of the beep. (Task Issue)

1.3: At the moment of the beep BC is in the midst of telling her little sister that she is doing a good job in school. BC knows that they are bonding, something they do not do often, though this is not in her awareness at the exact moment of the beep. (Task Issue)

1.4: BC is watching the TV show “The Suite Life of Zack & Cody.” At the moment of the beep, she is completely absorbed in watching the show. (Just watching TV)

1.5: BC is eating a dinner of cereal. Her mother is watching TV, but BC is not paying attention to the show that’s on. At the moment of the beep her brother is talking to her about going to play basketball. She’s not sure what’s in her experience at the moment of the beep—maybe nothing. After the beep, BC has an image of herself and her brother playing one-on-one on a basketball court. In the image BC has the basketball and is standing in front of her brother who is gesturing in frustration because BC has won. She sees herself from the side. Though she knows it’s a basketball court, she doesn’t see the basketball hoops or any other distinctive features of the court. The image is still and in black and white. (Image – but not ATMOB)

2.1: BC is sitting down waiting for her sister and her mother to come home. She is looking out the window at the tree in her front yard. At the moment of the beep she is looking at the leaves on the tree. She is not focused on any particular aspect or sensory property of the leaves (i.e., color, shape, movement, etc.), she is just looking at the leaves overall. (Perceptual Awareness)
2.2: BC is watching Sponge Bob Square Pants on TV. At the moment of the beep she is just watching and listening as Sponge Bob screams, “Can I have a job at the Crusty Crab?” as he jumps up and down. The beep comes at the word “Crusty.” (Just Watching TV)

2.3: At the moment of the beep BC feels pain in her front right tooth. She is pressing her pointer finger against her tooth, but at the moment of the beep she isn’t sensing that, only the pain in her tooth. She had been drinking cold milk just before the beep, and it was the coldness of the milk on her tooth (she’d had dental work earlier that day) that had apparently caused the pain. (Perceptual Awareness)

2.4: At the moment of the beep BC is not aware of anything. She had just finished taking an aspirin for her tooth pain, but at the moment of the beep nothing was in her awareness. (No Inner Experience – Waiting)

2.5: BC is scrubbing the counter closest to the stove. At the moment of the beep there is nothing in her awareness. She had finished doing the dishes—finished washing the last knife—and had begun to wipe down the counters. It was a fact of her universe that at the moment of the beeps she was scrubbing the counter hard, but she was not aware of that, nor of anything else at that moment. (Just Doing)

2.6: BC’s mom had finished musing aloud about how long it would take SA to get to the house. BC had heard and comprehended what her mother said but had moved on. Her attention had not yet landed on something new and so at the moment of the beep, BC is not aware of anything. (No Inner Experience – Waiting)

Interview: 3
Date: 2/23/07
Time: 2:45pm
Interviewers: SA & RH
Number of Beeps: 4
Date(s) Beeps Collected: 2/23/07--LIVE

3.1: BC is looking at her cat and talking to him, telling him how handsome he is. She is waiting to see if he is going to meow back. The beep comes in the midst of this “conversation” but BC does not know exactly when it comes or what her experience is at that precise moment. (??)

3.2: BC is walking home from next door and is just passing her mailbox at the moment of the beep. She is not aware of anything at that moment. (Just Doing)

3.3: BC is writing her sister a letter telling her why it took so long for her to write back. She has stopped writing and is holding the pencil up waiting to see what to write next when the beep comes. At the moment of the beep she is not aware of anything. (No Inner Experience – Waiting)
3.4: BC is watching Halle Berry on TV. At the moment of the beep, BC is paying attention to the way Halle Berry is speaking; Halle Berry is speaking with an accent that BC recognizes is not the way Halle usually sounds. BC is uncharacteristically clear and precise about what she was attending to (Halle Berry’s accented speech) at that moment of the beep; she indicates with apparent confidence that it is the speech pattern she is paying attention to, not Halle Berry’s white dress or the Oscar statuettes that were also on the screen at the same time. BC is also uncharacteristically enthusiastic during the interview about this beep. (Sensory Awareness)

Interview: 4  
Date: 2/28/07  
Time: 6:00pm  
Interviewers: SA & RH  
Number of Beeps: 3  
Date(s) Beeps Collected: 2/28/07—LIVE

4.1: BC is spending time with her family. The music is playing loud and everyone is dancing. At the moment of the beep BC has stopped dancing. She is watching everyone else and laughing at the way they’re dancing. She is not aware of anything at the moment of the beep. (Just Doing)

4.2: At the moment of the beep BC is walking next door to her sister’s house to tell her sister what her mom said. She is holding Isaiah in her arms. BC is not aware of anything at the moment of the beep. In particular, she says she is not thinking about what her mom has said even though that is the intention of going next door. (Just Doing)

4.3: BC is watching the end of the movie The Land Before Time. At the moment of the beep she is not aware of anything. A bit before the beep she had wondered if the movie would end before the next beep came, but that thought had passed by the time the beep actually came. (Just Watching TV)

Interview: 5  
Date: 3/2/07  
Time: 2:30pm  
Interviewers: SA & RH  
Number of Beeps: 4  
Date(s) Beeps Collected: 3/2/07—LIVE

5.1: BC is having a dance-off with her friend. At the moment of the beep she is dancing with her friend to hip-hop. She is not particularly aware of anything. (Just Doing)

5.2: At the moment of the beep BC is hitting her friend in the face with her right hand. Again, she is not particularly aware of anything. (Just Doing)

5.3: BC is picking out a movie to take to her friend’s house. At the moment of the beep BC is saying out loud, “Do you want the Winnie the Pooh or the Tigger movie?” There
may be something in her awareness at the moment of the beep but BC is not sure, and is unable to identify it. (Talking; Incipient Inner Experience)

5.4: BC is eating apple slices and listening to her step-dad talking. He is jokingly telling BC that she should tell us that he’s whipping her the moment of the beep. BC is just about to put an apple slice in her mouth at the moment of the beep, but she is particularly not aware of anything at that moment. (Just Doing)

_AV’s Samples (See Chapter 8)_

**Interview: 1**  
**Date:** 4/3/07  
**Time:** unrecorded  
**Interviewers:** SA & RH  
**Number of Beeps:** 5  
**Date(s) Beeps Collected:** 4/2/07

1.1: AV is watching TV and a big, bald man wearing a tuxedo has just appeared on screen. At the moment of the beep AV is looking at the man’s head, noticing a small rogue patch of hair protruding, apparently missed last time he got his hair cut. While looking at the patch of uncut hair, AV is saying to herself in her head, “Oh my god, they cut his hair wrong...I don’t know why he went to those people...” Her inner voice is high-pitched, squeaky, and dramatic, sort of like Fran Dresher, as if AV is acting out a character’s lines in her head. (Inner Speech)

1.2: AV is standing in the grass in her yard while the sprinklers are on. At the moment of the beep she is feeling her right foot get slowly soaked by water seeping into her tennis shoe and through her sock. AV can also feel the sensation of wet grass clippings stuck to her right ankle, partially lodged in her now somewhat wet sock. She is solely focused on these sensations at the moment of the beep. (Sensory Awareness; Sensory Awareness)

1.3: AV is carrying a bag of trash to the trash can. At the moment of the beep, she is holding the bag and walking toward the trash can. She is not aware of anything at that moment. After the beep sounds, AV throws the trash bag down and watches it settle among the other trash bags—but that occurs after the beep. (Task Issue)

1.4: AV is reading the book _Bridge to Terabithia_. When the beep sounds, she is absorbed in reading the part of the story in which the main character finds out that his friend, Leslie, is dead. (It was not clear whether she was reading lines or looking at a picture in the book at that moment.) The beep causes AV to notice that she is sad, and that she is trying not to cry, but none of that was apparently in awareness at the moment of the beep. After the beep, she feels the sadness deep inside her eyes and she debates to herself, should I cry or not? She knows that if she begins to cry her parents will notice. (Just Reading)
1.5: A few seconds before the beep, AV is wondering whether to eat ice cream or cereal. The beep sounds as she is saying to herself in her head, “I should eat both.” This time her inner voice sounds sad and is softly lilting—like a sad little girl—and yet AV does not feel sad at the moment. She has been sad all day though, crying a lot due to her friend’s sudden death and now impending funeral. (Inner Speech)

Interview: 2
Date: 4/4/07
Time: unrecorded
Interviewers: SA & RH
Number of Beeps: 5
Date(s) Beeps Collected: 4/3/07

2.1: AV is watching a show about models on TV. At the moment of the beep, she is focused on saying to herself in her head, “Melrose was going to lose,” and she is no longer paying attention to the TV. The tone of her inner voice is sad, though she is not aware of feeling sad at that moment. (Inner Speech)

2.2: AV was just beginning to color in a small patch of grass on a page of her coloring book at the moment of the beep. She was paying attention to the outline shape of the grass pictured in the coloring book, and had some faint awareness of trying to color within the lines. (Just Doing)

2.3: AV just finished singing a song (to herself in her head??) by T Ping. At the moment of the beep she is just beginning to think an unworded thought— or wondering— should I sing another song? The beep catches her at the outset of that thought. After the beep, and in response to that thought, AZ hears in her head Acon singing “Smack that on the floor” along with the rhythm of the song. It is as if the hearing of this is the answer to her wondering what song she should sing next: she should sing “Smack That.” At the same time that AZ hears Acon singing in her head, which is to say, slightly after the beep, she is aware of hearing a Gwen Stefani song come on the radio. (Unsymbolized Thinking)

2.4: One of AV’s favorite characters on a TV show died (on the show??). AV turned off the TV, went into her room, turned off the lights and lay down on her bed. She stared at the ceiling while repeating out loud to herself, “I’m sad, I’m sad, I’m sad, I’m sad...” At the moment of the beep, AV is saying the final, “I’m sad” in the repetition (though it is possible that the beep aborted the repetitive process). The beep sounds during the word “sad.” Though AV is saying she is sad, she is not actually feeling sad at that moment. (Speaking Aloud to Self)

2.5: AV is saying aloud to her mom, “Mama, I know the address at which my friend’s funeral will be held.” She is speaking to her mom in Spanish, and at the moment of the beep AV is speaking the word “yo” (or “I”) at the beginning of the sentence. Though the beep sounds, she finished speaking her sentence. She is not aware of anything other than speaking at the moment of the beep. (Just Talking)
Interview: 3
Date: 4/5/07
Time: unrecorded
Interviewers: SA & RH
Number of Beeps: 5
Date(s) Beeps Collected: 4/4/07

3.1: AV is typing on the computer keyboard in the family room. At the moment of the beep she is looking at the “D” key, specifically staring at the size and shape of letter “D” on the key. Prior to the beep, AZ had been typing steadily until she was about to press the “D” key. She paused as she noticed that the letter “D” on the keyboard she was using was much smaller than the letter “D” on her brother’s keyboard. However, at the moment of the beep she is no longer aware of the comparison between “D” keys; she is simply aware of the size and shape of the “D” key in front of her. (Sensory Awareness)

3.2: AV is searching for her wallet and she opens a drawer to see if the wallet might be in there. The drawer is filled with a tangle of computer/media cables and controls. At the moment of the beep AV is noticing the sheer amount of “stuff” packed in the drawer. She is aware of all the stuff packed in the drawer as a whole; she is not focused on any of the individual items in the drawer, nor is she thinking about her wallet at that particular moment. (Sensory Awareness)

3.3: AV is playing with a button on the table in front of her. She is poking the tip of her pen in and out of the holes, fitting it in to one hole, pulling it out, fitting it in to another, etc. At the moment of the beep, AV is noticing the particular hole that the tip of her pen is in. She is mostly aware of the hole, not the pen, though the pen is in the hole at the moment. (Perceptual Awareness)

3.4: AV is working on a word find puzzle. Her task at this time is to find the word “neur”; her way of executing that task is to search for the letter “n,” and if she finds it, to determine whether the next letter is an “e.” Thus at the moment of the beep she is systematically scanning the horizontal rows (she said the 3rd row) for a letter “n.” The letter “n” is in mind. It is hard to say how it’s in mind—there’s no image of the letter, she’s not saying the letter to herself, etc.—but the letter “n” is somehow present in her awareness at the moment of the beep. (Unsymbolized Thinking)

3.5: AV is watching The Suite Life of Zac & Cody on TV. On the show a lady is walking past a group of kids who are laughing at her. At the moment of the beep, AV is staring at the big mole on the lady’s face while exclaiming to herself in her head, “That mole is b-i-i-i-g!” Her inner voice sounds exactly as it would had she spoken the words aloud. (Inner Speech; Perceptual Awareness)

Interview: 4
Date: 4/6/07
Time: unrecorded
Interviewers: SA & RH
4.1: AV is on the computer, just beginning to log on to millsberry.com by typing in her username and password. Her username is her name, which begins with the letter “A.” At the moment of the beep she is pressing the letter “A” on the keyboard while looking at the keyboard. She is not aware of anything else. (Just Doing)

4.2: AV is watching “That’s so Raven” on TV. At the moment of the beep she is wondering to herself in her head in words, “How should I tell my mom about my friend...”? At that moment all of her attention is on her thought; AV is not at all paying attention to the TV show. AV’s thought does not get completed though—the beep sounded around the word “friend,” interrupting her. The complete thought would have been, “How should I tell my mom about my friend, that there was no practice at my friend’s house.” Earlier in the day, AV told her mother that she needed to practice for the upcoming talent show at her friend’s house that afternoon. AV’s mom rescheduled AV’s appointment at the doctor’s office so that she could go the practice. Now the practice was cancelled and, at the moment of the beep, AV is contemplating how she would tell her mother about this given the arrangements she had made. AV was not thinking any of this background information at the moment of the beep, nor was she feeling worried/anxious/concerned about telling her mother about the cancellation. She was simply wondering about how she would say it to her mother, in words in her own head at the moment of the beep. (Inner Speech)

4.3: AV is at the doctor’s office and she has just found out that she needs to have a blood test. At the moment of the beep AV is saying aloud, “Dr. Powell, is the blood test, like, gonna hurt me?” She speaks the question with curiosity (my word, thus likely a contamination/not valid) but does not experience any sense of curiosity/wanting to know/low grade desperation/worry/fear/anxiety. At the moment of the beep, AV is simply wondering aloud to the doctor whether the blood test will hurt. (Maybe a big fat presupposition, but I have a very hard time believing that this last sentence is true, though it’s what was reported—even after some pretty strong nudging in the feeling direction.) (Talking Out Loud – emotional significance)

4.4: AV is having her blood drawn for the first time ever. Her eyes are squeezed shut and the needle is just beginning to pierce the skin in the inside crease of her right arm. At the moment of the beep AV is commanding herself in a rapid, high-pitched, dramatic squeaky little inner voice, “I’m not going to cry!” Simultaneously she feels the sensation of the needle entering her skin. It’s not exactly pain; uncomfortable is the best way to describe the sensation. Next, she quickly reminds herself in her head in her normal speaking voice, “Remember AV, don’t put your hand too strong because then it’s gonna hurt more.” This utterance comes after the beep, just after the more desperate, “I’m not going to cry!” (Inner Speech; Perceptual Awareness)

4.5: At the moment of the beep AV is asking her older brother, “Marco, are you...?” The beep sounds right after she speaks the word “you,” and interferes with AV completing
her question. She was going to ask, “Marco, are you sad?” Her younger brother had messed up some of Marco’s computer games and AV wanted to know if this had upset him. (Talking Out Loud)

**Interview: 5**
**Date:** 4/9/07
**Time:** unrecorded
**Interviewers:** SA & RH
**Number of Beeps:** 5
**Date(s) Beeps Collected:** 4/8/07

5.1: AV is playing with her virtual pet dog on Nintendo DS. She is dressing her dog by using the pencil tool to drag a shirt icon to the puppy icon. At the moment of the beep AV is in the process of dragging the shirt toward the puppy, about halfway there. Though AV is able to describe the shirt as “purple with white stripes,” she is not particularly aware of the purpleness or stripedness—or anything else—that moment; she is just dragging one icon toward another. (Just Doing)

5.2: AV is watching TV, looking at a girl in a blue dress. At the moment of the beep AV is looking at the bottom part of the dress. She is not focused on any particular aspect of the bottom of the dress (blueness, rose pattern, shape, etc.) at that moment, though prior to the beep she had been thinking that the dress was pretty. (Perceptual Awareness)

5.3: AV is about to close her eyes, wondering to herself if she should sleep. At the moment of the beep, AV is asking herself in her head in her usual voice, “Should I sleep?” Specifically, the beep sounds as she says the word “I,” but it does not interrupt her saying the complete phrase to herself. (Note: During the interview we asked AV to imitate her inner voice exactly as it was at the moment of the beep. AV said aloud, “Am I sleeping?” and another phrase, but not “Should I sleep?” When queried about the word discrepancy, AV firmly maintained that the exact words were, “Should I sleep?” and that she had simply misspoken during the imitation. There seems to be something important here, but what’s going on remains unknown. I’m curious about whether this phenomenon may be a spin off of the bilingual issue. That inner speech is hard when you are speaking Spanish using English words.) (Inner Speech)

5.4: AV is eating her breakfast before going to school. At the moment of the beep she is looking at a bite of pancakes on her fork, getting ready to eat it. She is not aware of anything in particular, just looking at the bite of pancakes. (Perceptual Awareness)

5.5: AV is at her friend’s house after school practicing for the talent show. At the moment of the beep, AV is hurrying to line up before the music starts. She is not aware of anything at that moment, she is just quickly lining up. Soon after the beep she becomes concerned about messing up the dance steps, but that is not in her experience at the moment of the beep. (Just Doing)
1.1: JT is in his room at his dad’s house. He has just noticed a candy wrapper that looks out of place. At the moment of the beep he is picking up the candy wrapper and looking at it, and simultaneously seeing the entire room, noticing how filthy it is. Also at that moment, JT sees an image of his Dad close in front of him, in his face, so to speak looking a little angry (due to the messy room). JT sees just his Dad’s face, from the collar up; his Dad is looking straight at JT and saying something to the effect of, clean up your room, and don’t make me ask you again. Though JT sees his dad’s mouth moving, he doesn’t hear anything, nor apprehend the exact words his dad is saying to him—yet he knows with certainty the main message his dad is conveying. Additionally at that moment, in the back of his mind JT is thinking, here we go again. This thought is not in words, but the idea is clear and present, though in the background of his experience. Although JT’s dad is seen to be angry/perturbed, JT himself is not experiencing any emotion. (Perceptual Awareness; Image; Unsymbolized Thinking)

1.2: JT was just setting his notebook down after writing notes in reference to beep 1.1 when the beeper sounded. Because of the quick beep, there was too much interference to capture his experience at that moment. (Task Issue)

1.3: At the moment of the beep JT was holding a coke to his mouth and drinking. He does not recall his inner experience at that moment. (An excellent answer, demonstrating that he comprehends the exact criteria of the DES task.) (Task Issue)

1.4: JT is looking at a box of comics. At the moment of the beep he is staring at one face of the box, engrossed in the white color and, separately, at the brightness/vibrancy of the white. He is focused on one central area on the face of the box, but the whiteness/brightness seems to occupy his entire visual field. JT has been staring at the face of the box for a few seconds, so the sound of the beep penetrates an ongoing process. (Sensory Awareness)

1.5: JT is looking at the cover of the book Oliver Twist, which included a large portrait of the young Oliver. At the moment of the beep, his attention was divided between what we might call the sadness-in-Oliver’s-eyes theme and the color-of-the-picture theme. Foremost in his experience, JT is looking at Oliver’s eyes; he recognizes the eyes to be sad and in his own head is seeing three screens depicting different scenes that depict JT’s way of thinking about what Oliver’s life was like, and what events might have caused Oliver’s sadness. The screens in JT’s head are at right angles to each other, with one screen directly in front of him, much like the side and front walls of an office. The screen
directly in front of JT, which is the scene JT thinks is most probably, depicts Oliver as a little boy in a dreary orphanage cafeteria begging for food, his hands cupped and outstretched. The image is similar to a still photograph with only the little boy in focus. The other two screens flank JT to the right and left at right angles to the front screen. These screens also depict sad scenes, one of a dog dying and the other of a person dying. It is difficult for JT to recall which scene is on what side, but he knows they are there. The second “theme” of JT’s experience at the moment of the beep involves JT noticing the worn, pixilated quality of the printed image of Oliver’s face on the front of the book. This was a sensory experience, a noting of the lined-ness and pixilated colors of the printing. (Perceptual Awareness; Images; Sensory Awareness)

**Interview: 2**
Date: 4/25/07
Time: 7:05pm
Number of Beeps: 5
Date(s) Beeps Collected: 4/24/07

2.1: JT’s family has guests visiting for dinner. They are talking in the living room but at the moment of the beep JT is thinking about eating hamburgers. He also smells the hamburgers cooking and, at the same time, he feels a cool breeze on his right cheek. At that moment, most of his awareness is on the smell of the hamburgers, less is on the air on his cheek, and none is on the conversation happening. (Unsymbolized Thinking; Sensory Awareness; Sensory Awareness)

2.2: At the moment of the beep roughly 70% of JT’s awareness is on squeezing mustard out of mustard bottle onto his hamburger. Specifically, he hears the sound of the mustard bottle pushing out air and bits of mustard while seeing the mustard on his burger. He is aware of the amount and location of the mustard on his burger (some kind of gauging process?). At the same time, in the background, JT hears pots and pans clanging in the kitchen. Roughly 30% of his awareness is attending to the sound. (Sensory Awareness; Sensory Awareness)

2.3: JT has just taken a sip of water. At the moment of the beep, he is experiencing a slight burning sensation/weird taste in the back of his throat. Simultaneously he hears himself saying that it’s peculiar that water would cause that sensation. The sound seems to float through his mind in the background, but he is unsure of the exact words he hears. (Suspect?) (Perceptual Awareness; Inner Hearing)

2.4: At the moment of the beep, JT is looking at a can of Diet Coke and seeing the reflection of the light bulb in the light fixture overhead in the shiny silver stripe of the can’s design. Roughly 80% of his awareness is focused on seeing this reflected image, and the other 20% of his awareness is allocated to the sensation of his stomach being very full (from eating all those hamburgers). (Sensory Awareness; Sensory Awareness)

2.5: JT has just taken a bite of a strawberry. At the moment of the beep he is feeling the sensation of strawberry juice dripping out of the corner of his mouth while thinking that
he should clean it up/wipe his face. His thought is not in words or images, but rather is an idea/knowing/concept of what he should probably do. Equally salient in his awareness at that moment is his recalling of the story his sister is telling. JT is gradually detaching from what she is saying, being drawn away by the sensation of the strawberry juice and through the realization that he's already heard what she is talking about. (Sensory Awareness; Unsymbolized Thinking; Unsymbolized Thinking)

Interview: 3  
Date: 4/27/07  
Time: 7:05pm  
Number of Beeps: 5  
Date(s) Beeps Collected: 4/26/07

3.1: JT has just walked into the bathroom and the door is closing behind him. At the moment of the beep most of his awareness (70%) is on saying to himself in his head, “If it beeps in another 10 seconds it will be private.” The beep sounds as he is saying the word, “private.” His inner voice sounds exactly like his usual spoken voice, somewhat monotone and slightly dispassionate. At the same time, a smaller portion (20%) of JT’s awareness is on hearing the door “on its way to closing.” Specifically, he is hearing the metal latch scrape across the outer edge of the strike plate, the sound it makes before the door finally clicks into place. JT is perceptually interested in the closing of the door, that is, he is listening for the door closing; he is not drawn into the sensory aspect(s) of the sound itself. (Inner Speech; Perceptual Awareness)

3.2: At the moment of the beep JT is thinking about waking up early the next day in the form of an image. Specifically, JT is imagining himself turning his head to the left until his digital clock comes into his visual field. He sees the red numbers, 5:30, on the clock. Everything in the room appears darkened and he can’t really see anything else in the room aside from the red numbers on the clock. At the same moment, JT has picked up a can of mints and hears the metallic sound of the mints rattling in the tin. At the moment of the beep he is drawn to the metallic sound, not by the mints themselves. (Image; Sensory Awareness)

3.3: JT is thinking about the end of swim season sort of retrospectively. At the moment of the beep he is saying to himself, “Tomorrow is the last time I’ll get to wear a Speedo.” At the same time, JT feels sad, and the sadness is in his head. The sadness is about swim season ending and JT experiences it as a separate accompanying phenomenon to his thought. Additionally, at the moment of this beep, a good deal (50%) of JT’s awareness is on noticing the messiness of his room. He sees the mess of everything in his room at once and he cannot see the floor for all the stuff on it. However, JT is not noticing anything in particular, nor explicitly thinking anything about the messiness at the moment. (Inner Speech; Feeling; Perceptual Awareness)

3.4: PRIVATE. (Body function.)

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3.5: At the moment of the beep, JT is aware of his right eye burning. The sensation seems to be only on the white part of his eye and though it is not painful, JT experiences it as an annoying sensation. Most of his awareness (60%) is on this sensation but a smaller portion of his awareness (30%) is also noticing the characteristics of a patch of the blue stucco wall in front of him. The wall has been painted blue and JT is looking at the higher areas of texture, which are blue, but he is also noticing the lower areas of texture are still white. He predominantly is drawn to the blueness of the wall, but because of the discrepancy in the white areas and blue areas, he is also aware of the stucco texture. Finally, roughly 10% of JT’s awareness is on his feeling “hot and stuffy.” This is a physical sensation and he experiences it all over his body as a result of the temperature in the room. (Sensory Awareness; Sensory Awareness; Sensory Awareness)

Interview: 4  
Date: 4/29/07  
Time: 7:05pm  
Number of Beeps: 5  
Date(s) Beeps Collected: 4/29/07

4.1: JT is lying down on the couch and his dog is lying on top of him. At the moment of the beep, he feels the dog’s weight pressing down on his stomach and the pressure is slightly painful. At the same time JT is annoyed, which involves wanting to throw the dog off of him. This annoyance seems to be a feeling in his head, which somehow gets expressed in his arms. JT is sure that this annoyance is not an explicit thought, and he is sure that there is some sensation like throwing the dog off in his arms, but he is less sure of the annoyance in his head. Also at the moment of the beep, JT knows that his mother is speaking to him; this knowing is somewhere between a thought and a hearing of something like murmuring. He is not hearing her articulated words. This recognition of her speaking is least prominent in his awareness. (Sensory Awareness; Feeling)

4.2: JT is doing push-ups on astro-turf. At the moment of the beep he is asking himself in his head in his normal voice, “How many do you wanna do?” At the same time, JT is also aware (40%) of a pretty painful, fire-like burning sensation in both palms of his hands. His hands have been burning like this since doing pull-ups on a metal bar earlier in his exercises. (Inner Speech; Sensory Awareness)

4.3: JT is in the car with his mom at a drive-thru. At the moment of the beep he is looking at the very dark blue lettering on the drive-thru window, wondering whether the lettering is blue or black. His thought is clear yet it does not manifest in words or images. At the same time JT’s mom is talking to him. Although he is in some way taking in the meaning of what she is saying, that meaning is not impacting him. He’s not “latched onto” what she’s saying; he’s not thinking about what she’s saying. (Unsymbolized Thinking; Sensory Awareness; Perceptual Awareness)

4.4: At the moment of the beep JT is saying out loud, “That movie is going to be over soon.” At the same time, rather in parallel to the out-loud talking, he is thinking to himself something like, I need to watch something else...what should I watch?
Additionally, a very small amount of his awareness (5%) is on hearing and seeing the TV at the moment of the beep. (Talking Out Loud to Self; Unsymbolized Thinking)

4.5: JT is seeing a bug fly around the room. At the moment of the beep he sees the bug, a little black speck moving quickly, while wondering to himself whether he should try to hit it or not. (Unsymbolized Thinking; Perceptual Awareness)

Interview: 5  
Date: 5/1/07  
Time: 7:05pm  
Number of Beeps: 5  
Date(s) Beeps Collected: 5/30/07

5.1: JT is sitting in his room looking at the carpet. At the moment of the beep he is noticing the pouffy texture of the carpet. His entire visual field is filled with carpet and he is engrossed in the pouffy aspect of the carpet overall, rather than only in a small focused area. Roughly 90% of JT’s awareness is on the carpet and the remaining 10% is on hearing the grinding noise of the air conditioner in the background of his awareness. (Sensory Awareness; Sensory Awareness)

5.2: At the moment of the beep JT is wholly engrossed in the act of sneezing. The beep sounds just at the tail end of the sneeze and at that moment JT is aware of the built-up pressure blowing out of him. He does not have any thoughts at that moment, he is totally focused on the act of sneezing. (Sensory Awareness)

5.3: JT is sitting on his bed with the bottom half of his legs hanging over the wooden footboard. At the moment of the beep he feels a painful burning sensation in the back of his knees, where the footboard is pressing into him. At the same moment, JT is thinking that he should probably move his legs. The thought is not in words, it is just an idea that has not yet translated into a decision to act. Though the thought is in reference to the burning sensation in the back of his legs, it is somehow disconnected from the sensation, as if the sensation and the thought are abstracted from one another. When they finally do come together, a moment after the beep, JT takes action and moves his legs off of the footboard. Also at the moment of the beep, JT hears the crunch of the pretzel he is biting into. Only 20% of his attention is on the sound. Another 5% of his awareness is on the undifferentiated noise coming from the TV at that moment. The remaining 75% of his awareness is on the burning pain behind his knees and his thinking about moving his legs. (Sensory Awareness; Unsymbolized Thinking; Sensory Awareness; Perceptual Awareness)

5.4: At the moment of the beep, JT is noticing the shininess of a candy wrapper lying on the floor. He is simultaneously thinking that it’s pretty shiny, though that thought is not in words. At the same moment, JT is aware of his upper lip burning right along the lip line, and he is aware that his nose is dripping. Just prior to the beep, JT felt the sensation of cold mucus slowing running downward out of his right nostril in a straight line toward his upper lip. This sensation is what caused him, a second later, to become aware of the fact
that his nose was dripping. (Sensory Awareness; Unsymbolized Thinking; Sensory Awareness; Perceptual Awareness)

5.5: JT is looking at the reflection of a tree in a pane of glass. Just before the beep, he realized that the tree was not in the same place it had been a moment before. At the moment of the beep, JT is looking at the reflection and asking himself something like, “Why would the tree be moving?” At that same moment, JT hears the TV in the background. He can discern that distinct words are being spoken, but he is not focusing enough on the sounds to know what those specific words are. (Inner Speech; Perceptual Awareness)

**JW’s Samples (See Chapter 10)**

**Interview: 1**
**Date: 6/13/07**
**Time: 1:45pm**
**Interviewers: SA; RH; JKL**
**Number of Beeps: 8**
**Date(s) Beeps Collected: 6/12/07 & 6/13/07 (last two)**

1.1: JW is playing solitaire on the computer. At the moment of the beep she is moving the King card down to fill an empty spot. She had been feeling mad because her mother and brother were fighting but at that moment she is not aware of her anger, even though she believes that the anger process is still ongoing in her body. (Doing; Feeling Fact of Body)

1.2: JW is talking on the phone to her friend Tiffany and they have just decided to 3-way call JW’s boyfriend. JW is on hold while Tiffany places the call to JW’s boyfriend. At the moment of the beep JW is saying excitedly to herself in her head, “Okay/Ohmigod, I’m gonna talk to my boyfriend...what should I say?” She also feels excited, which she experiences as having butterflies in her stomach. The butterfly sensation is intense and seems to be located in a rather small 2 x 2 inch area just above her belly button, about an inch inside of her. At the moment of the beep JW’s attention is split evenly between what she is saying and what she is feeling. (Inner Speech; Feeling w/ Bodily Features)

1.3: JW’s mom is talking to her friend on the phone. The friend is going to be having a baby girl and JW’s mom is brainstorming girl’s names. At the moment of the beep JW blurts out loud to her mother, “What about Alisha?” Most of JW’s awareness (70%) is on what she is saying aloud but she is also aware of feeling mild excitement (30%). This excitement manifests as butterflies in the 2 x 2 inch area just above her belly button (the same area as in Beep 1.2), but it is not a very intense sensation. (Speaking Aloud; Feeling)
1.4: JW is leaving her house with her friend Cassidy. At the moment of the beep JW’s hand is on the doorknob and she is in the process of walking through the door. She is not aware of anything. (Just Doing)

1.5: JW is on the phone with her friend Tiffany. At the moment of the beep she is talking to Tiffany (JW can’t remember exactly what she was saying, but knows that part of the conversation involved her figuring out if she could stop by to see Tiffany’s newly dyed hair.) (Just Talking)

1.6: JW is half asleep while listening to music. At the moment of the beep she is partially paying attention to the music (can’t recall what it was exactly) and partially asleep. (Coding: Just Doing)

1.7: JW is talking on the phone to her friend Tiffany when her brother tells her he needs to use the phone. At the moment of the beep, JW is saying, “Okay” in response to her brother’s request. She is not paying attention to her conversation with Tiffany at that moment. (Just Talking)

1.8: JW is in the back seat of the car. At the moment of the beep she is watching her brother, who had been sitting in the front seat, get out of the car to greet a passing friend. JW is not aware of anything other than just watching. (Just Watching)

Interview: 2
Date: 6/15/07
Time: 1:30pm
Interviewers: SA; RH; JKL
Number of Beeps: 6
Date(s) Beeps Collected: 6/14/07 (first three) & 6/15/07 (last three)

2.1: JW is watching the movie The Lion King, specifically the scene in which Simba discovers that his father, Moufasa, is dead. In the film Simba crawls under Moufasa’s paw as he mourns his loss. At the moment of the beep JW is watching that scene and cooing sadly to herself in her head, “Ooh, that’s so sad, he died...” At that same moment JW is also feeling sad, which she experiences as being everywhere throughout her head and upper body. The feeling in her head is about the same as the feeling in her body (that is, it is a bodily, not a mental, feeling). Beyond that, JW cannot describe her feeling in any more detail. (Inner Speech; Feeling)

2.2: JW is watching the final scene of the movie The Lion King. In this scene Simba has become king and is standing on high, surveying his kingdom with his young son at his side. At the moment of the beep JW feels happy/proud for Simba, which she experiences in her head only. (Feeling)

2.3: JW at her friend’s swimming pool. At the moment of the beep she is just about to dive off of the diving board and into the pool. She has leaned into the dive but her feet
have not yet sprung off of the board. She is not aware of anything at that moment, she is simply engaged in the action of diving. (Note: Use of on-board speaker) (Just Doing)

2.4: JW and her mother are looking at the Burkholder Middle School homepage on the internet. At the moment of the beep JW is reading the first line of text to herself, comprehending the meaning of what she is reading word by word. Somehow the words seem to be understood word by word, as if each word enters her consciousness somehow attached to its meaning; these individual words are not spoken or heard, but appear sequentially as she reads. The font is small and she is not wearing her glasses so she struggles slightly to read the text. The beep interrupts her reading mid-sentence but at the moment before the beep interrupted her she was just reading. (Reading)

2.5: JW has just logged onto My Space and is looking at her homepage. At the moment of the beep she is looking at the ‘new mail’ icon, which is indicating that she does indeed have new mail, and saying to herself in her head in a monotonous voice, “Okay, now what’s gonna happen?” I recall this as being “Okay, what’s gonna happen now?” And I also recall that she already knew that there was mail from that girl. However, I’m not sure about either. Jackie and I did bum the DVD, which is in your plastic tray in the lab. JW says this in reference to the fact that she’s been receiving mean messages from a girl who does not like her, though this is not explicitly in her awareness at the moment of the beep. In her saying, “Okay, now what’s gonna happen?” she is wondering to herself if the new messages in her inbox are from this girl and if so what she’s written this time. (Inner Speech)

2.6: JW is waiting for the movie *Monster’s Inc.* to begin. The title has just appeared on the screen and at the moment of the beep JW is looking at the screen but not registering what she is seeing. There is nothing in her awareness at that moment. (Just Watching TV)

Interview: 3
Date: 6/27/07
Time: 1:30pm
Interviewers: SA; RH; JKL
Number of Beeps: 6
Date(s) Beeps Collected: 6/26/07

3.1: It’s morning and JW has just finished eating breakfast. At the moment of the beep she is walking toward her room. She is not aware of any inner experience at that moment. (Just Walking)

3.2: JW is playing an Xbox 360 game with her brother. At the moment of the beep she is pressing the nitrous button, which gives a quick speed boost, while watching her car (?!) begin to overtake her brother’s car on the screen. At the same time she is thinking that she’s got to beat him, but that thought is not in words or images, it’s just there in her awareness. Her inner experience at the moment of the beep is most like a “collage” of semi-automatically pressing the Y button, watching her car overtake his, and thinking she’s got to beat him. That is, her inner experience is not differentiated into three separate
experiences; rather those three experiences are intertwined in her inner experience at that moment. (Doing; Unsymbolized Thinking)

3.3: JW is talking to her friend T on the phone. At the moment of the beep she is speaking to T, saying something like, "...I couldn't go to the pool." There is nothing else in her awareness at that moment. (Just Talking)

3.4: JW is watching the film *Finding Nemo* (the part about the Mom and 3000 baby fish being massacred?). At the moment of the beep she is feeling sad. She is aware of the sad feeling throughout her upper body (waist up) and head, but she cannot describe anything else about her experience except to say that what's in her head seems to be the same as what's in her body (that is, it is *not* a cognitive thing in her head and an affective thing in her body). Though most of her awareness is on her experience of feeling sad, some of her attention is focused on the film. (Feeling)

3.5: JW is preparing to play Spider Solitaire on the computer. At the moment of the beep she is clicking on the Spider Solitaire icon listed on the Start menu. She is looking at the icon on the computer screen while clicking the mouse, but she is not aware of any inner experience at that moment. (Just Doing)

3.6: JW is looking at MySpace.com. She has just read a posting by her friend, A, on a bulletin and JW would like to ask A a personal question (about that posting?). That is, just before the beep, JW had some sense of the question she would like to ask; that sense was not completely articulated or differentiated. At the moment of the beep, JW is not at all aware of what she'd like to ask A; she is simply proceeding toward A's MySpace profile page, where she will be able to privately type her question to A. At the moment of the beep, JW is looking at A's icon (which is next to A's bulletin posting) and clicking it. Though a moment before she had had the (yet verbally unformulated) personal question in mind, at the moment of the beep JW is not aware of anything. (Just Doing, preceded by Unsymbolized Thinking)

**Interview: 4**
Date: 7/25/07
Time: 1:30pm
Interviewers: SA & RH
Number of Beeps: 6
Date(s) Beeps Collected: probably 7/25/07

4.1: JW is eating breakfast, taking the last bite of eggs. At the moment of the beep she tastes the egg, which is now in her mouth. She is not noticing anything particular about the taste (like saltiness or the texture of the eggs). A moment before, JW had been somehow aware that this is her last bite of eggs, but at the moment of the beep that awareness is no longer present. (Perceptual Awareness)

4.2: JW is on her way to the bathroom to run a shower. She is just about to walk through the bathroom doorway at the moment of the beep. At that moment, JW sees her reflection
in the mirror on the wall of the bathroom directly through the doorway. She sees herself from the waist up, but she is not looking at/focused on anything in particular in the reflection. (Perceptual Awareness)

4.3: JW is playing with her puppy. At the moment of the beep she is noticing the spots on the puppy’s nose and head. JW had been feeling the fun-ness of having a new puppy, and that state was probably still present in JW in some way, but not in JW’s experience at that moment. (Perceptual Awareness; Feeling Fact of Body)

4.4: JW is preparing food for her puppy. At the moment of the beep she is placing the bottle of formula in a pot of boiling water to warm it up. She is not aware of anything aside from just doing that task at the moment of the beep. (Just Doing)

4.5: JW is buckling a collar around her dog’s neck. At the moment of the beep she is fitting the prong into a hole. JW is not aware of anything other than the task at hand. (Just Doing)

4.6: JW is pouring dry dog food into her dog’s bowl. At the moment of the beep she is looking at the food in the bowl, noticing the bone-shaped-ness of the pieces of food. Most of her awareness is on the shape of the food, but in the background a small part of her feels pain on her right back ankle, where her brother’s puppy is biting her with it’s tiny new teeth. (Sensory Awareness (external); Perceptual Awareness (bodily))

Interview: 5
Date: 7/30/07
Time: 1:30pm
Interviewers: SA & RH & JKL
Number of Beeps: 6
Date(s) Beeps Collected: probably 7/29/07

5.1: JW is turning on her PlayStation 2. She is pressing the power button, on which there is a small red light. At the moment of the beep JW is not aware of anything other than what she is doing. (Just Doing)

5.2: JW is in the kitchen preparing taquitoes. At the moment of the beep she is putting hot sauce on the taquitoes. She is not aware of anything other than the doing of this task. (Just Doing)

5.3: JW is looking at her puppy running toward her. She is paying attention to the puppy’s playful running and sudden stopping. JW thinks that she was feeling happy/joy as she watched her puppy come toward her, but that that feeling was not in her awareness at the moment of the beep. (JW was also in the act of climbing over the gate to get into the puppy’s room to play. She was struggling slightly to maneuver over the gate, but none of this was in her awareness at the moment of the beep; all attention was on her puppy.) (Perceptual Awareness; Feeling Fact of Body)
5.4: JW is playing tug-of-war with her adult dog, Beautiful. JW is holding one end of the toy and Beautiful is tugging on the other end of the toy. At the moment of the beep the toy rips and JW is shocked/surprised. The shock/surprise seems to be between a thought and a feeling, but it is hard for JW to describe the experience beyond that. JW explained to us that she felt shocked/surprised because her dog, Beautiful, had not displayed that kind of aggression while she was pregnant. JW was shocked/surprised to see that her dog would rip a toy like that, though none of this background information was in JW’s awareness at the moment of the beep. (Feeling)

5.5: JW is walking down the hallway toward her room. At the moment of the beep she is turning the corner from the hallway into her room. She is not aware of anything at that moment. (Just Doing)

5.6: JW is playing Streetball on her PlayStation 2. At the moment of the beep she is about to press the X button on the remote in order to pass the football to another player on her team. She is looking at the screen and while pressing of the X button, and this comes automatically to her. She is paying attention to the game, but she is not paying specific attention to an aspect of the game or to pressing the X button. (Just Doing)
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