Sampling inner experience in adolescents

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Sampling inner experience in adolescents

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SAMPLING INNER EXPERIENCE
IN ADOLESCENTS

by
Lois Christina Monson

A thesis submitted in partial fulfillment
of the requirements for the degree of

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in

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Department of Psychology
University of Nevada, Las Vegas
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Abstract

The inner experience of five adolescents, ages 12 through 14, has been investigated through a experience-sampling method that asked the subjects to describe in detail the inner experience that was ongoing at randomly sampled moments during their daily living. A beeper signaled the subject to freeze their inner experience, (i.e., thoughts, feelings, images, etc.) at the moment of the beep. Findings indicated, as had been found in previous research with adults, that adolescents had a variety of inner experience including Images, Inner Speech, Inner Hearing, and Feeling. Adolescents, unlike adults, reported the slow forming and fading of Images, leading to the supposition that imaging may be a newly-developing process in early adolescence. Results also indicated that adolescents with little symbolization in their inner experience, that is, little Inner Speech and few Images, may be predisposed to learning disability or, as previous research with adults has indicated, to depression.
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Chapter 1

Overview

This paper provides descriptions of the inner experience of several adolescents using a new research method called inner experience sampling. Since reports about inner experience have received much criticism in the 100-year history of psychology, we will begin with a review of the contexts within which inner experience sampling developed.

Inner experience sampling is in some ways, similar to the introspection techniques that were in frequent use in the early years of psychology, although little research has been done in this area since the early 1900's when disagreement over the theoretical basis of thinking clouded the findings of introspective research. We will provide a review of the early introspective literature and criticize the modern position that holds that introspection is unreliable.

Over the last two decades reports about inner experience have increased in frequency in psychological research (Klos & Singer, 1981). Most of the these data-gathering methods, which are still sometimes called "introspective," are quantitative, and can be
divided into methods that are either retrospective, reporting information that happened prior to the time of inquiry, or non-retrospective, reporting information immediately. Retrospective methods such as questionnaires have been used to study a variety of subjects from daydreaming to cultural differences in various populations. Non-retrospective techniques such as thinking out loud and experience sampling have assessed information about many topics from the role of current concerns in the thinking process to what basketball players are thinking during a game. We will provide a selective review of this literature to illustrate each quantitative method.

Then a complete review of the present-day inner experience sampling literature will be provided. It will be noted that Hurlburt (in press) has developed a descriptive inner experience sampling procedure that is non-retrospective, and which has shown promise as a method of studying both normal and abnormal processes. A variety of adults have been studied with this method, but, it has not been used with anyone under the age of 17.

The purpose of the study is, therefore, to explore the inner experience of adolescents. There may be maturational stages of inner experience, but since no research has been done in this area, it is not even
known if inner processes have developmental stages. A second purpose of this study is to explore the use of inner experience sampling as a diagnostic tool, particularly in the early identification of the mentally ill. For example, if schizophrenics are found to have definite peculiarities in their inner experience and those peculiarities can be detected at a young age, early intervention may lessen the severity of the illness. The present study seeks to explore the range of relatively normal inner experience against which abnormal states can later be constructed.
Chapter 2

Introspection

Introspection can be defined as the study of one's own thoughts, or a process of examining inner mental experiences. Psychology struggled in its formative years to develop a systematic method of introspection. One of the major reasons for attempting to systematize our introspective procedures is that introspections are subject to errors and biases. Since we do not all view the world in exactly the same way, systematic procedures may make the results of introspections comparable (Wood, 1981). Even though we have access to only one mind, our own, Titchener noted that there are more fundamental resemblances in the human mind than there are differences (Boring, 1965).

Introspection was of interest to early philosophers. As early as 400 B.C. Plato noted the reliability of introspection as a means of discerning truth and coming to know one's self (Wertheimer, 1987). In 1860 Fechner was one of the first modern psychologists to present the idea of experimentally studying the mind when he suggested a study of the way
memory-pictures differ from after-images. Since Fechner found a great deal of diversity in people's imagery in his initial study, he noted that the findings of such a detailed study would prove interesting (James, 1890). However, it was Galton who began the study of imagery in 1880 with a carefully-framed questionnaire to gather data on the "mode of visual presentation of different persons" to "illustrate the essential differences between mental operations of different men" that "might give some clue as to the origins of visions" (Galton, 1883/1951, p. 57). Galton found, first of all, that it was possible to gain statistical insight into the workings of the mind; second, he found, to his surprise, that men of science were not prone to visual mental images. He concluded that the "over-ready perception of sharp mental pictures is antagonistic to the acquirements of habits of highly-generalized and abstract thought" (Galton, 1883/1951, p. 60). He also noted that if scientists ever did possess the ability to see images, it had been lost through disuse. In 1883 Charcot presented an account of an aphasic man, Mr. X, with altered thought processes (cited in James, 1890). Before he had become aphasic, Mr. X had enjoyed an exceptional visual memory; but daily pressures of life changed his mental processes from visual to auditory
with loss of memory of even the faces of his family. James cited others who studied the imagination including, Stricker, Meyer, Bain, and Muensterberg (James, 1890).

About this same time Wundt began his study of the human mind, although he had been trained as a medical doctor (Blumenthal, 1980). He felt that introspection should be based on immediate experience, and that understanding immediate experience would enlighten human consciousness; he was critical of retrospective research (Danziger, 1980). He felt there was a distinction between "self observation" (Selbstbeobachtung) and "internal perception" (innere Wahrnehmung) (Danziger, 1980). He looked with contempt on the method of self-observation (Wundt, 1906, as cited by Danziger, 1980), but he felt that internal perception was the corner stone of psychology (Wundt, 1880, as cited by Danziger, 1980). As a psychologist, he studied the internal mental process with the same rigorous controls and objective detachment that a physicist studies the external world (Lowry, 1971); therefore, he proposed that introspection would not be valid unless performed by highly trained observers according to the rigorous controls. He felt that an idea was really a complex combination of elements called sensations, noting that these ideas formed by
sense impressions are 'perceived' (Blumenthal, 1980). Wundt (1902) published part of *The Principles of Physiological Psychology* in which he defined these senses that are the elements of ideas. He said that touch and organic sensations come from pressure, warmth, cold, and pain, whereas "the special senses of hearing, seeing, smelling, and tasting present an abundance of sensations, each of which, according to its peculiar constitution, is called a quality of sensation" (as cited in Watson, 1979, p. 133). He went on to note that these qualities could vary in intensity (Watson, 1979). He also said that all "psychical experiences" were a combination of elements that could be analyzed back to their origins through introspection, and that mental experience was more than the sum of its parts (Fugel & West, 1970, pp. 34-35). To Wundt, an image in the mind could be present in different stages of clearness from the dim gradual formation of the image in consciousness to the bright clear sensory image. For example, Wundt felt that a thought was present in nascent form in one's mind before it was explicitly expressed in a sentence:

At the outset the focus of consciousness does not contain a single one of the verbal and other images which make their appearance in running through the thought and giving it linguistic expression, and it is only in this process of unfolding the thought that its parts rise to distinct awareness.
(Wundt, 1912, as cited by Woodworth, 1938, p. 785) He admitted this nascent thought might indeed be held to be a discrete unit; but, he went on to note that he thought the content was present in imaginal form in the background of consciousness (or the things that go on in our mind that we are not focused on) but very dim so that one could not attend it. He said that the "total feeling" was a unit and was generated by a complex of images, but that there were too many parts of the thought for one to attend to so, at first they were noted only as part of the background. "Total feeling" was where the process of forming an idea, or complex of images, began. (Wundt, 1907, as cited by Woodworth 1915, p. 2).

Among Wundt’s students were Titchener and Kuelpe, who both studied the complex method of introspection, learning to perceive sensation of the immediate experience only (i.e., hue, shading, spatial arrangement). As trained introspectionists they could speak only of sensory elements, not relating the object to past experience, meanings or contexts that were defined as "logical" reflections. If an introspectionists made a "logical" mistake, they were committing "Kundgabe," or "stimulus error." For instance, if an apple were placed before the subject, he could describe only the conscious experience of
having it before him. The "psychological description of an apple must include material on its color, shape, smell, weight, taste, and the like" (Wertheimer, 1987, p. 111), but the introspector would be committing an error to give any meaningful data about the apple (i.e., a fruit that can be eaten) because only psychological data was considered part of the immediate experience (Brennan, 1982). The Mueller-Lyer illusion would be described psychologically as "two visual extensions which are unequal" (Evans, 1975, pp. 334-335) whereas the logical description would include knowledge about two black lines that looked different but were in actuality equal.

Wundt chose Kuelpe as his assistant and asked him to write an introductory psychology text, which Kuelpe agreed to do, working together with Titchener on the task. Wundt did not realize until he saw the finished book how much Kuelpe’s idea of introspection had been influenced by Mueller’s "self perception" and retrospective research methods, both of which differed from Wundt’s views that included inner perception and immediate experience (Danziger, 1980). Kuelpe agreed with the need to reduce all data to elemental sensations, but felt that the control of mental processes came from external sensation, and not from internal central control as Wundt believed. He also
felt that Wundt's idea of a central attentional process was wrong (Blumenthal, 1985), and he differed from Wundt in that he believed that higher mental processes could be studied (Grover, 1982). Wundt and his students at Leipzig did not look at Kuelpe's book as having credibility. The lone exception was Titchener who translated Kuelpe's book into English.

Kuelpe accepted a professorship at Wuerzburg in 1893 where he further modified his theory of the functioning of the mind (O'Neil, 1982). He separated sensation and feeling because he thought that they could be experienced independently of each other, and he gave feeling the attributes of intensity and quality. Kuelpe and his students performed complex tasks such as judgment and association in the laboratory by means of everyday language, and afterward gave a report of the mental experience of completing the task (Humphrey, 1963). Kuelpe and his students collected over 1,000 samples of data in each study (to be described later) recording each response and introspection, as opposed to the random introspections that Wundt recorded. Wundt was critical of this "experience-and-then-introspect" method because he felt introspection could be done only with immediate experience, but Titchener was willing to try it in his laboratory (Watson, 1971).
Wundt, Titchener, and most of their students believed that every thought was formed out of a combination of sensory images. Questions as to the existence of imageless thought had been hinted at by Galton in his discussion of abstract thought. In 1896 Stout said, "There is no absurdity in supposing a mode of presentational consciousness which is not composed of visual, auditory, tactual and other experiences" that has "a representative value or significance for thought" (p. 49). In 1899 he went on to say that "the conceptual process" could be "regarded as a higher development of ideational process," and that the imagery was usually verbal (Stout, Camb, Oxon, Aberdeen, 1899, p. 396). Although the process of imageless thought had not yet been defined, research questions about it were soon to be raised.

At the turn of the century, Kuelpe and his students, Mayer, Orth, Marbe, Ach, Watt, Messer, and Buehler, among others, began their investigation of thought at the Wuerzburg School. In 1901, Mayer and Orth, investigated association by asking four observers (including Mayer and Orth themselves) to produce a verbal association after being given a stimulus word, and then to state everything that went on in their mind between the stimulus presentation and their given response. They found perceptions, images, and acts of
will. They also discovered a state of consciousness that was neither volition nor image (Humphrey, 1963) which they called "Bewusstseinslagen," describing this state of consciousness as unanalyzable. That same year, Marbe studied judgment of weights and found that, while subjects could distinguish between lighter or heavier weights, they did not know how they came to that conclusion; in particular, there was no image that carried the distinction. Marbe (1901) could find no psychological criterion of judgment and, therefore, concluded that judgment was a unit of thought in itself (Humphrey, 1963). The tone of his paper, however, was negative, indicating that he failed to find the psychological criterion for judgment that he was looking for. Thus, he also found experiences with no psychological sensations that he also called "Bewusstseinslagen". Further investigation of this state of consciousness led Ach (1905) and Watt (1905) to investigate "determining tendency," the readiness to react to a predetermined task such as adding or subtracting, and they found that once the task had been set, it could be performed with little or no conscious mental process, suggesting that a predisposition that was external to consciousness (and which did not include images) could act to control consciousness (Watson, 1971). On closer examination of the "psychic
processes", Ach found an awareness of meaning that he called "Bewusstheit" (Humphrey, 1963, p. 43).

A year later Messer (1906), through the study of free association and judgment, attempted to go beyond such, saying that "Bewusstseinslagen" were unanalyzable. The results of his study indicated that consciousness was a transition between the presence of the stimulus with its immediate meaning and the image that followed (Humphrey, 1963). Titchener would have said that this consciousness was an uncrystallized image, but Messer felt that it was a process of "conscious effects varying from clear word-imaged to unanalyzable Bewusstseinslage" (Humphrey, 1963, p. 41). He went on to conclude that "The useful . . . term Bewusstseinslage has then done its duty at this point, and it seems to us advisable to replace it by the current expression 'Thoughts' (Messer as cited by Humphrey, 1963, p. 42). Buehler, in 1907-8, then studied what happened when a person thought about difficult problems. He posed questions such as, "Was the theorem of Pythagoras known in the Middle Ages?" or, "The smaller the woman's foot, the larger the bill for the shoes?" (Humphrey, 1963, p. 56). Subjects in this study reported: (1) sensory presentations: (i.e., auditory, kinesthetic), (2) feelings, and (3) the unanalyzable consciousnesses that could not be broken
down into sensory components (e.g., doubt, astonishment, recollection and expectation) which Marbe had called Bewusstseinslagen. Buehler concluded that this third kind of experience, "is exactly a consciousness of the process of thought (Buehler, as cited by Humphrey, 1963, p. 57). Thus, imageless thought was identified by the Wuerzburg group through several different processes (e.g., association, judgment, will, and the solving of difficult problems). Wuerzburg had broken from the traditional sensationalist theory of Wundt and Titchener, and established a new era in the psychology of thought.

In 1892 Titchener left Leipzig to look for a teaching position in England (especially Oxford), but finding nothing, he accepted a position at Cornell (Boring, 1950). He was interested in the normal adult, as was Wundt, and did not enter into the newly established animal psychology, abnormal psychology, or child psychology that was coming into full flower in America. He held tenaciously to Wundt's theory of sensationalism, tolerating no dissent or variation from it. He, like Wundt, believed that thought was a complex of sensations and images perceived by the mind that had not been analyzed, and that these thoughts were linked (associated) through mental images. He also felt that "will" was a complex of images that in
turn became ideas that preceded action (Brennan, 1982; Smith, 1983). He believed that some thought processes could not be analyzed according to the sensory-imaginal theory, but that did not mean that the sensory-imaginal pattern was not there (Boring, 1950). Therefore, "determining tendency" came to mean a pattern of older established sensory elements. He could not accept Ach's "Bewusstheit" (awareness of meaning), but felt it was a kinaesthesia where the mind faced a situation with some bodily attitude, and that one may or may not be aware of the sensations from which the attitude evoked the meaning (Humphrey, 1963). In otherwords, the "thought" that the Wuerzburgers were calling "imageless", Titchener said had sensational elements even if the subject was not aware of them. He accepted Ach's determining tendency; but he concluded in his theory of meaning that sensory or imaginal processes were always necessary for a new idea but that old ideas could come into the mind without sensation or image because the meaning was carried unconsciously (Boring, 1950; Titchener, 1910/1980). The sensory elements carrying the meaning without conscious representation depended on the strength of the determining tendency (Boring, 1950). Titchener also felt that, from an individual point of view, independent experiencing, or the study of the organism in relation to its
environment, belonged to the science of biology; and dependent experiencing, or the conscious experience in relation to the organism itself, belonged to the science of psychology. He felt stimulus error was committed when a person left the psychological (dependent) point of view for the biological point of view (Woodworth & Sheehan, 1964).

About this same time, Binet and Woodworth independently began research through introspection to investigate "imageless thought" (Humphrey, 1963). Binet had given up his research on the sensory functions as identified by Wundt and had begun to study "higher mental processes" using his two daughters (10 and 11 1/2 years of age) as subjects (Binet, 1903/1969). He felt experience could be reported more adequately with thoughts than with images, and that if the thoughts were excluded, leaving only the images, meaning would be lost (Aveling, 1912; Woodworth, 1938). Thoughts, he discovered, had no images associated with them; thinking just occurred in "thoughts" (Woodworth & Sheehan, 1964). Titchener was critical of Binet for using children to introspect because it was a difficult task even for adults to learn (Titchener, 1909/1973). Woodworth agreed with Binet's study of thoughts, but indicated that "mental reaction" was a better descriptive term.
Woodworth's theory of "mental reaction" noted that a percept is an inner reaction to sensation, and he indicated that this mental reaction was something that had not been defined before; it was not present in the sensations, but was as different from them as motor reactions (Woodworth, 1915). His research involved what today are called verbal analogies (Jensen, 1980), but then were called "rule of three" (Clarke, 1911, p. 242; Titchener, 1910/1980, p. 512). For instance, the subject was asked, 'London is to England as Paris is to _____?' He found four different classes of reports as the observers introspected their answers: (1) very little in consciousness when answering the easy analogies, (2) the relation received a name before the answer was found in the more difficult analogies, (3) the relations was pictured in the form of an imagery, (4) the subject 'feeling' the relationship but could not name it (Clarke, 1911). The above points show that Woodworth had found several types of mental reactions including determining tendency, association with verbal imagery, imagery itself, and a 'feeling' of the relationship.

Imageless thought had appeared in Germany (Kuelpe), France (Blinet), and the United States (Woodworth) in independent research, and was not to be denied a place in the psychology of thought. Since
Wundt (1907, as cited by Humphrey, 1963) felt that the higher mental processes could not be analyzed, he leveled a severe, emotional criticism at the Wuerzburgers and their "imageless thought. He could have leveled the same criticism at Binet and Woodworth. Although Titchener was loyal to Wundtian sensationalism throughout his career, he did study the "higher mental processes" that Wundt opposed. When Wundt (1907) published his sixty-page criticism of the Wuerzburg imageless thought findings, he defined the necessary characteristics of an introspective trial or session: (1) the observer must be able to tell when the operation is introduced for each trial; (2) the observer must be at strained attention for each trial; (3) the observation (i.e., verbal report) must be able to be repeated on subsequent trials; and (4) variation of experimental conditions must be possible across trials with the subject being able to attend to the changes (Hilfen, 1984; Lowry, 1971; Woodworth, 1938). Wundt noted that the subjects in the Wuerzburg studies could not observe themselves adequately because they could not solve the question, or task, of the experiment as well as attend to the process in their mind; this was the self-observation that Wundt opposed (Danziger, 1980). He indicated that true scientific observation demanded an independence between the
subject and object that was destroyed by self-observation (Danziger, 1980). He noted that perception was already over when a person decided to observe something, for introspection had then become retrospection which was unreliable (Danziger, 1980).

Wundt also noted that for his method of introspection, Internal perception, to be a reliable method of introspection the factor of replication was necessary (Danziger, 1980). Wundt was critical of the Wuerzburger's retrospective method because the same question could not be repeated without a memory effect; but, with his internal perception, replication of the same problem was possible. On the other hand, the Wuerzburg group maintained that different problems (i.e., verbal associations, acts of judgment, readiness to react to a predetermined task such as adding or subtracting, or answering difficult questions), through retrospective introspection, could be used to find the same features of imageless thought. Humphrey (1963) argued that a closer look at the findings of Ach and his "determining tendency" and Buehler and his "thought process" showed that both research projects noted similar results of "imageless thought."

Wundt indicated that Kueipe and his students had confused consciousness and attention. Since they concluded that there were no sensory elements in
consciousness, they could not attend to everything that was present in consciousness on immediate self-observation, therefore they viewed consciousness and attention as one in the same (Humphrey, 1963).

Wundt stated,

A thought is not first formed while one speaks a sentence, but that it already stands as a whole in our consciousness before we begin to fit words to it. With the whole there is, nevertheless, present at the focus of consciousness none of the verbal or other representations which form during the development and the linguistic expression of thought; but only at the moment when we develop the thoughts are their separate parts successively lifted to clear consciousness. (Humphrey, 1963, pp. 110-111)

Wundt defined this thought as a "feeling-effect" that may be dimly apprehended. Humphrey (1963) stated:

Finally, when he (Wundt) comes to his alternative proposal for a psychology of thinking, Wundt is really restating the Wuerzburg position in his own words. The pre-linguistic thought-whole, which is in consciousness, and which unfolds itself by means of speech; the feeling-effect which adequately covers the character of thought . . . (is) surely none other than Ach's Bewusstheit. To use the term 'feeling-effect' is surely to play with words and to confuse the issue. (p. 116)

Woodworth (1915) also noted that Wundt's feeling-effect "would almost meet the demands of the opposing party (imageless thought), except for Wundt's insistence on its being a feeling, to the neglect of its noetic character" (p. 3). Wundt and Kuelpe seem to have discovered the same phenomenon, but could not
agree whether to call it a feeling-effect or an imageless thought.

The other chief critic of the Wuerzburg imageless thought was Titchener and his Cornell research. A close comparison (Moore, 1919) of the research done by the Wuerzburg and Cornell Schools notes that the disagreement is one of theory and not of fact. One of the first researchers to argue against imageless thought was Bagley, a student of Titchener, who studied the apperception of spoken language and found no "imageless apprehension" (Bagley, 1900). There were times when he was unable to identify the visual imagery when meaning was present. For example, a subject was asked to introspect after hearing the sentence, "The light was di(m) (parentheses added) and faltering." The subject indicated that the image was "too faint to describe" and "Afterwards he thought largely in verbal terms, (sic) of the difficulty of getting a standard illumination in experiments on optics" (p. 117). The subject thought "largely" in verbal terms indicating that there was no adequate imagery to go with this sentence, but he does not describe exactly what was there. Bagley had difficulty explaining this type of experience, so he labeled the experiences "mood" to which Moore (1919) replied, "He (Bagley) has found imageless thought, but does not wish to let this fact
be known, and so labels the experience a 'mood'" (p. 246). Kuelpe (1909) noted the difficulty in trying to describe the continuity of mental experience by means of association because some relationships are harder than others to associate together. Opposing researchers also found "events of consciousness" that were not images, as they studied free association (Mayer & Orth, 1901). For example Orth noted that the word "mustard" brought to mind a consciousness, or "memory of a figure of speech", and then he thought of a grain (Humphrey, 1963, p. 33). Mayer and Orth did not know how to describe these productions of the mind that were not perceptions, images or acts of will, except to say that they were Bewusstseinslagen, or states of consciousness. Opposing groups of introspective researchers (Bagley, and Mayer and Orth) had found the same thing: one experimenter called it mood; and the others called it imageless thought.

Another subject studied by the introspectionists was judgment. As has been previously stated, judgment (because it used meaning) was considered a logical study that was outside the realm of psychology, but Marbe in 1901 decided that psychology needed to know what judgment was. Such tasks as whistling or singing to make the pitch of a tone struck on a tuning-fork, finding the lightest of three greys, or finding the
heaviest of similar appearing weights were presented to the subjects. Marbe could find no psychological criterion for judgment, and therefore stated that it existed as a unit of thought (Humphrey, 1963). Okabe, a student of Titchener, experimented with belief, giving subjects a number of statements, asking them to state belief or disbelief and then to introspect the experience to see whether they experienced imageless thought or not. The results were negative as to imageless thought with all the subjects interpreting their understanding of the statements in terms of sensory and imaginal experience (Okabe, 1910). Moore (1919) noted that when Okabe spoke of the "understanding" that his subjects had, questions were left unanswered as to what was present in their minds at the time of understanding (i.e., vague or clear images, words, etc.). Moore (1919) also noted that the experiences of Okabe's subjects were not in conflict with the Wuerzburgers, but their interpretations were in conflict. Marbe had taken judgment out of the realm of the logicians and placed it within the scope of psychology to be a basic unit of thought; but Okabe, according to the Cornell sensationalism, had to leave belief for the logicians to study.

Titchener's definition of kinaesthetic sensation (meaning), which was the first part of the development
of meaning (and was replaced by an image as an idea developed), could be interpreted as the same thing the Wuerzburgers called Imageless thought. To clarify the sensationalists point of view, Clarke (1911) set about to study conscious attitudes (Marbe’s Bewusstseinslagen). She asked her subjects to read letters and words printed in Braille and note their experiences. She found that images were "inadequate, irrelevant" and even "contradictory" at times (Clarke, 1911, p. 241) but, noted Moore (1919), "that to which the imagery is inadequate, irrelevant, and contradictory is the meaning. . . . Had she been willing to look the facts in the face she would probably have found the conscious state (thought) in her attitudes" (parentheses added) (p. 253). However, Clarke did not identify meaning as a discrete thought; instead she felt that the meaning stood at the end of a graded series of increasingly vague images that were inherently sensory (kinesthetic sensation) in nature. She noted that "so far as inadequacy (of images) is concerned, however, we have no criterion, save the facts themselves, by which we can decide how clear or complete an image must be in order to carry meaning" (p.241). She went on to say that "the image which is logically contradictory may yet have enough in common with the meaning of the word to be psychologically
adequate to this meaning" (p. 241). She had found that words could have logical meaning without the presence of imagery that was difficult for the Cornell School to explain, but was exactly what the Wuerzburgers called imageless thought.

The Wuerzburgers continued in their study of awareness and consciousness. Watt, in 1905, studied the "effect of task" and its "reproductive tendencies" (Humphrey, 1963, p. 66). He found that a task (e.g., adding or subtracting) works unconsciously, and the complexity of the reaction depends on the strength of the association with the stimulus in question. Watt stated, "The essential material of the thinking process comes from the reproductive tendencies, which, according to the number of times the associations have been repeated, have acquired their own intrinsic speed" (Humphrey, 1963, p. 72). The separation of reproductive tendencies and task stimulated other research in this area, including Book (1910), Aveling (1912), Woodworth (1915) and Reed (1916) along with others. Woodworth (1915) noted that when a thought was new it came with much sensory content, but that as it became habitual the sensory content diminished until it became unconscious. For example, he presented simple verbal analogies, the response was automatic with very little in consciousness as a result of the task (e.g.,
Finger is to hand as toe is to ____? But as the analogies became more difficult, (the reproductive tendencies were not as strong, Ach and Watt would say) the subjects tended to give the relationship a name before giving an answer (Titchener, 1909/1973). Since little was known about the development of determining tendency, Aveling (1912) studied the association of nonsense words with pictures, and found that, "At a particular stage in the process of association . . . the image revived by the word tends to become fragmentary and obscure; though the associated concept is unimpaired, and meaning is given . . . more certainly than before the phenomenon was observed" (p. 241). Reed (1916) found that subjects could comprehend reading material while reciting 'Jack and Jill' as a distractor, and he concluded that inner speech had "no important function in comprehension in reading, and in writing" (p. 380), pointing out that two sets of association and reproduction can be carried on in the mind if the associations are strong enough to be automatic. Book (1910) tried to reconcile the Wuerzburg and Cornell theories by stating that there was a continuum along which the reproductive tendency lies with a new task at one end, full of sensation and imagery, and automatic process at the other end, as
having lost all traces of imagery and other sensation because the tendency had become habitual.

Binet was the first to propose the term "thought" to be was equivalent to Ach's "awareness that" or "the consciousness that" (Humphrey, 1963); and since the word "thought" is easier to use and is still be a modern conveyance of "awareness" and "knowing", it will be used throughout the rest of the paper as such. Wuerzburg continued the investigation of thought. In 1906 Messer studied free and directed associations to different stimuli, and judgments about various objects. He concluded, among other things, that a good portion of thought was unconscious and that meaning could be described in terms of consciousness, but that the term Bewusstseinslagen needed to be replaced by "thoughts" (Humphrey, 1963). It would be fair to say that he felt that thoughts had meaning. Meaning and understanding were also studied by Jacobson (1911), from the Cornell camp. He showed subjects letters, words, and sentences and asked them to introspect everything that occurred in consciousness. There were no reported incidents of meaning without sensations or images because the subjects did not indicate that they had anything that corresponded with what they called meaning until an image or sensation was present. For example, a subject looked at the sentence, "Did you see him kill the
"No meaning all the way through;" (Jacobson, 1911, p. 570-571). Since it is obvious that it does not take three seconds for the meaning of this sentence to come to one's mind, this subject must have defined meaning in sensational terms, and not as the imageless thought proponents (Messer and the Wuerzburg School). Another subject was read the sentence, "The iron cube fell heavily on the floor," and found no meaning for 4.5 seconds until, after rereading the sentence he obtained meaning by imaginarily hearing a very loud sound, indicating that the meaning was defined as a sensory perception (Jacobson, 1911, p. 571). Moore (1915) indicated that the data of this study was not incompatible with the studies of the Wuerzburg school, for Jacobson found that meaning of words or a sentence was possible with only the visual and auditory images and sensations formed from reading. Titchener noted from this study that there were two different attitudes: one was defined as logic, or common sense (the meaning of a sentence as we think of it), and the other was descriptive psychology (sensory experience related in psychological terms) (Moore, 1915). He noted that the thoughts and awareness of the conscious process were not to be described unless they could be analyzed into their "elementary constituents" of sensations and
Images (Titchener, 1912, p. 165). Meaning, therefore, as defined by Titchener, was not to be described; it was, as Moore (1919) said (according to Titchener), "fit for the logician and the man on the street" (p. 258).

It was becoming difficult for the Cornell psychologists, as well as others who believed in the sensationalist theory, to explain their findings in terms of sensations alone. Langfield (1910), from Harvard, and Geissler (1912), a Cornell sensationalist, studied negative instruction (having the subject respond to a picture of a common object with a nonsense name instead of its real name). The object of the study was to introspect the mental process that was involved in seeing the object, thinking of the new name, and suppressing the old name. Geissler found two ways of suppressing: attitudinal (kinesthetic or pressure sensations in the back of the mouth), and ideational (wondering whether something is right or thinking you should not say such-and-such). Geissler had trouble defining what it was that carried the meaning in the suppressed idea. He noted a problem,

When the verbal idea has reached such a degree of degeneration, abbreviation, or condensation as to make its original sensory content, its elementary tissue, unrecognizable. At this stage the verbal ideas seem to be reduced to a single, unitary qualitatively undifferentiable type, which has been designated imageless. (p. 194)
The Cornell School had found imageless thought, although they did not express it as such. Giessler went on to say that if there were no structural elements for these experiences, then they belonged to the field of logic and not psychology. A German study done by Martin (1912), a sensationalist, also demonstrated that imagery (by deprivation) was not essential to meaning, when she asked her subjects to reproduce a series of cards, first using whatever mental method they believed to be most effective, and second, by suppressing all images during the reproductive process (Martin, 1912, as cited by Woodworth, 1915). She concluded that the subjects "became sceptical as to the power of images to inform. This doubtless arose from their fruitless efforts to produce a picture able to help them" (Martin, 1912, as cited by Spearman, 1923/1973, p. 191). She went on in her conclusion, "My opinion is that my images are only what I know, and that they do not always contain all that I know" (Martin, 1912, as cited by Spearman, 1923/1973, p. 191). From Martin's study, the evidence again shows that both imageless thought proponents and opponents were finding imageless thought. Spearman (1923/1973) commented on the Martin study, "Indeed, its results are hard to reconcile even with the very
subordinate efficacy still credited to them by the investigator herself" (p. 191).

Researchers were finding that imagery often served as a background for meaning, but it was not essential to meaning or the thought (Betts, 1909). Wuerzburg researchers pressed ahead with more complex problems for their subjects to solve and then introspect. Buehler (1907) studied thought using more difficult questions because he wanted to know what happened when people think. He asked his subjects such questions as, "Can you complete the sentence: The law of associations states in its simplest form . . . ?" (Humphrey, 1963, p. 56) and other questions cited previously. He found thought-experiences that could be categorized as "consciousness of a rule" (laws), "consciousness of relation" (alternatives, consequences or oppositions), and "Intentions" (the act of meaning, not what is meant, that is present when the subject surveys an entire branch of knowledge - i.e., a survey of philosophy before Socrates and what Plato thought of it) (Humphrey, 1963, pp. 59-60). He theorized that during thinking, meaning "is represented in conscious experience but usually not in sensory terms" (Humphrey, 1963, p. 31). He defined imageless thought in several subsequent papers, refining the process of "knowing," discussing the relationship between thoughts and task,
and finally studying the memory of thoughts. With each successive study he reconfirmed his theory that thought is independent of sensory elements. This fact was confirmed by Woodworth (1915) when he stated that "In recall . . . perceptual reactions are revived, and not sensation; . . . the content of recall is never, in the strictest sense, sensory . . . so that the distinction between an image and an imageless recall, while not perfectly sharp, is still legitimate" (p. 23).

The question of imagery versus meaning was discussed and investigated by psychologists from both Cornell and Wuerzburg, with opposing parties finding similar results in replication of research. Moore (1915, 1917), a student of Kuelpe, studied the temporal relations of meaning, and imagery in which he presented his subjects with common objects that could be easily visualized, and then asked them to tell him when they obtained meaning and (on another trial) when they obtained an image of the object. In eight out of nine subjects he found that meaning preceded visual (or kinesthetic) imagery. Tolman (1917), a sensational psychologist, replicated Moore's study but with a larger sample, and found, to his surprise, that 42 of the 49 subjects received meaning before the visual imagery. While Tolman would not concede to an "out-and-out imageless position" (p. 138), he did
consider "an intermediate doctrine which would both allow an essential importance to the Image, and yet admit an imageless component as also necessary" (p. 137). Here again opposing parties have noted imageless thought.

Several sensational psychologists attempted to develop a gradation of sensation (proposed by Wundt) using diverse types of research from difficult abstractions to motor-control reflexes. In 1911 Kakise, under the direction of Titchener, investigated the problem of meaning and understanding through the presentation of words and phrases that were familiar and unfamiliar, and also concrete and abstract. He exposed his subjects to typewritten and spoken words and phrases. When the subject understood the words or phrases, he/she pressed an electric key, and then was asked to describe the process. Through introspection Kakise found a hierarchy of "concomitants of the process of understanding" (Kakise, 1911, p. 42). "(1) Pure feelings of familiarity. (2) Pure feelings of concept or meaning. (3) Pure feeling of content. (4) Feeling of direction. (5) Half developed images. (6) Fully developed images" (p. 52). The subjects mentioned a pure feeling of meaning, but that was not described by Kakise except to include it in the feelings of familiarity or recognition, and to say that
It was not an affective element, or a feeling of tension or relaxation, or a specific image since it occurred too early for an image. Thus Kakise (1911), like Mayer and Orth found events of consciousness that were not images or acts of will. Both Cornell (Kakise) and the Wuerzburgs (Mayer and Orth) supported the theory of imageless thought.

Book (1910) also attempted to define a hierarchy of sorts in his investigation of the development of conscious attitudes. Book studied subjects who were learning to use the typewriter. At first they needed to spell out each word, exactly thinking letter by letter, and then locating it on the typewriter before initiating the final punch of the key. He concluded that the conscious attitudes developed in learning to use the typewriter "represent nothing more nor less than the developed forms of representative process made imageless by practice and use" (p. 395). He noted that with repeated repetitions, recall took place without waiting for the image, a result that was also found by Wundt himself when he defined the theory of diminished sensation of habitual tasks (Wundt as cited by Woodworth, 1915). Book also noted that Ach found that awareness of meaning appeared in graded forms, and that Woodworth in his verbal analogies found images at times and imageless thought at other times as did all the
Wuerzburgers and Binet; he also cited Messer and his investigation of the psychology of thought noting that Messer also found various stages of development of the thought process in consciousness. Book hypothesized that the Imageless thought constituency caught the thought at the beginning of the conscious process whereas the sensationalists described thought towards the end of the development phase when imagery was present. Book felt that the attitudes that he had investigated stood somewhere in the middle of the process between vivid imagination and auto-suggestions (Book, 1910). Moore (1919) noted that this reconciliation proposed by Book should make sure that his "presence of meaning" was the same as that studied by the proponents of Imageless thought before he made such sweeping generalizations. However, it can safely be said that as the associations (learning to type) are strengthened in the mind, the complexity of the thought processes are able to be increased (Watt, 1905 as cited by Humphrey, 1963). This process studied by Book was essentially one of creating a "determining tendency" (Ach, 1905; Watt, 1905).

Moore (1910) investigated the process of abstraction in which he showed his subjects four groups of 10 abstract drawings each. Each group of drawings was given a nonsense name and the subjects were asked
to relate the drawings to any practical aspect of life. The subjects were also asked to define the nonsense names and then introspect the process. He found that the process of recognition has an element of certainty and uncertainty as it evolves, and that this "process of recognition involves a judgment or a suspended judgment" (p. 172) if recognition is incomplete. He also noted that when shown repeated drawings, subjects could have a perfect image of a repeated figure, or an imperfect one, or no image present; and furthermore, all stages of imagery could be present at every stage of the recognition process. Fischer (1916), a sensationalist, attempted to replicate the study of Moore (1910). He noted that her findings were similar to his, but that their theoretical explanations of the findings were in conflict. When attention was drawn to certain features of the drawings, Fischer labeled it "wondering," not "meaning" as Moore did. Fischer said, "In its initial form this experience was an explicit awareness that the features were essential" (1916, p. 164). The Wuerzburger would call this awareness "Wissen" or "Bewusstheit" (Moore, 1919). Fischer also noted that as the drawings were shown to the subjects repeatedly, recall took place without waiting for the image (Fischer, 1916). Moore's (1910) subjects found the same thing. This imageless thought, or the
principle of developing a "determining tendency" was then found to be present in recognition of abstractions as well as development of mental manipulations (i.e., math skills) and mental understanding along with motor control (e.g., typing skills) as discussed previously and noted by Wundt himself when he described the theory of diminished sensation of habitual task such as typewriting (Wundt as cited by Woodworth, 1915).

Imageless thought had been explained away by the sensationalist psychologists without allowing for any modification of their sensationalist. The most noteworthy of these men was Wundt who, as we have seen, stated that a thought as a whole in consciousness was formed before verbal expression could take place (Wundt as cited by Woodworth, 1915, p. 2). Is this not the very definition of imageless thought described by Kuelpe and his associates as well as others? Woodworth (1915) stated, "Thought is imageless because its data are recalled in an imageless form and not because it does not thrive in a sensory atmosphere" (p. 10). Titchener, as well as Wundt, clung tenaciously to the theory that meaning, and, therefore, knowledge was dependent on imagery. But Spearman (1923/1973), in review of the introspective literature, noted that "even in performances where introspection unanimously proclaims images to be useful, even there ... they
really render little or no service" (p. 190).

Thorndike (1907) noted that no one had demonstrated that a great number of vivid images could make a difference in "relative facility" (p. 324), so he studied the relationship between the vividness of imagery and thought. He used a modification of Galton's scale for vividness of imagery and asked the subjects first to rate themselves on a scale of 1 to 10 as to their visualization facility, and then to think of Barnard College and describe how many windows and pillars, etc. it had. He found no significant difference between the knowledge of the group with the higher visual rating and the group with the lower visual rating indicating that the mind's judgments do not come from data stored in images. He noted that the "mind's judgments are responses to direct experience" (p. 327), and that images may be very vivid, but not give much useful knowledge. Galton also found that many of the most scholarly men of his day did not rely on images as they used their mental capacities (Galton, 1883/1951). Kuelpe himself presented this argument as to association and reproduction: when one learns a poem, having the thought in one's mind is not sufficient; one must practice the words over and over until the associations are strong enough for reproduction of the poem. "If thoughts were nothing
but images, then the same amount of practice should be necessary for their memorization; but in one attentive reading, we are able to grasp and reproduce the thought content" (as cited in Watson, 1979, p. 153).

Even with the replicated research, the opposing schools of introspection could not agree. Many reasons can be given for the demise of introspection: the different explanations of results from opponent schools of thought, the bias of the subject-observer, unwillingness to work in the areas of abnormality or with children, and ignoring findings from the fields of learning and personality (Hergenhahn, 1986). In retrospect it is easy for one to look back and say with Betts (1909) that, "Thinking can and does go on without the intervention of imagery (p. 94), and with Spearman (1923/1973) "the thinking seems to be no more based on them (sentient, motor, and affective processes) than the heat of a fire is derived from its smoke, or an electric train is impelled forward by its wake of sparks" (p. 192). Much of the criticism was leveled at Titchener himself. Moore said of him,

What is Professor Titchener's explanation of such 'imageless thoughts' that come to him as he skims over the pages of a book? He has found 'imageless thoughts,' what then is to be done with them? . . . The fact cannot be accounted for by the hypothesis; therefore Professor Titchener denies the fact. My consciousness
of meaning is unconscious. I do not think my nervous system is thinking for me.
(1915, pp. 219-220)

It is easy for us to glance at the emotional criticism of the Wuerzburg school by Wundt, and the rigidity with which Titchener clung to his sensationalist ideology only in passing, but many of the noted scholars in the field of psychology wrote of it with unqualified criticism (Spearman, 1923/1973; Thorndike, 1907). As early as 1904 Cattell had said that he was "not convinced that psychology should be limited to the study of consciousness as such" (Cattell, 1929, p. 179). In December of 1912, Angell addressed the American Psychological Association, and said that the concept of consciousness was not useful in the study of animals and that "consciousness" would soon be replaced by behaviorism (Blumenthal, 1985), so he channeled his introspective expertise into the area of studying the links between stimulus and response (Angell, 1913). This was soon expanded to include human consciousness in Watson's now-famous final blow to introspection in 1913 (Watson, 1914/1967):

The time seems to have come when psychology must discard all references to consciousness; when it need no longer delude itself into thinking that it is making mental states the object of observation. We have become so enmeshed in speculative questions concerning the elements of the mind . . . that experimental students are beginning to feel that something is wrong with the premises and the types of
Even though Watsonian Behaviorism was to contribute to the downfall of the introspectionists, it is interesting to note that the criteria for objective research established by Wundt (1907) (cited earlier) were subsequently adopted as part of the nonintrospective contemporary behaviorists' movement (Hillner, 1984). Grover (1982) said,

"With the advent of Watsonian radical behaviorism in the 1900's, introspection became an embarrassment to those psychologists aspiring to scientific respectability. . . . Observable responses were deemed to be part of the "objective world." The mechanisms underlying subjective experience were no longer considered a legitimate area of investigation. (Grover, 1982, p. 206)

Only a handful of researchers including Pratt, 1982; and Gibson & McGarvey, 1937, remained faithful to introspective procedures and methods after 1915. Hearnshaw (1987) noted that introspection "struggled on in an emasculated state, for a few more decades, but by the late 1930's . . . it had vanished" (p. 290).

Although introspection held a central place in the early history of psychology, it has not been given the historical attention it deserves (Danziger, 1980). Many present-day psychologists either dismiss introspection entirely or are extremely critical of introspective methods, believing them to be inadequate and unreliable (Brennan, 1982; Mislak & Sexton, 1972).
The term "introspection" does not even appear in most modern introductory psychology textbooks; if it does appear, it is usually only given historical significance as a method that Wundt applied at the beginnings of modern psychology. Furthermore, most modern texts on psychological method do not mention introspection. Those that do are typically critical. For example, Wood (1981) concluded that "introspection has been used extensively by psychologists but, over the years, most psychologists have come to recognize the limitations of this approach" (p. 7). Modern observers of psychological method who do consider introspection are quite critical. For example, Wood (1981) said, "If we rely on our . . . introspections we are likely to reach erroneous conclusions a good part of the time (p. 8)." Nisbett and Wilson (1977) noted, "The evidence reviewed is then consistent with the most pessimistic view concerning people's ability to report accurately about this cognitive process" (p. 247).

A partial explanation of the modern criticism of introspection is that many historians summarize the early introspective era by emphasizing that the different introspective laboratories found opposite results, even under similar experimental conditions. For example, Mook (1982) concluded, "Different investigators . . . have arrived at opposite
conclusions" to the question "Can you think without images? ... There seemed to be no good way of finding out" (pp. 368-369); and Misiak and Sexton (1972) summarized "The results based on introspection in various laboratories were conflicting, and at times the findings of one laboratory were exactly opposite to those of another, even when the conditions of experimentation were identical" (p. 47).

When these historians conclude that the introspectionists disagree, they refer, of course, to the controversy between imageless thought and sensationalistic introspection. Whereas modern historians may attribute the demise of introspection to the disagreement among introspective theorists (Mook, 1982; Misiak & Sexton, 1972), this may be an oversimplification of the situation (Danziger, 1980). Titchener and his sensationalistic theory felt introspection should be descriptive, but without inference and meaning (Boring, 1953), whereas Kuelpe and the Wuerzburg school looked for abstract sensory elements (Danziger, 1980). Neither program succeeded, although the work of the Wuerzburg group was built upon by Otto Selz and others (Humphrey, 1963).

The failure of introspection in general was not due to the incompatibility of results; however, the intensity of the controversy between early
psychologists may have given the impression of
dissimilar research results (Danziger, 1980) and may
have led historians to the erroneous conclusions cited
above. Although there were other reasons that added to
the failure of Introspection, as will be outlined
below, the focus of the present paper is on the
reliability of the early research.

In Germany, Wundt was critical of the Wuerzburgers
because their descriptive approach to Introspection
could not be validated (Humphrey, 1963). German
Introspectionists turned to a descriptive approach that
could be checked by measuring overt behavior, or the
results of behavior (Danziger, 1980). In North
America, when Titchener's unique version of
sensationalistic Introspection was found to be
inadequate, it was generalized to the entire method of
Introspection. Since Titchener's introspective method
allowed only description that included no meaning, this
was a very difficult task. It was also very
uninteresting; and it had no practical application,
which was the direction American psychological research
had taken (Danziger, 1980).

Danziger, 1980, also noted that historians could
be led to think that Introspection played a greater
role in psychology than it really did if they accepted
the exaggerated intensity of the argument between
Titchener and J.B. Watson. American psychology was developing research concerning motor and mental activity where the conditions could be varied and quantified. Woodworth also recognized that quantitative methods of research should be applied to as many fields as possible (Woodworth, 1899). Watson emphasized the incompatibility of introspection with the requirements of the new behavioral psychology (Watson, 1913).

So it can been seen that the demise of introspection was not due entirely to the conflicting interpretations of the research, but the conflict between Titchener and the Wuerzburgers added to its downfall. Danziger noted:

New interests ... redefine(d) the goals of psychological research and hence produce(d) a reselection of the methods needed to achieve these goals. Introspection was less a victim of its intrinsic problems than a casualty of historical forces far bigger than itself. (Danziger, 1980, p. 259)

Be this as it may, the fact still remains that early introspections could not agree. The object of this paper is not to try to explain why introspection faded away, but only to shed light on the fact that the introspectionists could not agree.

The controversy over imageless thought caused introspectionists to take a second look at introspective theory. The prevailing doctrine at the
time was that of sensationalism, according to Titchener's 'context theory of meaning':

Each experience has an elemental core and a meaning providing context. Perceptions have sensory cores and ideas have imaginal cores. The context can be sensory (as kinesthetic accentuation of rhythm) or imaginal (as in recalling the name of a familiar face). It is the associated context that gives meaning to any experience. (Wertheimer, 1987, p. 111)

This position was held by Titchener, Bagley, Okabe, Clarke, Book, Jacobson, Geissler, Fischer, Kakise, Tolman, Martin, and others.

Investigators applying the introspective technique observed that subjects reported that meaning, understanding, and recognition sometimes occurred without images being present in consciousness, and some of these investigators proposed that thinking can take place without images. Among proponents of this so-called imageless thought position were the Wuerzburg School investigators (Kuelpe, Mayer, Orth, Marbe, Ach, Watt, Messer, and Moore) and other psychologists who agreed with the imageless thought doctrine such as Binet, Woodworth, Betts, and Avelling. We will show that the subjects in introspective experiments conducted by the sensationalists also reported that meaning, understanding, and recognition sometimes occurred without images being present in consciousness. We think this point has not been adequately emphasized
by modern psychology. Furthermore, we will see that the introspecting subjects in experiments conducted both by the sensationalists and by the imageless thought proponents gave quite similar reports about the contents of their inner experience; however, the sensationalists and the imageless thought proponents gave quite different theoretical explanations of these similar reports. We will conclude, therefore, that it was not the reports about inner experience that were unreliable, but rather it was the attempt to fit these reports into a theoretical structure that was unreliable.

To show that the sensationalists' subjects and the imageless-thought proponents' subjects gave similar basic observations while introspecting, it will suffice to show that the sensationalist researchers did indeed find that their subjects reported substantial periods of time where thinking was clearly going on, but where the introspections provided no simultaneous evidence of images being present. It will not be necessary to cite similar evidence for the imageless-thought proponents, since such observations form the basis of the evidence for the existence of imageless thought. Therefore, in what follows we will describe some of the data obtained only by investigators who themselves concluded that imageless thought does not exist.
Bagley (1900) studied apperception of spoken language and found that the subjects reported images "too faint to describe" (p.117) and used verbal means to express the meaning that was present in their thinking. These subjects noted that the words used were not exactly the same as the meaning itself (implying that the meaning was known to the subject), and that attempts to describe an image (at times) failed. However, rather than refer to such experiences as "Imageless thought," Bagley called them "moods."

Clarke (1911) found that at times images were "inadequate, irrelevant, and "contradictory" (p. 241) to the meaning that was known to be present in consciousness. Rather than call this meaning an "Imageless thought," she explained that thoughts that were accompanied by inadequate images were simply at the end of a graded continuum of increasingly vague images.

Okabe (1910) investigated belief and noted that his subjects had understandings that were explained in sensory terms, but he did not describe what was in the consciousness of his subjects at this time of understanding (Moore, 1919). Moore (1919), in his rebuttal of sensational thought theory, hypothesized that the experience of meaning or understanding that was present to the subjects' consciousness was the same
as the experience the Wuerzburgers called "Imageless," because Okabe could give no indication of what was present in the consciousness of the subjects when they were aware of meaning.

Book (1910) studied the process of learning to use the keys of a typewriter. He noted that the thinking of neophyte typists is full of sensory images of the individual letters being typed; but as the typist becomes more skilled, the accompanying thought gradually loses its sensational qualities and eventually the meaning of the letters is apprehended directly, without the aid of images. Rather than attribute this directly-apprehended meaning to imageless thought, he explained the meaning in terms of familiarity and recognition and relegated it to a sensational position at the less-clear end of an imaginal hierarchy.

Kakise (1911) investigated the problem of meaning and understanding through the presentation of words and phrases and found "a pure feeling of concept or meaning" (p. 52). Instead of calling it "imageless," he relegated it to a hierarchy of "concomitants of the process of understanding" (p. 42). Jacobson (1911) asked subjects to introspect after having a printed word or phrase laid before them. He reported, for example, that when a subject was asked, "Did you see
him kill the man?" (p. 570) that there was no meaning for three seconds. Clearly, the subject understood the question in less than three seconds, but rather than refer to this phenomenon as an imageless understanding he concluded that, since according to his theory, meaning must be sensational, there was no meaning present for those three seconds.

Langfield (1910) and Geissler (1912) asked their subjects to repress the real name of a familiar object and respond to a nonsense one. They found that verbal ideas became unrecognizable, even "imageless" (Geissler, 1912, p. 194), and defined it as "logical", noting, after Titchener, that it is outside the field of psychology. Martin (1912, as cited by Woodworth, 1915; Spearman, 1923/1973) asked her subjects to reproduce a series of cards, first using whatever mental method they believed to be most effective, and second, by suppressing all images during the reproductive process. She found that the subjects "became sceptical as to the power of images to inform" (Martin, 1912, as cited by Spearman, 1923/1973, p. 191).

Fischer (1916) asked her subjects to define the nonsense names of a series of abstract drawings. In this study she replicated Moore's (1910) work, and found, "wondering" and "explicit awareness" (Fischer,
1916, p. 164) that she said was more or less fragmentary, and at other times noted as organic tension in the eyes. She also found that subject-recall took place without waiting for imagery as the subject became familiar with the cards. Rather than refer to this "wondering" and "explicit awareness" as an Imageless thought, she noted that consciousness "was marked by the presence . . ." of "tensions, strains, organic contents, and the like" (p. 83).

Tolman (1917) also replicated Moore's (1915) work, presenting common objects to subjects to see if the subjects obtained meaning before the appearance of any imagery. He found that 42 of the 49 obtained meaning before they experienced images, a finding that forced Tolman to concede "an intermediate doctrine which would both allow an essential importance to the image, and yet admit an Imageless component as also necessary" (p. 137).

We thus see that there are repeated instances where sensationalist investigators report phenomena that others might call "Imageless," but give those phenomena sensationalistic explanations. We are thus compelled to the conclusion that introspecting subjects are in fact reliable reporters of the phenomena of consciousness because the phenomena that some call "Imageless" are reported by introspectors in both the
sensationalist and the imageless-thought camps. What the introspectionists could not agree about was the interpretation of the introspective observations (whether there was a separate, imageless, category of thinking or not).

Titchener himself accepted the fact that introspecting objects correctly reported these experiences that some called imageless, he said,

. . . Of the attempt to analyze the processes of thought was the discovery of the conscious attitudes. What precisely their attitudes are, in their psychological status, is still a matter of dispute. They are reported as vague and illusive processes, which carry as if in a the entire meaning of a situation. . . . they are intimated, designated by a single word such as 'hesitation,' 'vacillation,' 'incapacity,' or by phrase, such as 'a realisation that the division can be carried out without a remainder,' 'a remembrance that we talked it all over before and couldn't reach a conclusion.' (Titchener, 1910/1980, pp. 505-506)

Titchener did not deny that such processes existed. The question was whether they were analyzable into sensory and imaginal elements:

Some psychologists maintain, definitely, that there are awarenesses of meaning, and awarenesses of relation, which cannot be reduced to simpler terms, but must be accepted as nonsensory and imageless components of the higher mental processes. The author believes, on the contrary, that the attitudes, so far as they are conscious at all, are always analysable. (Titchener, 1910/1980, p. 507)

Titchener's point, it seems, is that introspective subjects correctly agree that such conscious attitudes
exist, but that good introspections should go further in the correct introspective analysis of those attitudes; if they do they will find sensory/imaginal elements. Thus the introspecting subjects will agree about everything except the very last most minute scrutiny of consciousness.

The distinction between observing accurately the events occurring in consciousness and theorizing accurately about those same events is a distinction that is not always made by modern psychologists. For example, Nisbett and Wilson's (1977) critique of modern introspective studies documents time and again the failure of subjects to theorize accurately about their own conscious processes: subjects do not, for example, give accurate explanations of their own decision making, and do not accurately identify the factors that influence their opinions, etc., leading Nisbett and Wilson to conclude that "there is by now enough evidence discrediting introspective reports to allow us to ignore any argument based on introspection (p. 255)." Despite the breadth of this conclusion, Nisbett and Wilson actually discredit only studies where subjects are required to theorize about their own process. Nisbett and Wilson were correct when they concluded that subjects cannot be relied upon to theorize accurately. But they overgeneralized to the extent
that they seemed to claim that introspection in general was inaccurate; they did not in fact review any studies where subjects were simply asked to provide accurate descriptions of their awareness. This distinction is important because many psychologists think that studies such as Hurlburt and Melancon (1987c), that attempted to provide a description of a single subject's inner experience without providing a theoretical explanation, should be ignored since it is based on introspection (Nisbett & Wilson, 1977).

The credibility issue concerning introspective research is still unresolved; and although a variety of research methods are used to study inner experience today, the question still remains. Many researchers look to quantify introspective data and use it to predict behavior when they are still unable to describe inner experience itself.
Chapter 3

Modern Quantitative Explorations of Inner Experience

After the discrediting and demise of early introspection, little introspective research was done until the 1960's. Several varieties of quantitative reports about inner experience were developed. Retrospective research, or research that asks the subject to identify thoughts and feelings from some past time, includes questionnaires and time-budget methods. Non-retrospective studies ask the subject to define thoughts and feelings that are happening at a present time, with methods including experience sampling and thinking out loud. We will focus on the methods used, rather than their results, since this type of introspective research is related to, but not the focus of, the present paper. Chapter 4 will be devoted to descriptive introspection, the method to be used in the current investigation of this paper.

Experimental psychology has come to use the term "introspection" to include reports about "thinking," "imagery," "consciousness," and "inner experience." The methods used in connection with introspection are
as diverse and the terms used in connection with it. Klinger (1978) cited five types of procedures used to discover inner experience: (1) questionnaires to be filled out by the subject retrospectively; (2) thinking out loud during or after a particular experience; (3) periodic interruption of the subject from a task or everyday living to describe thoughts; (4) rating of inner experience; (5) and report by the subject about events occurring during some period of time.

Introspective research has been done in the laboratory and the subject's natural environment (as advocated by Cattell as early as 1957). The diversity of this type of data gathering is wide, as are the types of information collected.

The most popular quantitative method of retrospective introspection is the inner-experience questionnaire. This method of gathering information has been used since the time of Galton (1883/1951) to assess imagery, emotions, behaviors, and many other sources of information. Today the most commonly used questionnaire for gathering imaginal information is the Singer-Antrobus Imaginal Processes Inventory (IPI). It has produced daydreaming patterns such as mindwandering, unpleasant daydreams, absorption in daydreaming (Singer, 1973, 1974). Segal and Singer (1976), used the IPI in a battery of tests administered
to college students and found that moderate use of
mind-altering drugs and alcohol did not change dreaming
patterns. Further research as to the consistency of
daydreaming patterns with the moderate use of drugs and
alcohol by Huba, Singer, and Segal (1977) indicated no
reorganization patterns. Glambra (1977) also studied
daydreaming using the IPI self-report questionnaire,
and found that elderly people do not daydream about the
past any more than younger people.

A questionnaire method was used by Klinger, Barta,
and Maxeiner (1980) to study thought content and its
motivational correlates. They found, in studying
goal-directed behavior, that if the subjects had a
personal relationship that was threatened, an
unexpected difficulty, or a great deal of commitment,
they were more focused on their goal. The information
gleaned from the questionnaire was validated by
thought-sampling evidence, and the combination of these
two methods will be discussed later. Kendall and
Korgeski (1979) noted that a combination of methods
such as questionnaires, in vivo thought sampling, and
self-statement assessments for assessing cognitions was
crucial for the development of cognitive-behavioral
therapies. Csikszentmihalyi and Beattie (1979)
effectively used set questions along with an interview
method to discover life themes of adults.
The Time Budget method of data-gathering has been used by social scientists to record the subject’s activities during set time parameters of a study. The subject is asked to fill out a daily form of their activities along with any other parameters (e.g., affect while engaging in certain activities) to be investigated by the researcher. This method has been used to gather behavioral data in countries all over the world to study: social accounting trade-offs where persons must choose how their time is spent; characterization of particular populations as an approach to the study of contrasting cultures; at-risk populations by contrasting normal and abnormal populations; and particular low-frequency or high-frequency target behaviors that scientists may wish to study (Stone & Nicolson, 1987). It is an advantageous method because large populations can be studied with a minimum cost, and is useful as a preliminary research tool before using an in-depth approach to a target question.

A technique similar to the Time Budget method is the Snowballing Sampling Technique used by Kaplan, Korf, and Sterk (1987) to collect information on heroin-using populations. It was found especially useful in generating a large enough sample so that the lifestyle of this population could be studied. With
this method, the initial subject is asked to "nominate" other individuals to participate in the study, making up the first level of the chain. Then these subjects are each asked to nominate additional individuals for the next level, so that the number of participants increases rapidly depending on the number of individuals nominated on each level of the chain. Data is gathered with a time-budget questionnaire after the population is identified.

Also related to the Time Budget technique is the Time Diary, or Self-exposure Diary, where accounts of activities can be recorded in an open-ended fashion that make it possible for the subject to report activities not anticipated by the researcher with a check-list questionnaire (Robinson, 1987). Subjects are given a notebook with a form for each day where they can fill in the activity, time it took, location of activity, people the subject was with, if the activity was planned, and if it was enjoyed (Robinson, 1987). Margraf, Taylor, Ehlers, Walton, Roth, and Agras (1987) used a more specific event-sampling diary tailored to record the occurrence of panic attacks including thoughts, feelings, and events surrounding the attacks, length and intensity of the attack, and accompanying symptoms. It was found that more severe
panic attacks were experienced in situations that the subject classified as being more fearful.

Non-retrospective quantitative research methods such as thinking out loud and experience sampling have been used to study a variety of inner experience. Thinking out loud has been studied in an attempt to avoid the biases of retrospective reports in a wide variety of research studies. As early as 1910 Book used the technique to study the process of consciousness as one learned to type. Observers wrote down the thinking-out-loud data as the subjects spoke since there were no mechanical means to record the process in those early days. This method is also used today, and requires the subject to speak continuously while thinking. There are several disadvantages to this method: it is an unnatural thing to do; the subject can only express a small amount of what is going on in his or her mind; and there is evidence that this type of report leads the subject to spend more time on whatever he or she is thinking about at the moment of description than he or she would normally (Klinger, 1978). However, this method is still used in psychological research. Rychlak (1973) used this thinking out loud method to contrast normal and "mildly" abnormal high school boys' ideas and images, and found that the normal boys thought more positively
about the future than the mildly abnormal boys.
Hogenraad and Orlanne (1983) analyzed the content of
the "interior" monologue of students who thought out
loud. Imagery value of the nouns was analyzed and the
authors suggested a "new approach in which the
monologue is conceived of as a primitive and prelogical
- regressive - mode of thought that seems to be a
condition of inventiveness in cognition and behavior"
(p. 51).

Whereas thinking aloud studies do avoid the biases
found in retrospective research, they make biases of
their own by forcing an exterior modality that may
alter the thought process. Experience Sampling (ESM)
seeks to avoid both these biases, and has been used in
an attempt to sample people's daily experience
randomly. Usually with this method subjects carry
beepers, radio signaling devices, or small signalling
wrist watches; they are asked to report their behavior,
thoughts, or experiences at the moment of the beep.
Sometimes their task is to rate their feelings as well
as fill out a questionnaire, or to record open-endedly
their thoughts and feelings. Hurlburt (1979)
summarized the reasons for and necessity of a technique
that gathers information (1) over a fairly long period
of time, (2) in the subject's own environment, (3) at a
time that is not dependent on an environmental event,
(4) with a method that minimizes reactivity, and (5) with a method that disturbs the subject’s environment as little as possible. Singer and Kolliglan (1987) noted that there is value in using experience sampling when estimating ongoing thought in a controlled laboratory setting, and also in natural settings. However, Klinger (1978), who has used experience sampling in his own research (Klinger, Barta & Glas, 1981; Klinger, Barta & Maxeiner, 1980), noted that this method had some drawbacks because a subject cannot hold introspective information (two or three segments of thought each lasting about five seconds) in short-term memory long enough to report it accurately. Despite these objections, the thought sampling method of research has produced positive research results and reliability checks, that will be discussed later.

Several investigators have used this method in varying ways. Probably the most influential investigator in the development of experience sampling is Csikszentmihalyi (Hormuth, 1986) who has used the method in a variety of research projects including: a study of adolescent activity (Csikszentmihalyi, Larson, & Prescott, 1977), research on television and it’s impact on American life (Csikszentmihalyi & Kubey, 1981), a look at patterns of alcohol and marijuana use by adolescents (Larson, Csikszentmihalyi, & Freeman,
1984), an evaluation of optimal experience in Italian adolescents (Massimini, Csikszentmihalyi, & Carli, 1987) and other related projects. His method of sampling consists of asking subjects to fill out self-reports when they are signaled by the electronic pagers, and to respond to a Likert-type scale concerning their cognitive, emotional, and motivational thoughts (Csikszentmihalyi & Larson, 1987). He reported the reliability as correlated with a time budget activity to be $r = .93$ (Csikszentmihalyi & Larson, 1987, p. 530).

Klinger, Barta, and Glas (1981) studied the thought content of basketball players, with the use of a beeper and the interview method, during gap time in a basketball game, and found that play was impeded if concentration was channeled from the game to thoughts of how well the player was doing. In a study of subjects with anxiety disorders, Dijkman and deVries (1987) found patterns of restricted mobility and avoidance when sampling the experiences of their subjects with the aid of wrist beepers and a self-report questionnaire. Locke and Jensen (1974) asked subjects to respond to an auditory signal during physical education classes by completing a written record, and found substantial differences between levels of attention of the subjects.
Several experience sampling studies have been done in combination with psychological evaluation methods (Klinger, 1978). Emmons (1986) investigated striving for personal individual goals and mood through the methods of experience sampling and a striving assessment battery. He found that personal striving was useful in understanding individual mood differences, and might be useful as an alternative approach in understanding personality. Using the TAT and experience-sampling, McAdams and Constantian (1983) found that intimacy and affiliation motivation correlated positively with such activities as conversations and letter writing. Klinger, Barta, and Maxelner (1980), as cited earlier, found that thought-sampling data validated their questionnaire findings on motivational correlates of the frequency of thought content and questionnaire rankings.

Researchers have also used the experience sampling method in the study of mental-disordered patients in their natural settings. These methods overcome shortcomings of retrospective recall such as failure to remember, or to note the variability of the mental state (deVries, 1987). Larson and Johnson (1981) used experienced sampling to investigate the daily experience of two anorexic patients, and found that the subjects spent more time alone and had a lower affect.
than normal young women. This kind of experience sampling may also be useful in developing components of therapy for the disordered. Delespaul and deVries (1987) studied the daily activities of ambulatory chronic mental patients with the experience sampling method and found that the psychopathology of abnormal patients was influenced by being alone at home, or out in society. When alone they had a tendency to be idle and to daydream and letting their thoughts drift more than "normal" people. When they were out in society they reacted as "normal" people do.

Another non-retrospective process used by various investigators samples random thoughts during a specified time period, usually after some kind of stimulation. Klos and Singer (1981) evaluated thought samples of adolescents following role plays of parental confrontations. They found that imagery simulation was a powerful technique in studying interpersonal stress, and that long term parental conflict was the greatest determinant of emotional arousal. Zachary (1982) used Klinger's (1978) thought-sampling procedure to study subjects who had just watched movies of either low emotional arousal or high emotional arousal. After the movie, the subjects were left alone for 30 minutes and told to think about whatever they wished. During this time they were asked periodically what they were
thinking about. Zachary found that during low emotional arousal (film about flowers) cognitive factors were the primary determinants of thoughts; but during high emotional arousal (erotic film), the intensity of the emotions had more influence on thought patterns (i.e., more romantic thoughts and sexual fantasies). The importance of this kind of data collection can be useful during therapy as noted by Davidson, Robins, and Johnson (1983), who indicate that under much of human psychological suffering is irrational thinking; but they went on to indicate that clients can be taught to control their thoughts under varying situations.

While many of the experience sampling researchers record human "moments," they do not focus on as precise a "moment" as Hurlburt has done in his thought sampling research. Although much of Hurlburt's research is closely related to experience sampling, his thought sampling method requires the subject to focus more precisely on the moment of the beep, describing only the inner process that is present at the exact moment of the beep. The event or behavior that the subject is engaged in at the moment of the beep is noted as a context for the thought, but the primary focus is on the inner process, or processes, taking place precisely at the moment of the beep. Experience sampling
research, on the other hand, focuses on the stream of consciousness at the moment of the beep with the subject being asked to describe the several thoughts, of about five seconds each, that were consecutively ongoing consciousness; but Hurlburt is interested only in the process (or processes) of mental experience present (or simultaneously occurring) at the precise moment of the beep.

Hurlburt has done several studies to test the reliability of thought sampling techniques, as they pertain to personality factors in conjunction with other introspective methods (Hurlburt, 1980; Hurlburt, Lech, & Saltman, 1984; Hurlburt & Melancon, 1987a, 1987b). Results of the studies substantiate, for the most part, comparable findings with the IPI and the 16 PF. In 1980 Hurlburt looked for similar thinking patterns using Singer's IPI, and thought-sampling method. He found significant correlations between thought sampling factors and the IPI. Hurlburt, Lech, and Saltman (1984) studied subjects first in their natural environment and then while watching the movie Annie Hall. Factor analysis of both situations produced similar stable factor structures in Aggressive/Bad Mood, Pleasant Sexual, Daydreaming/Past Sexual, Clear Thought, Self-Critical, and Thought or Mood Duration. The results of this study indicate that
stable factors emerge even when subjects are asked to rate their inner experience in varied environments, and with a wide range of rating scales. In order to study individual thought patterns, Hurlburt and Melancon (1987a, 1987b) reanalyzed data from 27 of the 42 subjects from the Hurlburt, Lech, and Saltman (1984) study and found six stable factors: Aggressive/Bad Mood, Pleasant/Sexual, Clear Thought, Daydreaming/Past Sexual, Duration, and Self-Critical. From the above studies, it can be seen that the reliability checks of thought sampling with the IPI of data gathering has been shown to be significant.
Chapter 4

Modern Descriptive Exploration of Inner Experience

Descriptive introspection can be defined as a method focusing primarily on describing a person's inner experience, in contrast to quantitative introspection which focuses on the events and behaviors taking place in a person's life (Hormuth, 1986). Hurlburt's thought sampling technique (Hurlburt & Melancon, 1987c) uses a random beeper to signal the subject to describe inner experience. It is considered a non-retrospective method of experience sampling because the subject is asked to write a description of his or her inner experience at the moment of the beep with a detailed interview of the entire day's sampling (usually 8 to 10 beeps) coming later that day.

The use of descriptive thought sampling research as a means of beginning to understand how an individual thinks is only in its infancy. It has been used in an attempt to understand mentally disordered patients in their natural setting (Hurlburt & Melancon, 1987c), and the findings have provided investigators with new insights not found with traditional techniques.
Hurlburt and Sipprelle (1978) used thought sampling as a means of helping a patient gain control of anxiety. Hurlburt and Sipprelle suggested that improvement may have come by "altering the bond between the target cognitions and their resultant problem affect/behavior" (p. 169).

Although some quantification was done in the Hurlburt and Sipprelle (1978) study, it was a step toward using a completely descriptive technique. The work of Hurlburt and Melancon (1987c) is the only published research that uses a purely descriptive experience-sampling method. Since it uses essentially the same method of the present study, it will be described in some detail. Hurlburt and Melancon studied a 23-year-old female schizophrenic who lived in a residential home for the mentally ill. Jennifer, as she was identified in the study, carried a small beeper that signaled her randomly (about every half hour). Her task was to "freeze" the "ongoing inner experience that was occurring at the moment of the beep and immediately to write down in a notebook a description of the inner experience" (p. 576). After she had recorded 10 beeps, she met with Hurlburt and Melancon later that day to discuss the beeps in detail. Discussion and description of a single beep (e.g., Was she seeing an image? Could she describe it in detail?)
Was she talking to herself at the time or was she visualizing someone talking to her? Was she just thinking with no words or images? What was she feeling? Could she describe it, and was it located in a physical place in her body? Was the inner process in the front or the back of her head? etc.) could take up to an hour. The sample-and-discuss process continued for two weeks. Jennifer's inner experience was, in general, composed of vivid inner visualizations that were distorted, backwards, tilted, or, as she put it, "goofed up." The identification of the goofed-up nature of imagery in a schizophrenic woman probably would not have been found by means of any of the currently-used quantitative experience-sampling or experience-sampling techniques, and is an interesting step in what might be a new understanding of an old problem.

Hurlburt (in press) has been the primary investigator in descriptive thought sampling, focusing on describing the inner experience of subjects. He agrees with Nisbett and Wilson (1977) that introspective investigators of today who ask their subjects to define experience are using too broad of a perspective or too theoretically, resulting in the subject being unable, at times, to report their experience accurately. Hurlburt has proposed a method
of sampling an every-day inner experience one
frozen-moment at a time, rather than sampling a few
moments of the stream of consciousness as experience
sampling does. The subject is given a beeper that
emits random signals about every half hour, and a 3" x
5" notebook to record samples.

The experimenter then meets with the subject daily
to discuss frozen-moments in detail. The purpose of
the research is to describe the subject's inner
experience using the behavioral context of the
frozen-moment only as a background for the inner
experience. Hurlburt (in press) described the inner
experience of four schizophrenic subjects, four
depressed subjects (along with others for whom affect
was an issue), and seven normal subjects. The purpose
of his research was simply to describe inner
experience; however, he noted that most the cognitive
research being done today studies the 'top of the
skyscraper' with no foundation under it. He proposed
that it is necessary to be able to describe inner
experience before we manipulate it with further
research.

Results of his research with normal,
schizophrenic, and depressed subjects (Hurlburt, in
press) indicate that there is a difference in the inner
experience of these groups of people. Normal people
experience the inner perception of Imagery, Imageless Seeing (the process of Imagery without inner visualization), Inner Speech, Wordless Speech (the process of Inner Speaking without words), Inner Hearing, Soundless Hearing (the process of Inner Hearing without the sound being present in inner experience), and Feelings. Schizophrenic subjects experience a variety of Imagery that is goofed-up, as cited above. Depressed subjects reported Unsymbolized Experience (thinking without words) in up to 75% of their inner experience (p. 492). They also reported very few samples of Inner Speech and Inner Hearing.

This is the method used in the present paper, and though the technique has been used only with adults (Hurlburt, in press) an attempt will be made to sample with adolescents. The purpose of the present research is to describe inner experience only. No hypothesis can be made since this type of study has not been done before.
Chapter 5

Method

Subjects

Subjects included 1 boy and 4 girls, ages 12 years through 14 years (average age = 13.2 years). Wendy, Jacob, Sally, and Anita were friends or relatives of the author. Diana was a friend of an undergraduate student in an upper division psychology class entitled, Describing Inner Experience, which was taught Fall Semester of 1988 at the University of Nevada, Las Vegas. There was no attempt to single out adolescents of special ability and talent or adolescents with special inabilities or problems except for Anita and Jacob. In Anita's case the author was looking for a young person to sample that was not as intelligent as the average person. Jacob was selected because the author wanted to see what sampling would be like with an adolescent with a learning disability. We were not concerned with the differences between male and female at this point in the research, only the learning disability. The sample was thus not statistically representative of the population at large.

Apparatus
Each subject was provided with a random-interval generating beeper a little larger than a package of cigarettes that beeped a tone (400-Hz) at random intervals (see Hurlburt, 1980). The beep could be heard only through a small earphone like those of an inexpensive radio. The earphone volume on the beeper was adjustable so that the subject could adjust to a level comfortable for them. The apparatus was set to beep at random intervals of not longer than an hour and not shorter than a few seconds with the average interval about a half an hour.

Several of the subjects carried the beeper in their pockets, but Sally and Anita used a small carrying case for the beeper that had an adjustable belt with it. These subjects liked the case because it kept the beeper from falling out of their pockets when they went outside to play.

Subjects were also given a pocket-size 3" x 5" notebook to record their inner experiences at the moment of the beep.

Procedure

The method of descriptive thought sampling described by Hurlburt (1988) and summarized below was used. Wendy, Jacob, and Sally were interviewed jointly by the author and Dr. Russell Hurlburt; Anita was initially interviewed by the author and an
undergraduate from the Describing Inner Experience Class, but the undergraduate’s participation was terminated after two interview sessions at the subject’s request. The same undergraduate performed the first interview with subject Diana; subsequent interviews were performed by this undergraduate and the present author jointly.

Each adolescent was given a beeper. Subjects were instructed to wear the beeper with the earphone until they had been beeped at least 10 times (about 5 hours). At each beep they were to write down, in the 3” x 5” notebook, the inner experience that was present at the instant the beep began. The instructions were to attempt to ‘freeze’ the inner experience that was ongoing at the moment of the beep and attempt to describe the experience, not to explain or justify it. If an experience were ongoing when the beep occurred that the subject did not wish to describe, he or she was free to write “none of your business.” At the end of the day, or perhaps more frequently if required, the observers would meet with the adolescent to discuss the beeps for that day. The objective of the discussion was to recreate each sampled experience with the aid of the written description made by the subject.

It took a few ‘practice beeps’ for the subject to become accustomed to the process (i.e., where they
would wear the beeper - pocket or belt, how high to set the volume so that it could be heard, etc.). It also took several beeps for the subjects to learn to pay careful attention to their inner experience so they could describe it. However, the subjects were to describe only what they could remember about each beep, and if they were unsure about some aspect of beeped experience, it was left undescribed or partially described. During this discussion, the observer took notes on what the adolescent said about each beep.

The interview sessions each lasted about an hour. The discussion began with the first beep recorded for that day, and the beeps were discussed in chronological order as they had been collected. If there was not enough time during the interview to discuss all 10 beeps, the remaining undiscussed beeps were discarded and the subject began with new beeps for the next interview session.

The author (and the undergraduate in the case of Diana) wrote the descriptions of the adolescent's experience by reviewing the subject's notebook and notes about the experience that were written by the interviewers during the daily interview sessions. The written description of the experiences was organized according to characteristics that emerged from the individual samples of the subject's experience. These
characteristics (e.g., Inner Hearing, Images, Unsymbolized Experience) usually appeared during the sampling phase itself, but they also might first be identified during this writing phase. Each characteristic was written by the author (and undergraduate), revised in consultation with Dr. Hurlburt so that the description was as precise and clear as possible. Then the characteristic was reviewed by the adolescent and rewritten until each description accurately conveyed the characteristic being described.

The observer and adolescent then considered each sampled experience as it was originally written in the small notebook to see if the written report in Phase 2 was as precise as the subject said it could be. This was done as an internal check on the accuracy of the descriptions, and to make sure that any modifications necessary were made in the written report.
Chapter 6

Interobserver Agreement

The method of inquiry used in this study tries to describe moments of subjects' inner experience. One of the criticisms of this method is the possibility that these descriptions do not in fact reflect those moments. There are two ways that this inaccuracy of description might arise: first, the subject may not report accurately about the particular moment; and second, the interviewer might not write accurately about what the subject has described. It is impossible to specify the degree to which a particular subject's reports accurately reflect his or her inner experience, although Hurlburt (1988) provided some examples of particular samples where a subject's reliability could be checked, and in general Hurlburt found that subjects' reports were relatively accurate.

The second source of inaccurate descriptions (arising from the interviewer's failure to write accurately) can be examined by having two observers present at the past experience interview and then independently write descriptions of particular samples.
These separate descriptions can then be compared for accuracy. This procedure was followed for two samples from subject Diana, since both the author and the undergraduate jointly interviewed Diana. We will present these two samples so that the reader may evaluate the degree of interobserver agreement.

The following is a composite description of Diana's 21st sample drawn from both observers' written descriptions. Where the two observers disagreed with each other, both versions will be presented.

At the moment of Sample #21 Diana said, "Yuk! This gum is old." She spoke these words out loud as she took the gum out of her mouth. She not only spoke these words out loud, but these words seemed to be present in the form of a thought located in the back of her head. She did not see the words in the back of her head, but just knew that these words seemed to be being thought in a location in the back of her head near the nape of her neck. Along with saying these words out loud and thinking them in the back of her head, Diana experienced these words as a feeling; she was feeling, "Yuk! This gum is old," in her mouth. The oldness of the gum was experienced as a feeling and a taste that seemed to be in the exact words of the speaking and thinking, and it was located only in her mouth. This speaking-thinking-feeling of oldness was the main focus
of her attention at the moment of the beep. There was also a secondary focus: a thought about where she should dispose of the gum. This thought was, "Should I bother myself?" to throw the gum away in the kitchen or should she stick it under the table. The specific words, "Should I bother myself," were present as part of the thought, but the words were neither spoken, nor heard by Diana. This thought was located in the middle of Diana's head, and was of secondary focus to the speaking-thinking-feeling of oldness. The last part of this secondary thought, that is, the part which came after the specific words, "Should I bother myself," is a point where the two written descriptions disagreed. The author wrote that the ideas of throwing the gum away in the kitchen or sticking it under the table were not represented in specific words, but were just known to exist (that is, were Unsymbolized Experiences). By contrast, the undergraduate understood that the specific words, "or should I throw it away in the kitchen or should I stick it under the table?" were present as part of the thought. Both writers agreed that Diana was also noticing a blister on the back of her heel and that this noticing was in the background of her attention (of lesser focus than either thought located in her head). The second interobserver disagreement was the fact that the author wrote that
Diana was rubbing the blister at the moment of the beep whereas the undergraduate omitted the rubbing of the blister in her written descriptions. Later when the two written versions were compared, she acknowledged that the rubbing was in fact part of Diana's experience.

The points of agreement between the two observers were as follows:

1. Diana said out loud, "Yuk! This gum is old."
2. She spoke these words as she took the gum out of her mouth.
3. These words were also present in the form of a thought.
4. This thought was located in the back of her head near the nape of her neck.
5. Diana was also feeling and tasting, "Yuk! This gum is old."
6. This feeling and tasting was located in her mouth.
7. This speaking-thinking-feeling of oldness was the main focus of her attention.
8. Another thought, "Should I bother myself" to throw the gum away in the kitchen or stick it under the table, was also present.
9. The specific words, "Should I bother myself," were part of this thought.
10. These words were present but not being spoken, seen, or heard.

11. The Should-I-bother-myself thought was of secondary focus.

12. The Should I bother-myself thought was located in the middle of her head.

The points of disagreement between the observers:

1. One of the observers noted that all of the specific words to the thought, "Should I bother myself to throw the gum away in the kitchen or stick it under the table," were present as Words in Thought. The other observer felt that only the words, "Should I bother myself," were present, and that throwing the gum away in the kitchen or sticking it under the table were Unsymbolized Experience.

2. One of the observers did not write that Diana was rubbing a blister on her heel at the moment of the beep.

The other example of Diana's experience that was written by two observers was Sample #33. Diana was lying on the living room carpet doing her math homework. She had her math notebook in front of her and papers scattered everywhere on the floor. She was reducing fractions and then dividing them, and the problem she was working on was 3/8 divided by 2/4. At the moment of the beep she was writing 3/8 and saying
to herself in Inner Speech, "I hate the problems that can't be reduced." She was saying it in her own voice and with the same inflection she would use if she were saying it out loud, and she was also hearing the words in her head as she spoke them. This Inner Speech seemed to be located in the front of her head just behind her forehead. At the same time she felt a mad feeling in the background that was not really strong, but she could not describe it further.

There were no disagreements on this sample at all. Both writers included every aspect of this experience in their written reports.

As can be seen from the above samples the level of agreement between observers was quite high. In the first sample both observers were in complete agreement except for two minor points, and in the second example both observers were in complete agreement.
Chapter 7

Wendy: A 14-year old Gifted Student

Wendy (not her real name) was 14 years of age at the time of sampling. She was in the eighth grade, and was in classes for the academically talented. She wore the beeper from May 25 through June 1, 1988, and reported 38 samples. However, because of time limitations 6 of the samples were not discussed, so this report is based on 32 of samples.

Wendy was pleasant to work with and cooperative. She had no trouble describing her moments and did not seem to tire of the task.

Wendy experienced Images that were pictures that she saw in her head. Her Images were in sequence, still, in motion, or in the process of forming. She also experienced Imageless seeing where she had the experience of Inner Seeing but where no Image was present. Unsymbolized Experience was present in some of her moments, that is, thoughts that had no sensory component (i.e., no Imagery or words). Inner Speaking was experienced as if Wendy were actually saying words to herself. Wordless Speaking was a process of Inner
Speaking without the words themselves being formed. Inner Hearing, as Wendy experienced it, could be defined as the ability to hear music, or the spoken word inside her head. Her Soundless Hearing was a process that seemed like an Inner Hearing experience, but with no inner sound present. She also experienced moments where she was Just Doing something and moments of Feelings.

Images

Wendy experienced more Images in her sampling moments than any other process (14 out of 32 samples). Sometimes Wendy's experience included a sequence of Images, as was the case in Sample #3. Wendy shared a room for the summer with her older sister Mary who was home from college. Mary had been complaining to Wendy about the cleanliness of their bedroom. This made Wendy aggravated and angry since Mary blamed the mess primarily on Wendy, whereas Wendy thought the mess was mostly Mary's. At the moment of the beep, Wendy was dressing for bed and was experiencing a series of Images of a house that was known to be Mary's house at some point in the future. Wendy imaged rooms of this house one after another, each in color and with clear details. All of the rooms in this imaged Mary's house were seen as messy and dirty. At the moment of the beep she was seeing the family room with a messy couch,
magazine stand, tall floor lamp, chair, and T.V. It was as if the wall had been removed from behind the couch so that the room could be viewed from a perspective a few feet outside the wall. Thus, she was looking at the couch from the back. The couch was beige-white fabric with a green blanket over the back. On the left armrest of the couch sat a laundry basket full of clean laundry that had not been folded. There were jam stains on the back of the sofa and scattered crumbs on the couch and floor. Magazines were in disarray on the rack and dust was everywhere: on the magazine rack, the floor lamp, and the T.V. where someone had written in the dust on the screen. Wendy’s mood at the moment of the beep was in the process of changing from aggravation and anger to laughter, but she still felt some irritation as a heaviness in her whole chest and tightness in her upper arms. She felt like taking her sister and shaking her.

Wendy sometimes seemed to use her Images as an organizational tool. At Sample #4, which occurred as Wendy set her alarm clock one night before she went to bed, she was mentally checking to see if she had done all her homework. She was reviewing all her course work and at the moment of beep she was checking to see if she had done her English homework. This checking was a visual experience: bright yellow words, each
identifying particular study topics, flew towards her rapidly, five or six a second, and then seemed to pass into her head. The words were printed in yellow rounded letters on a black background: "vocabulary," "poems," "study questions," "reading," etc. In the distance they were a little less bright, but brightened as they came towards her. There were no feelings associated with this experience, but Wendy knew that as each word came toward her, she was checking whether that portion of her homework was complete. This checking seemed to be in thought that was without words or other symbolization. Wendy just knew she was checking her homework (an example of Unsymbolized Experience).

Wendy noted an Image that was Incomplete, apparently just in the process of forming, and Sample #12 was this kind of experience. She 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. (Wendy said that Images frequently start out black and white, and then seem to take from 10 to 20 seconds to come into color. Sometimes she said, it takes a few minutes for all the details to be added to an Image as it is formed. These last comments about Wendy’s Image-forming processes were not directed at one specific instant of time. We would thus want to sample several or many more Images in the process of forming before we would unquestioningly accept this description.)

**Imageless Seeing**

Wendy also had visual experiences without the Images being clearly present. We will call these experiences Imageless Seeing examples (2 samples out of 32). In Sample #37, Wendy was in the process of cleaning her room so that it would be neat when her sister Mary got home, and she was trying to decide what homework she needed to take to school with her the next day. At the moment of the beep she was preoccupied with cleaning the room, but she was also thinking about her English homework in a visual way, but without
seeing the homework itself. It was as if she were looking at her English folder; the folder existed for her in a visual way as if she were almost seeing the blue plastic folder right side up with the "English" heading visible, but she was not actually seeing it. She felt that she could have actually seen an Image of the folder if she had wished, but at the moment of the beep, there was no outline or Image or color present in her imagination. At the same time, she was in the process of thinking in Unsymbolized Experience, Am I caught up in Greek Mythology? Do I have to turn in the literary terms? There were no words actually present in her experience, but she was sure of exactly what the words would be if the thought were to be put into words; furthermore, this thought was not experienced as being a Hearing or a Speaking experience, but was just thought, and is thus an example of Unsymbolized Experience. The Imageless Seeing and Unsymbolized Experience were both located in the top middle of her head, and it seemed to her that the checking process was taking longer than it usually did because she was preoccupied with cleaning her room at the time, and was not paying complete attention to the checking process.

At times Wendy experienced Imageless Seeing along with Wordless Speaking, as was the case in Sample #23. Wendy was mowing the lawn and aware of being hot, but
at the moment of the beep she was looking at two lists side by side in her imagination, with the one on the left of things done, and the one on the right of things not done. These lists were apprehended in a visual way, but the lists themselves were only slightly seen; they were fuzzy, out of focus, black-and-white hints of the lists. She could not see any details on the lists or a clear outline of the lists. We would call this an Imageless Seeing experience: it was clearly a visual experience, but there was with only a hint of an Image. At the moment of the beep she was going down the list on the right (things not done), which seemed to be almost like looking at the paper and reading each item to be done. At the moment of the beep 'wash car' was the task she was "reading" on the right hand list. At the same time she was also almost-speaking "30 minutes," in a Wordless Speaking experience, which was the time she thought it would take to complete washing the car. That she was speaking, "30 minutes," in Inner Speech was clear to her, but the words themselves were not present.

In Wendy's samples, there were thus examples of visual experience where the Image was in clear detail, and at other times where the Image was not present at all even though the experience was clearly one of seeing. There thus seemed to be a continuum along
which that which was seen was present in a visual experience. At one end of the continuum were examples of clear Images that were definitely present in Wendy’s experience, for example, Sample #4 where she saw yellow rounded-lettered words that represented the topics of her English homework. The Images of the words were in perfect focus and in vivid color. At the other end of the continuum were examples of Imageless Seeing experiences (visual experiences with no Images present), for example Sample #37 where Wendy was almost-seeing her English folder. Somewhere in the middle of the continuum were visual experiences with only part of the Image present as exemplified by Sample #23 where Wendy was almost-seeing an Image of a list of things done and things to do while she was mowing the lawn.

Unsymbolized Experience

Some of Wendy’s thoughts were expressed in what we are calling Unsymbolized Experience, 8 samples out of 32, where a specific thought is understood to be ongoing but no words or Images or other symbols are present in the experience. For example, at Sample #27 Wendy was brushing her hair in front of the mirror, and at the same time she was wondering if all the snarls were out of her hair. She was particularly focused on the snarls because her hair seemed dryer than it did on
other days, and had more snarls than usual because of the dryness. She was quite clearly wondering if all the snarls were out, and this was experienced as a thinking process, even though there were no words or images. She was also feeling in a bit of a rush and there was a tenseness in her arms and neck, which she said she probably would not have noticed if the interruption by the beep had not brought it to her attention.

Wendy had an example of Unsymbolized Experience where she knew exactly what the words should be, even though she was neither hearing them spoken (Inner Hearing) nor saying them to herself (Inner Speech). This was Sample #37, described above in the section on Imageless Seeing, where Wendy was in the process of cleaning her room and trying to decide what homework she needed to take to school with her the next day. She was thinking, Am I caught up in Greek Mythology? Do I have to turn in the literary terms? There were no words actually present in her experience, but nonetheless she was sure of exactly what the words would have been if the thought had been put into words.

This Unsymbolized Experience with known words was quite different from the phenomenon we are calling Wordless Speaking. In both kinds of experience, the exact words are known; the difference is that in
Wordless Speaking the experience is of Inner Speech, that is, of the inner producing of words, even though the words themselves are not being inner perceived. In the present Unsymbolized Experience sample these words are simply known and are not experienced as being spoken.

Thus, Unsymbolized Experiences existed for Wendy along a continuum of how close to being worded the thinking process was. Sample #27, where Wendy was checking for snarls, involved a wondering which apparently was quite distant from any verbal process, whereas in Sample #37, the words were almost exactly specified even though they were not present.

**Inner Speech**

There were times when Wendy experienced Inner Speaking (6 samples out of 32), where she was actually saying words to herself. For example, in Sample #25, Wendy was in the front yard rolling the stiff plastic of the hose into a circle so that it would be in a neat roll; at the moment of the beep, she was saying to herself in inner speech "Will it (the hose) go around this way?" She experienced herself as using her own voice, with the same questioning inflection she would have used if she had said the same words out loud.
**Worldless Speaking**

Wendy had one sample where she experienced herself as speaking to herself, but the words themselves were not actually being Inner-heard or Inner-spoken, a phenomenon we call Wordless Speaking. Sample #23 was described in the section on Imageless Seeing where Wendy was mowing the lawn, and was Imageless Seeing lists of things done and things not done. At the same time she was also Wordless speaking "Thirty minutes," which was the time she thought it would take to complete washing the car, the task she was currently "reading" from the list. She was sure that she was speaking in Inner Speech, that is, she felt herself to be directing and creating the inner verbalizing process, but the words themselves were not perceived. "Thirty minutes" was clearly the meaning, but the words themselves were implied and comprehended, but not innerly spoken. Thus we see that it was possible for Wendy to have Inner Speaking experiences with the words clearly present and being innerly spoken, as exemplified by she was rolling up the hose in Sample #25; and it was also possible for her to experience Wordless Speaking, where she knew the process was Inner Speech, but the words were only implied, not spoken, as when she was "reading" from the list while mowing the lawn in Sample #23.
Inner Hearing

At times Wendy heard music playing inside her head, experiences we are calling Inner Hearing (2 of 32 samples). At Sample #2, Wendy heard music as if played by her junior high school orchestra inside and just above her ears on either side of her head, but it did not extend through the center of her head. The music was heard as if she were sitting in her school orchestra in the first violin section (where she in fact usually sat); for example she heard the cello sound ahead of her and the basses off to the left. The music was clearly being played by her own school orchestra, but the version she was hearing had had the major mistakes "corrected." (Wendy reported that over the past few months she had listened to this piece repeatedly in Inner Hearing, and frequently on repetition a mistake in the performance corrected itself, and remained corrected in subsequent hearings, until at the present hearing the performance heard in Inner Hearing had become much improved.) The presently-experienced music was improved, but not perfect; it was simply her school's orchestra with the big squeaks and major intonation errors removed. The orchestral music was the main focus of her attention at the moment of the beep, but she had another thought at the same moment that was of lesser focus and seemed to
be located in the back of her head. Wendy was reading *The Odyssey* (as homework) with comprehension, looking at the words and understanding them; she was not saying the words in Inner Speech nor did she Image anything. This reading comprehension seemed to be located towards the lower portion of the back of her head. She was also feeling boredom at the time which she described as not paying close attention to the book; she was comprehending but not absorbed.

**Soundless Hearing**

Wendy had several experiences that we are calling Soundless Hearing (4 samples out of 32); Wendy called them "almost-hearing." At the moment of Sample #15 she was looking at the reflection of her eyes in the bathroom mirror while putting on her eye shadow, and was wondering whether it was too dark or too light, or whether it was too much or not enough eyeshadow. She was confident that this wondering was ongoing at the moment of the beep, and that this experience was as if this meaning was being heard, but the words themselves were not quite present to her. It was as if she were hearing a question that contrasted two alternatives (dark/light, too much/not enough), but the words "dark," "light," "too much," "not enough," were not clearly present. She heard a sentence about a 'this' or a 'that,' and she knew that 'this' was "too much"
and 'that' was "not enough" eye shadow even though the words themselves were not heard. The contrasts were there between light or dark, between too much or not enough, and these contrasts were almost-heard, but the experience of hearing was soundless.

Sample #29 was another example of a Soundless Hearing experience; but in this example, Wendy could almost-hear two sides of an argument. She was cleaning all last year's school papers out of her old folders and was holding a folder in her hand and internally listing the reasons for keeping or throwing the folder away. At the moment of the beep the argument was on the side of throwing the folder away. She was thinking that she should not keep it because "it's all wrinkled," but the words "it's all wrinkled" were not actually being heard, but seemed to be apprehended in a hearing sort of experience. Then she thought that she should keep it because "it's not that bad," and again, she indicated again that this was a hearing experience even though no words were actually heard. The words were "almost there;" they were not actually heard in imagination, but seemed to be part of an inner-hearing process where the words themselves were not quite present. The two sides of this argument seemed to be located in two separate areas of her head. These areas seemed to be just inside either temple with the one on
the left saying that she should not keep it because "It's all wrinkled," and the one on the right saying that she should keep it because "It's not that bad."

Wendy also had images associated with her Soundless Hearing experiences. When Sample #14 occurred, she was watching "The Brady Bunch" on T.V., but not really paying attention to it. At the moment of the beep she had just looked at the V.C.R. time display (which read 5:20 p.m.) to try to figure out how much time she would need to get ready for her orchestra concert that evening. She could see the actual time display but was more focused on an image of the display that she "was running through my mind backwards in 15-minute segments" from 7:00 p.m. (the time she intended to leave for the concert). At the moment of the beep the inner display indicated 6:45 p.m., and would have continued, if the beep had not interrupted her, to count-down in Wendy's mind, "6:30," "6:15," until she felt the right time to get ready for the concert was displayed. The letters were green in color and of a block style with a black background, just as they appeared on the actual VCR. Also at the moment of the beep she was almost-hearing some voice asking whether it should be a 15-minute or a 20-minute time decrement. This was experienced to be a Soundless Hearing of a question being asked, as if a voice said,
"should it be 15 minutes or 20 minutes?", but no words were heard. In this example the words were very nearly present to experience in the sense that she knew exactly what the words were that she was not quite hearing.

There thus seemed to be a continuum of clarity of hearing in Wendy's Hearing experiences. That which was heard was sometimes present and sometimes not clearly present even in experiences that were clearly Inner Hearings. Sample #2 was at the clear end of this continuum: Wendy was Inner Hearing her school orchestra play inside her head, and she could hear the music as clearly as if she were there in person. However, at the other end of the continuum were experiences where that which was heard was not present, for example Sample #15 where Wendy was wondering if she had put on too much eye shadow or not enough. She was hearing a question concerning the two alternatives, but there were no specific words present in her Inner Hearing. Somewhere in the middle of the continuum were experiences like Wendy’s wondering how much time she needed to prepare for her concert (Sample #14), where she knew exactly what the words were. She was hearing a voice asking, "should be in 15-minute or a 20-minute". The words themselves were not in fact heard. Sample #29 where Wendy was arguing with
herself, and almost-hearing the words I shouldn’t keep it because “it’s all wrinkled”, is another experience of almost-hearing that lies somewhere in the middle of the continuum where that which was heard was present and that which was heard was not present. Thus, Wendy experienced different degrees of the presence of that which was heard.

**Just Doing**

Wendy experienced moments when she was Just Doing (4 samples out of 32). At the time of Sample #32, Wendy was cutting a piece of paper with the scissors. She had her head close to the paper to make sure she cut it just right. She was concentrating on doing a good job of cutting and was not thinking of anything. She was Just Doing the cutting.

Another example of Just Doing occurred at the time of Sample #38. Wendy was drawing a line with her pen, and at the moment of the beep her eyes were going a little bit ahead of the pen. She was just drawing the line and not thinking of anything.

**Feelings**

There were times when Wendy experienced Feelings at the moment of the beep (9 samples out of 32). She felt bored at the time of Sample #2 when she was listening to her orchestra play in Inner Hearing while doing her homework. This feeling bored was described
as not paying close attention to what she was reading, but she could not explain the feeling further. Also noted previously was an irritation at the time of Sample #3 when she had been blamed by her older sister for her messy room. As she imaged messy rooms in her sister’s house of the future, she could feel the irritation in her chest. Her whole chest felt heavy and her upper arms felt tight. This feeling was in the process of changing from aggravation and anger to laughter, as she imaged the scenes, but she still felt a heaviness in her chest and a tightness in her arms.

Another example of feelings occurred at the time of Sample #24 when Wendy was outside in the yard where she had been mowing the lawn. She was listening to her little sister play the piano in the house, and at the moment of the beep was saying to herself in Inner Speech, "Wow, she’s gotten really good." At the same time she was feeling impressed and amazed, and this feeling seemed to be located in her chest, but she could not describe the feeling further.

Thus it can be seen from Wendy’s samples that there were times when she could describe her feelings as exemplified by Sample #3 when she felt irritation as a heaviness in her chest and tightness in her arms. At other times she could tell the location of the feeling, but was unable to describe it, as noted in Sample #24.
Wendy felt amazement at her sister’s piano playing; this amazement seemed to be located in her chest, but she could not describe the feeling further. At other times she was unable to pinpoint a location or describe her feelings at all, as noted in Sample #2 when she was feeling boredom, but could not give a location for the feeling or describe it further.

Summary

In summary, Wendy had Image experiences where that which was seen (the Images themselves) was sometimes clearly present and sometimes less so. It was possible for her to have Unsymbolized Experience where the words were sometimes more and sometimes less specified in the thinking. Furthermore, she had experiences of Inner Hearing where that which was heard was sometimes more and sometimes less present in experiences. Lastly, Wendy experienced Inner Speech both with and without words themselves being present. Wendy seemed to be in touch with her inner processes, and there seemed to be continuums along which the presence or absence of sensory perception was experienced.
Chapter 8

Sally: A 13-year-old Below-average Student

Sally was age 13 at the time of sampling. She attended 7th grade and had been held back a year when she was in grade school. She was chosen by the author because she was adolescent who had problems with school in an attempt to sample individuals who were rather different from each other. We did no testing before we sampled with our subjects, but her mother said that she had been held back a year in school and that her grades in school were low because school was hard for her. As it turned out, Sally presented herself as a happy, bubbly teenager with no characteristics that seemed obviously linked to learning problems.

She sampled from November 7 to November 18, 1988. She recorded 41 samples, wearing the beeper twice a week, generally the day before meeting with the interviewers. She enjoyed the process and liked talking about her thoughts, but by the time 41 beeps had been recorded, she was tired of the sampling and ready to be finished. She did say, however, that she would be happy to sample at a later date if necessary.
Because the interview sessions were limited to just over an hour, 7 of the 41 samples were not discussed; therefore, only 34 of her samples were included in this report.

Sally experienced a variety of images with movement and without as seen from a being-there perspective and an external perspective. She noted unsymbolized experience at times which we define as only thought without sensory component. Sometimes Sally talked to herself in inner speaking, and at other times she heard music or the spoken word inside her head in an inner hearing process. She also had moments of just doing. At times she experienced feelings located in specific places in her body, and at other times her feelings seemed to be throughout her entire body.

Images

Images were one of the most frequent phenomena in Sally's inner experience (13 samples out of 34), and these images were experienced in a variety of ways. Some of Sally's images contain no movement. For example, a few images had borders or frames around them, the phenomenon we call snapshot images. At other times her images with no movement were of an object that was seen by itself directly in front of her or viewed as part of her world. The images without
movement could also include herself viewed from an external perspective, as if she were present in a scene that was being viewed from outside. At other times, the scenes with no movement were apprehended as "being-there" experiences, as if she were there in the scene itself, surrounded by it, seeing it from her own in-the-scene perspective. Several of Sally's Images did contain movement, and at times this movement was viewed both from the external perspective, as if she were watching herself participate in a moving scene, and sometimes from the "being-there" perspective where Sally felt like she was moving through the imaged scened movement as if she were really there.

There were times in Sally's samples when she experienced Images that seemed to be like a snapshot (2 samples out of 34), a still inner Image with edges or frames. At the moment of Sample #1 her brother, Sam, was playing "Ghostbusters" on the computer while Sally sat in a chair where she could hear the computer, but could not see the screen. At the moment of the beep she had an Image of the Ghostbuster game on the screen. The Image was a still picture with no motion, like a snapshot complete with edges: it was square with straight top and bottom edges and wavy side edges bordered with white, and seemed to be right in front of her. This snapshot was a picture of the T.V. screen,
In color with the white Ghostbuster in the top left corner. There were also the little game men in blue suits with the red circle on their shirts in different locations on the picture. She could see that the screen was gray and had a darker alleyway near the lower edge that was lined with stacks of boxes, old rags, and other garbage as was the case on the real Ghostbusters screen.

An example of an Image of an object seen directly in front of her along with several other simultaneous processes were noted at the moment of Sample #21. Sally experienced an Unsymbolized Experience, an Image, and a Feeling. Sally was popping her knuckles while thinking about her earrings, and she was mad at her sister Dana because she had stuck Sally's earrings in a pumpkin. When Sally took the earrings out of the pumpkin they were all messy. At the moment of the beep she was looking at the messy earrings and thinking about being allergic to earrings with steel posts. She was wondering why she was allergic to things like steel posts on earrings, and this wondering had no words or Images associated with it. She was just thinking about why she was allergic to the earrings with no sensory perception associated with the thought. At the same time she had an Image of her favorite earrings that her grandma had given her. They were gold circles with a
blue stone in the middle, and they seemed to be right in front of her, about 10 inches from her face. She saw them in color just as they really appear, and the Image was without background or borders. There was no movement of any kind in the Image. She was also feeling mad because her earrings had been stuck in the pumpkin and messed up. The mad feeling seemed like a tenseness and a heavy feeling in her entire body. The feeling, even though it was noted in her entire body, was focused in her fingers while she was popping her knuckles.

There were times in Sally's experience when her Images were viewed from an external perspective as if she were viewing herself from outside the scene with no movement in the scene itself. At the time of Sample #12 Sally was in the kitchen playing Rummy with her dad. It was his turn to decide which card to play, and she was thinking about the T.V. show "Growing Pains." She was glad and happy that her dad would let her watch the show. At the moment of the beep she had an Image of herself lying on her stomach on the living room floor watching the show on the T.V. She could see herself lying on the floor as if from a perspective of sitting in a chair behind and to the right of the Sally lying on the floor. She could see herself watching "Growing Pains," but she could not tell exactly what was
happening on the T.V. at the moment of the beep. The Image was in color with no borders, and had no movement. At the same time she was feeling glad and happy. The glad and happy feelings could not be separated, but were the same. They seemed to make her body feel lighter and she was aware that she had a smile on her face.

At other times Sally experienced "being-there" Images with no movement as exemplified by Sample #34. Sally was playing "Mario Brothers" on the Nintendo computer with her sister, and at the moment of the beep it was her turn. She was making Mario jump over a ditch by pressing her finger on the "A" (jump) button of the computer. Her fingers were playing automatically, and her attention was focused equally on the video game and an Image of her school orchestra concert, seen from the perspective of where she usually sat in the orchestra. It was a being-there experience as if she were really sitting in the back of the violin section. She was playing her violin and could see her left hand holding the end of her violin with her right hand bowing on the strings, but there was no movement in the Image. She was looking over the heads of the two rows of violins in front of her at her conductor, who was standing on the podium. Everyone was dressed in black and white (as they would be in the concert),
and the Image was in color with no borders. It was a being-there Image, as if she were really there sitting in the orchestra during the concert. The group was playing "Silver Bells" which was one of their concert selections. She could hear the entire orchestra playing inside her head as an Inner Hearing experience. Furthermore, she could tell it was her own orchestra playing, but the quality of the music was better than her orchestra really could play. There were not as many mistakes and intonation problems as usual, but the performance was not as good as a professional orchestra. Even though she could hear the music playing in her head there was no movement in the Image. She was also Feeling excited, but she did not pay much attention to the Feeling and could not tell what, if any, physical feelings were present.

It can been seen from these experiences that Sally had Images of objects or the world outside her. She had bordered snapshot-Images that contained no movement, as noted in Sample #1 of Ghostbusters. She also experienced still Images without borders, as Sample #21 where she saw the messy earrings. Furthermore, her Images with no movement could be pictures of herself as viewed from an external perspective as in Sample #12 where she saw herself watching "Growing Pains". Sally also had Images from a
being-there perspective, for example Sample #34, the in-the-orchestra Image.

There were times when Sally experienced Imagery viewed from an external perspective that contained movement. Sample #5 included an Image with movement and also contained Feeling. At the time of this beep Sally was sitting in the living room in a recliner, thinking about jumping on her trampoline. At the time of the beep she pictured herself doing a backflip on the trampoline. She viewed this flip from the side, as if she were sitting on the bench of the picnic table to the side of the trampoline. The Image was in color with no borders, just as it would have appeared in real life. In the Image she was wearing the outfit she had had on that day: pink shorts and a T-shirt that said "Palace Station" on it. The Image contained motion: she was seeing herself moving through the backflip at the moment of the beep. Sally also experienced the physical Feelings of doing the backflip that went along with the Image. She could almost feel her weight shift and her body going upside down just as if she were really on the trampoline. (It seemed to be exactly the same Feeling she got each time she really did a backflip on the trampoline.) These physical Feelings were experienced at the same time as the Image, and the Feelings went along with the Image just as they did in
real life. She was also feeling proud because she was able to do a flip. This was a light feeling throughout her entire body.

Sally also experienced moving images from a "being-there" perspective, along with feelings. At the moment of Sample #17 Sally was picturing the inside of the space shuttle as if she were looking out of two windows seeing the earth and the stars. (Sally wanted to be an astronaut.) It was as if she were really there in the space ship looking out of the windows and experiencing the scene as being-there. Through the right-hand window she could see the earth. She could see the blue ocean which was covered with white and gray clouds (and therefore she thought it must be fairly close). Through the window on the left she could see the stars. There were just a few stars because it was not dark yet, but it got gradually darker as she looked further to the left through the window. The image was in color with no borders and seemed to her as if she were really there. Along with the image was a feeling of weightlessness; her body seemed as if it were floating. The weightlessness seemed as if she were really in the space ship feeling just the way an astronaut would feel. At the same time she was also feeling happy. The happy feeling seemed to make her body feel lighter and was associated with
the weightless feeling, but it was there in addition to
the weightless feeling. The main focus of the
weightless feeling went along with the image and not
the happy feeling. But some of the lightness in her
body was associated with the happiness even though it
was not the main focus of her feeling.

Another example of a being-there image with
movement and feelings was Sample #28, where Sally was
sitting in a living room recliner thinking about
four-wheeling on their all-terrain vehicle (ATV). At
the moment of the beep she felt as if she were on the
four-wheeler out in the desert jumping over hills. She
experienced herself to be sitting on the seat of the
ATV holding on to the handle bars just as she would if
she were really driving in person. She could see the
desert going by very fast, blurred because of the
speed. At the same time she could feel her thumb on
the throttle; in fact her thumb hurt from being on the
throttle (just like it did when she was really on the
ATV). However, she did not feel the wind or the bugs
on her face that she would have felt if she had really
been there. She had an average feeling that was a
little better than normal, but not a lot. She could
not describe her feeling more than that; nor could she
give a location to her feeling.
At other times Sally experienced being-there Images in motion along with Inner Hearing and Feeling, as in Sample #11. She had just gotten new glasses, and was imagining herself going to school the next day wearing them. It seemed as if she were really experiencing the scene in person. At the moment of the beep she was climbing down the steps of the school bus, and she could see the school yard from the bus steps just as it always appeared each day before school. As she climbed off the bus there were clusters of boys standing in the school yard, about seven boys in all. Several were standing on the right and several on the left. The boys were all talking and yelling at once, and she could hear in Inner Hearing their words: "You're blind;" "You're four eyes;" and "You should be walking with one of those sticks." The boys were all talking at the same time and repeating the taunts over and over. The Image and Inner Hearing were perceived together as part of the same experience; it was as if she were really there seeing and hearing the scene. The Image was in color and seemed to be about ten inches in front of her, and had no borders. Along with the Image was the Feeling of being a bit mad about having to wear glasses. Sally could feel the mad Feeling throughout her whole body, and it felt like her body was just slowly getting a little bit bigger, as if
It were being blown up very slowly like a balloon with hot air.

Thus, it can be seen from Sally's samples that she could experience a variety of Images. She was able to Image snapshots with borders (Ghostbusters, Sample #1) and Images with no movement (earrings, Sample #21). She was also able to visualize herself in these Images, both from an external perspective (Sample #12, Growing Pains) and a being-there perspective where she imaged herself as part of her school orchestra concert in Sample #34. Furthermore, she experienced Imagery with movement from an external perspective (Sample #5 where she viewed herself from the side jumping on the trampoline) and from a being-there perspective (Sample #17, seeing the earth from in space, and Sample #28, four-wheeling). In addition, Sally sometimes imaged moving scenes with Inner Hearing (Sample #11 where she was getting off the school bus with her new glasses on). She also experienced Feelings along with these scenes (Sample #5 where she felt lightness in her body which she noted as pride while she imaged herself doing a back flip, and Sample #28 where she imaged the experience of four-wheeling on the ATV and felt her thumb hurt as if it were really on the throttle).

Unsymbolized Experience
Sally experienced thought that contained no words, images or other symbols present to awareness (8 samples out of 34). This Unsymbolized Experience sometimes occurred along with a Feeling located in a specific part of her body. For example, at the moment of Sample #13 she was sitting on her bed looking at her collection of stickers and Feeling bored. She decided to call a friend, but she did not know which friend to call. 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 associated with it; it was just 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. She could not describe the bored Feeling further.

Another example of Unsymbolized Experience along with a Feeling occurred in Sample #22. Sally was in her bedroom brushing her hair. At the moment of the beep she was wondering what it would be like to have an identical twin sister. She was thinking that if she had a twin sister they could do their hair the same and wear the same clothes. This thinking had no words or
Images associated with it, and it had no sensory perception, yet Sally knew she was thinking about a twin sister's hair and clothes. At the same time she was feeling sadness because she did not have a twin sister. The sadness felt like a heaviness in her elbows and arms. It was as if her shoulders were pushing her elbows and arms down making them heavy.

Sample #36 was the only beep to occur while Sally was reading. She was reading a newspaper article about a radio telescope that had collapsed. At the moment of the beep someone in the article was reporting why he thought the telescope had collapsed. There seemed to be no images associated with the reading, nor did Sally experience inner speech while she was reading. The experience was hard for her to describe, but it seemed to her as if she were just understanding what she was reading with no words, inner speech, or images associated with the experience. This reading moment thus seemed to be an unsymbolized experience with no sensory process associated with it.

It can be seen that Sally noted unsymbolized experience with feelings in specific locations of her body, as in Sample #13 when she was deciding which friend to phone and feeling indecision in her wiggling fingers, and Sample #22 when she wished to be twins and felt sadness in her arms. The only reading experience
obtained also seemed to be an Unsymbolized Experience as noted in Sample #36. At times when Sally experienced Unsymbolized Experience, she called it "confusing." She could not explain the feeling of confusion, and did not mention it after experiencing several examples of Unsymbolized Experience. It was as if she had to experience several examples of Unsymbolized Experience to be able to explain it. This confusion was in the explaining of the moment, not the experiencing because Sally seemed confident of her experience.

Inner Speech

There were times when Sally soundlessly talked to herself in Inner Speech (7 samples out of 34). She was eating breakfast at the time of Sample #16 and thinking about what she was going to cook today. At the moment of the beep she was saying to herself inside her head, "Do we have chocolate chips?" She knew she was the one speaking in her head, and she could hear herself talk in her own voice with the same natural inflection that she would use in external (out loud) speaking. At the same time she was Feeling the taste of the cookie in her mouth and a growling in her stomach that was as if it were saying 'give me some cookies.' The experience was like an anticipation of the cookie-baking.
Another example of Inner Speech occurred in Sample #25 when Sally was thinking about jumping on the trampoline. She was sitting in a chair outside by the trampoline waiting for her turn to jump. Just prior to the beep she had been thinking about her back flips and how to improve them. There were times when she flipped that she landed in the springs or to the side of the mat. At the moment of the beep she was saying to herself, "Why do I do that?" Sally was talking to herself inside her head in Inner Speech, and there were no Images or thoughts at the moment of the beep. She could hear her voice saying the words in Inner Hearing, and she was using the same tone and inflection she would use if she were speaking out loud.

At times Sally was singing in her head as well as singing out loud, and she was also hearing the internal and external music. At the time of Sample #30 she had been thinking about Christmas and listening to the computer play Christmas music, and at the moment of the beep Sally was listening to the computer play "Jolly Old Saint Nicholas." In her head Sally was clearly singing along with the music, a musical sort of Inner Speech. The singing in her head was clear and she could tell she was singing in her own voice. The quality of her inner voice was a little bit better than
she could really sing, and the inner accompaniment was just the same as the music on the computer. Sally could hear herself singing along with the accompaniment inside her head. At the same time she was sort of mumbling the song out loud. She could hear herself mumbling out loud as well as hear the computer. Sally experienced Inner Hearing of the music she was singing in her head, external hearing of her own voice mumbling the music, and also external hearing of the computer music. She was also Feeling happy, and that Feeling seemed to be a warmth in her chest and up into her shoulders. It was not located in her entire body.

It can be seen from these experiences that Sally experienced Inner Speaking, as noted in Sample #16 when she decided to make chocolate chip cookies, and Sample #25 when she was wondering about the way she jumped on the trampoline. She also experienced Inner Singing in Sample #30 while she was singing "Jolly Old Saint Nicholas" as well as singing out loud.

Inner Hearing

As we have seen in previous examples, Sally experienced Inner Hearing (3 samples out of 34) when she imaged her school orchestra in Sample #34 hearing them playing "Silver Bells." Even though the Image had no movement, the music in her Inner Hearing was an ongoing process, not frozen like the Image. She also
noted Inner Hearing when she was hearing the boys making derogatory statements about her new glasses as she climbed off the school bus in Sample #11. She heard them in Inner Hearing. Furthermore, Sally was able to differentiate an Inner Hearing process from an outer hearing process that occurred at the same time, as noted in Sample 30. Sally was singing "Jolly Old Saint Nicholas" in her head, and hearing herself mumble in her head while she heard herself sing out loud along with the music on the computer.

Just Doing

There were other times when Sally was Just Doing (3 samples out of 34), not thinking about anything. At the time of Sample #35 she was playing Mario Brothers on the Nintendo; her little computer man was climbing up a vine. She was not thinking about anything at the time; she was just playing the game automatically, with no thoughts in her mind at all. When Sample #37 occurred, Sally was scratching her leg. She was just automatically scratching, and not paying attention to the scratching or the itching. She was Just Doing the scratching.

Feelings

Sally also frequently experienced Feelings (21 samples out of 34), about half of which seemed to be Feelings that were located in a specific place in her
body (12 samples) and about half which were felt throughout her entire-body (9 samples).

In Sample #14 we see an example of Feelings that were located in specific parts of her body. At the time of the beep she was playing a tape of the song, "Only in my Dreams," and singing along with it. She was singing into a microphone over loudspeakers and dancing to the music as she sang. At the moment of the beep she was not thinking of anything; she was just singing. However she was Feeling happy, and this happy Feeling seemed to be located in the front of her throat that felt warm and light. The Feeling extended out into her shoulders, but faded away there.

Another example of Feelings in specific locations of her body was noted in Sample #28 (described above in the Image Section) where Sally was imagining herself four-wheeling and felt her thumb ache from being on the throttle just like it did when she was really on the ATV. A third example was Sample #22 (described above in the Unsymbolized Experience Section) where Sally was thinking in Unsymbolized Experience about being twins and Feeling a little sad. This sadness seemed to be located in her elbows and arms which felt heavy as if her shoulders were pushing down on them.

In addition to Feelings in specific locations in her body, Sally experienced Feelings throughout her
entire body. Sally experienced a lightness in her body that was associated with a happy/glad feeling as noted in Sample #12 where Sally imaged herself watching the T.V. show "Growing Pains." Furthermore, she also experienced two feelings (a physical feeling and an emotional feeling) at the same time in Sample #5: one, a physical feeling in her entire body, the feeling of doing a back flip with her weight shifting on the trampoline; the other, an emotional feeling, was a feeling of pride that felt light throughout her entire body. They were the same feelings she experienced when she was really doing a flip. In another example Sally also experienced a physical and an emotional feeling in association with an image; and she could not separate the physical feeling from either the image or the emotional feeling except to note that the physical feeling belonged more to the image than the emotional feeling. She felt a lightness as if she were floating in space in Sample #17, and this lightness was associated with the weightlessness of being in space as well as a feeling of happiness. At other times Sally experienced a mad feeling, as in Sample #11, where she got her new glasses and imagined the boys making fun of her. This mad feeling seemed as if her body were very slowly getting a little bit bigger from being blown up like a balloon. Another mad feeling occurred in Sample
#21 where Sally was looking at her messy earrings which her sister had stuck in the pumpkin. This mad Feeling seemed like a heavy Feeling in her entire body that was focused in her fingers while she was popping her knuckles. This Feeling seemed to be located in her entire body as well as focused in a specific part of her body, her fingers.

Sally experienced several different kinds of feelings, as noted in the samples above. She reported three times as many "happy" Feelings (8) as any other kind [i.e., "bored" (3), "excited" (3), "mad" (2), "proud" (1), etc.].

Sally also noted specific Feelings that seemed to be focused in her hand movements. In Sample #21 she was mad because her earrings were stuck in the pumpkin; and even though she felt mad in her entire body, the mad Feeling was focused in her fingers while she was popping her knuckles. Also in Sample #13 Sally felt indecision about which friend to call, and this Feeling of indecision seemed to be located in her wiggling fingers.

At times in Sally's experience there were moments when it was difficult to define the processes that were going on. At the time of Sample #23 Sally was Feeling excitement and thinking about boys, especially one boy that she likes a lot. Her brother, John, was teasing
her about this boy; and at the moment of the beep
"everything was going on really fast" in her head, like
a film on fast forward. There were thoughts, Images,
and words that were going at super speed; they were
going too fast to even see them or tell exactly what
they were. She could not tell exactly which way they
were traveling in her head (i.e., around in a circle or
zig-zagging), but she knew they were "going around."
She felt an excitement associated with thinking about
the boy that she described as "weird," and it seemed to
be located in her arms and legs. But she could not
describe the Feeling further except to say that it was
"weird." It was like an explosion in her head, with
everything going on at once. At the same time she had
another Feeling; she was mad at John for teasing her,
but she could not say exactly where the mad Feeling was
located or describe it further.

Summary

In summary, over a third of Sally’s experiences
contained clear Images (13 samples out of 34). She had
snapshot Images, Images viewed from an external
perspective and from a being-there perspective, and
Images that were still and that contained movement.

Sally’s Unsymbolized Experience while reading may
be associated with her school problems (a weakness in
verbalization), but this is only a supposition since we
have only one sample of it. We would need many more samples to know for sure.

Sally had a variety of Feelings associated with her experience. Over half of her moments contained Feelings (21 samples out of 34), and half of these Feeling-experiences were perceived throughout her entire body and half of them seemed to be located in a specific part of her body. Furthermore, she had almost three times as many happy Feelings as any other kind (i.e., bored, excited, mad, proud, etc.). Most of the time she was able to describe her feelings, telling where they were located in her body and what they seemed like. Sally experienced two feelings, physical and emotional, at the same time which seemed to go together. She also noted specific feelings located in her hand movements.
Chapter 9

Jacob: A 12-year-old Learning Disabled Student

Jacob (not his real name) is a male who was age 12 at the time of the sampling. He was diagnosed as Learning Disabled by his school district and was in special math, English, and reading classes. He was, however, mainstreamed into the other regular seventh grade classes (history, band, and P.E.). According to his mother, he had a history of difficulty keeping his temper under control; he was placed in detention at school for kicking in a locker because someone "made him angry." The boys at school liked to tease him because they could make him cry and lose his temper easily.

He sampled from September 1 to October 25, 1988. After he sampled and was interviewed twice, he indicated that he wanted to quit. We said that he could terminate the experiment any time he wished, but then he decided he would keep sampling if we could do it only once a week. We continued the project, but he had difficulty sticking to the task. There were times he came to the interview sessions with only one or two
beeps, and other times when he had no beeps at all.
The sampling was terminated at 37 beeps because he
seemed to be becoming more unwilling to participate.
Of the 37 samples, 5 were not discussed either because
of time or because Jacob could not remember the moment;
thus, this report is based on 32 samples.

Jacob experienced Images, Unsymbolized Experience,
Inner Speech, Inner Hearing, Just Doing, and Feelings.
Jacob's Images all contained frozen motion with varying
degrees of color. He had frequent moments of Feelings
and Unsymbolized experience, with many moments where
these two processes occurred together. His samples of
Inner Speech, Inner Hearing, and Just Doing were very
infrequent.

Images

Jacob had several experiences (8 samples out of
32) containing Images. In Sample #4 Jacob was watching
the movie, Iron Eagle, on the video recorder with his
dad. At the moment of the beep he was watching, in the
movie, an F-16 blowing up $20 million worth of oil; at
the same time he was seeing an Image of a bomb going
off in his back own yard. He physically jumped a
little bit at the perception of both the explosion on
the T.V. and the one he was imagining in his back yard.
His attention was equally divided between the movie and
his imagination, like half of him was watching the
movie and half of him was imagining the explosion in his back yard. The image in his head had no edges, as if he were actually looking into his backyard. There was just a hint of color in the picture, as if his eyes had lost almost all ability to see color. In his image the bomb was going off down in a crater (which was really a hole that he had dug earlier in the back yard) and he could see in the image a small ridge of dirt (which also really existed) around the edge of the crater like a dike. The bomb was going off in the middle of the crater; he knew the explosion was taking place, but he could not see it. Pieces of metal and dust were flying into the air, but there were not enough particles to make the picture hazy or unclear. These pieces of metal and dust were frozen in the air; that is, there was no perceived motion in this image, even though the scene itself was of violent motion. Furthermore, the image itself had a hole in it where the crater had been made by the bomb. It was as if the image were itself an existing thing that had a hole torn out of it. The edge of the circular hole appeared partially cut and partially torn so that the hole had partly smooth and partly rough edges. He said it looked as if someone had started to cut the circle out and had gotten only about one-fourth of the way around before they tore the last three-fourths of the circle.
out. He could see the diked-up edges of the crater with the pieces of metal and dirt flying out of the crater, but the image was frozen in place, like a snapshot with a hole in the center.

Jacob also experienced a seeing experience that was totally black. At the time of Sample #5 he had been lying on the sofa daydreaming. His mind seemed like a T.V.; he could turn it off and on. At the moment of the beep Jacob had just sat up, but his mind was still turned off. Jacob was seeing totally black, pitch black with no light at all. This was not merely an absence of seeing but was an active seeing of blackness. At the same time he had a happy, glad Feeling because his dad was coming home, and also a sad Feeling because his dad had not been home to play with him for a long time. The two Feelings in this sample will be described further in the Feeling Section.

Some of Jacob's Imaged experiences contained several inner processes. At Sample #35, Jacob was writing an adventure story; he had just finished a long math homework page and was writing to relieve his tension. In his story two boys had found a treasure map among their grandmother's possessions. They had noted the landmarks on the map, and then had gotten on their bikes to follow them. Jacob was thinking about what he would write next. The boys had to follow the
map to the fifth landmark, and at the moment of the beep Jacob was writing the thoughts of Tim, the second boy: "Which way to go?" At the same time Jacob had an Image of the boys looking at the landmark (a statue) and the map. Jacob viewed the Image as if he were standing behind the boys. He could see the boys' backs, with Tim on the right in a green shirt and the other boy on the left in a white shirt with the statue in the distance between them. They were holding the map in front of them so that Jacob could only see a sliver of the map between the boys because their backs blocked his view. The boys were looking at the map and the statue, and their bicycles were not in the Image. The Image was a still picture of the boys in frozen motion: one of the boys had one foot up and forward as if he were walking. The Image was in color, and there were no borders on the Image. It was as if Jacob were really there viewing the scene. Jacob knew that Tim was thinking about how long it was taking to find the treasure and was also wondering which way to go. These thoughts were not in words; they were Unsymbolized Experience with no sensory elements at all. Both the Image and the thoughts seemed to be in the front of his head, in the same place but distinct from each other. He knew that Tim had a stressful feeling, but Jacob did not feel the stress himself. He just knew that Tim
felt it. Jacob himself was relaxed. Thus, this experience was multi-sensory: writing the thoughts of Tim; Imaging the boys; Tim's thought about how long it was taking; Tim's thought about which way to go; Tim's stressful feeling; and Jacob's Feeling relaxed.

A note in passing. Jacob reported that after the beep, while he was writing about this experience in his sampling notebook, the Image began to fade. First it lost its color and became black and white. Then it began to blur, and then it was gone.

In another moment containing several inner processes, Sample #27, Jacob was playing his trumpet, playing at the moment a G. At the moment of the beep he was wondering if he was playing the right note. He was feeling and hearing to see if the note was right. The Feeling did not have any specific location, but the hearing seemed to be located near his ears. The Feeling and hearing both were trying to tell if the note was right. Along with the Feeling and hearing was an Image of the band Jacob belonged to, but the eighth trumpet seat, which was Jacob's seat, was vacant. The Image of the band was at the Spring Concert and everything was as it should be except Jacob was not in his seat. He was seeing the band from the center front near the conductor who was on the podium. The Image was in color with all the same kids that were in the
band. They had on their red jackets and were just getting ready to play with their instruments in their laps. The motion in the picture was frozen, and there were no edges to the Image. Associated with this Image but separated from it was the thought that maybe he would not be at the concert because he could not play well enough. The other kids could play G, and he could not. There were no words associated with this thought; it was an Unsymbolized Experience. Jacob felt an "average" Feeling at the moment of this beep, which seemed like a little weight on his shoulders. Thus, Jacob was experiencing several processes at once: physically playing G on his trumpet; Feeling and hearing to see if the note was right; Imaging his band at the Spring Concert; thinking that he might not be good enough to play in the concert in an Unsymbolized Experience; and Feeling average with a little weight on his shoulders.

Jacob also experienced two samples where Images were each accompanied by Inner Hearing and Unsymbolized Experience. These Images flashed almost together - as quick as the shutter of a camera taking two pictures, one right after another. At the time of Sample #12, Jacob was babysitting an 18-month-old little girl, Maggie. She was in the bedroom sleeping on her parents bed; and at the moment of the beep, two thoughts
flashed in his mind concerning Maggie as he walked down the hall to the bedroom to check on her. Each thought was accompanied by an Image, and the thoughts seemed to come almost at once, just a "millisecond" apart. In the first thought Jacob was wondering if Maggie was still in bed. He just knew that was what he was thinking; there were no words in his mind, nor was he talking to himself. This Unsymbolized Experience was accompanied by an Image of Maggie sleeping quietly on her stomach with her eyes closed and her head turned towards Jacob. The Image was in color with the room arranged just as it really was. In the Image Jacob viewed the bed where Maggie was lying from the left. The double bed was in the far corner of the room to the right with the head of the bed against the wall and the right side of the bed also against the wall. Maggie was lying in the middle of the bed with her head up against the pillows, and he could hear her snoring. This Inner Hearing accompanied the Image, and he heard the snoring just as if he had really been there in person.

The second Unsymbolized Experience and Image followed the first Unsymbolized Experience and Image by what seemed to be only a millisecond. In the second Unsymbolized Experience Jacob was wondering if Maggie was choking to death. This thought was just like the
first one: no words; he just knew what the thought was. In the Image that accompanied the second thought, Maggie was on the bed on her stomach, but she had her mouth open and was coughing and couldn’t breathe. The Image was frozen just as the first one was, and Jacob could hear her coughing as well as see her in the Image. The Image and Inner Hearing were perceived just the same as the first Image and Inner Hearing. Jacob noticed no Feelings associated with these Unsymbolized Experiences.

It can be seen from Jacob’s experience that the Images sampled contained no motion; they were each experienced like a frozen moment. The explosion had no movement in it; the treasure hunt had the boy’s foot frozen in motion; the band had no movement; and the Images of Maggie were still also. Jacob experienced Images when he seemed to be there in person like the treasure hunt, the band, and Maggie; and at other times his Images were like a snapshot with borders as in the example of the explosion. His Images could be experienced along with other processes, as with the treasure hunt, band, and Maggie; and at other times the only inner experience was the Imagery, as in the explosion.

There seems to be a continuum along which Jacob saw color in his Images. At one end of the continuum
was a full-color Image as noted in the image of the treasure hunt. At the other end of the continuum was total blackness, as noted in Sample #5 where Jacob had been daydreaming and had Feelings about his dad coming home. Somewhere in the middle of the continuum was the example of the explosion, where Jacob noted that it was as if his eyes had lost the ability to see color. We might also note that he reported that at least one of his Images faded from view, first by losing its color and then its clarity, as noted in the treasure hunt example. This observation was not, strictly speaking, a report about a particular beep, since it occurred a few seconds after the beep while Jacob was writing his report of the beep. Nonetheless, it does seem to be an accurate report of an aspect of Jacob's Image process.

Unsymbolized Experience

At times Jacob had experiences that were clearly thoughts that occurred without images, words or other sensory symbols; he just the thought without words or images. We call this type of process Unsymbolized Experience, and over half of his sampled experiences contained it (20 samples out of 32). This Unsymbolized Experience was difficult for him to describe, so at times he called it "weird" and "confusing." In Sample #17 he was watching the Disney Sunday Movie Not Quite Human, and at the moment of the beep a robot, at a
dance was doing the twist. Jacob was thinking about the smooth movement of the robot who seemed to be almost human because he danced so evenly; he did not move in a jerky way like most robots do. And, Jacob wondered, since the robot seemed almost human, maybe it had human bones instead of metal ones like most robots do. He wondered what the bones of the robot were like and how they were different from human bones. There was nothing in Jacob's experience but the comprehension of this thought, which he described as "weird" and "confusing." He knew what he was thinking, including knowing the details of the comparison between human and metal bones, even though there was no Image associated with it, nor was Jacob talking to himself or hearing words in his head. He just understood the meaning of it with no symbolization present.

At the moment of Sample #19 Jacob was thinking about his history class and his teacher Mr. Smith. His class had just had a lesson on trench warfare and, as an example, had seen the movie All Quiet on the Western Front. At the moment of the beep Jacob was thinking about flooding trenches he had seen in the movie which were filled with water mixed with blood. He did not see any Image of the trenches or the blood; he just knew he was thinking about it, without Images or words. Also the smells of dead men were everywhere, but Jacob
just knew the smells of the bodies were there; he did not experience the smells in a sensory way. This thought did not seem to have any sensory components. It was an Unsymbolized Experience that seemed to be located in the front of his head just inside his forehead.

At the time of Sample #29 Jacob was in his living room pounding the end of a lead tire weight with a hammer. At the moment of the beep he was thinking how soft the metal was; how it was soft like cotton. This thinking about the softness was clearly a comparison of the characteristics of the lead and cotton, although there were no words or Images present. He was noticing more than just the characteristic of softness; he was comparing lead with cotton. The thought had no sensory process associated with it; it was without words or Images as an Unsymbolized Experience.

Another example of Unsymbolized Experience occurred in Sample #30 when Jacob was watching an old "Cosby Show" on T.V., one that he had seen about three years ago. At the moment of the beep, Rudy (on the T.V. show) was asking her dad where her mom was, and Jacob was thinking how funny the show was and how many years it had been on T.V. Jacob was not simply being amused by the show, but instead was thinking about how funny it was. This thinking about the show had no
Images or words; it was just thought with no sensory elements associated with it. It had no specific location, but seemed to be scattered everywhere in his head, in the front and back and sides and middle.

**Inner Speech**

Jacob recorded only one experience of Inner Speech, at the time of Sample #9 when he was doing his homework. He was trying to put the word 'pupils' in a sentence by writing, 'How many pupils are in the class.' At the moment of the beep he was writing 'class' and sounding each letter as he wrote it. He felt that it was his voice that was saying the letters, but the voice seemed to be a bit lower in pitch than his outside voice. It was almost as if his voice had become a little deeper like his dad's voice. He was also feeling 'just regular' with no frustration, sadness or even cheerfulness.

**Inner Hearing**

Jacob recorded two samples of Inner Hearing. One was in Sample #12 with Maggie snoring and coughing along with the two Images. The other was at the time of Sample #32 where Jacob and his mother were just leaving the driveway to go on their daily walk. At the moment of the beep Jacob was wondering how much weight he had lost. It was like a good friend asking him the question, "How much weight have you lost?" He heard
these exact words, but could not tell whether it was a boy or a girl speaking. It was not his voice or anyone he knew, but it had the same natural inflection and natural speed as if someone were really talking to him and he were really hearing it. The voice was all over inside his head, and could not be pinned down to any specific place.

Just Doing

Jacob had one moment of Just Doing. At the time of Sample #20 he was watching "Growing Pains". The coach was getting fired so Mike and his sister held a 'sit-in.' Jacob was just absorbed in the show; it was a Just Doing moment.

Feelings

Jacob's samples frequently contained Feelings (19 samples out of 32). Sometimes the Feelings were experienced as the only aspect of inner experience, and we will describe some of those samples here. At other times, the Feelings occurred along with other inner experiences; we will describe them later. Sample #2 was an example where Jacob's inner experience contained only feelings. He was doing his homework while his family played Trivial Pursuit in the next room, and he was mad because he could not play. The T.V. was on in his room, but he was not at the moment paying attention to it. At the moment of the beep he was simply angry.
It felt like heat down deep in his body, not on the surface. He could feel the heat in his head, heart, and legs, but not in his stomach or arms.

Another example of Jacob's experiencing a Feeling as the main focus of his attention was Sample #3. This sample was a few minutes after Sample #2 which was just described. Jacob's angry Feelings had intensified; there was a hotter heat in his body and heat in more places than before. It had spread all over in his chest and into his arms and toes. The Feeling was still in his head, but now it was like his mind was "all over the place," a phenomenon that Jacob could not describe further. The focus of his experience was on the anger, although Jacob was also watching "Cheers" on T.V. and doing his homework. He was paying more attention to the T.V. than his homework, but the focus of his experience was the anger.

Another example of a Feeling as the main focus of his attention was Sample #16. Jacob was watching a National Geographic show about polar bears on T.V., but at the moment of the beep he was not thinking about the T.V. show; he was angry. He felt disturbed and confused and hot all over his body, but the main focus of the heat was in his chest. His chest also felt hard, and he felt like hitting somebody. His mind again, felt like it was "all over the place," as if he
had "2 million things to do and only an hour to do them in," but he could not describe the characteristics of this phenomenon further. The Feeling was the main focus of his attention, and the T.V. show was just there, not being apprehended.

Jacob also experienced two different Feelings at the same time. At the time of Sample #5 Jacob had been lying on the sofa, daydreaming. His mind seemed like a T.V.; he could turn it off and on. At the moment of the beep Jacob had just sat up, but his mind was still turned off. Jacob was seeing totally black, pitch black with no light at all. Also at the moment of the beep he had a happy, glad feeling because his dad was coming home. (His dad had been away for two months working on a construction job.) The happy Feeling was a warm Feeling in his heart. It felt a little sharp in a good way; it was like a jabbing warm Feeling. The jabbing did not really go through the skin, but it felt like it was absorbed through the skin. Jacob also experienced a sad Feeling at the same time. (His dad had not been there to help him build his forts and things.) It was confusing to have two Feelings at the same time. The sad Feeling was like being stuck with a dull knife in his heart. It was like a dull knife that went all the way through the left side of his back and into his heart.
Thus it can be seen that there were times when Jacob's inner experience was dominated by feeling, as when he was angry because he wanted to play Trivial Pursuit with his family, and two distinctly different feelings could occur simultaneously as when he felt happy because his father was coming home and sad because his father had not been there to do things with him.

**Feelings and Unsymbolized Experience**

There were times when Jacob experienced feelings along with unsymbolized experience as exemplified by Sample #14. Jacob was again babysitting the 18-month-old girl named Maggie. She was asleep in the bedroom, and Jacob was sitting in a chair in the living room working on his autobiography that was due the next day in English. However, at the moment of Sample #14 he was thinking about Maggie and hoping that she would wake up soon so they could play. He knew that he was hoping she would wake up; this thought was unsymbolized and had no words or images associated with it. Along with the unsymbolized experience was an excited feeling that was "like Christmas eve when you can't go to sleep," an expectation that Maggie would be awake soon. The feeling seemed to be located right in his heart, nowhere else in his body, and it seemed to make his heart beat a little faster.
Another example of Feelings associated with Unsymbolized Experience occurred when Jacob was doing his homework. At the time of Sample #33 he was working on a page of division and multiplication math problems, and at the moment of the beep he was thinking about the problem he was doing, $39 \times 576$. There were no words, Images, or other sensory symbols associated with the thought. He was just thinking about the problem. At the same time he was Feeling bored. It felt like nothing was happening, like his whole body was asleep. It also felt rather loose in his legs, like it did after he had run a long way. He felt like he was not alive – like no one was paying any attention to him. The thought about his homework problems and the bored Feeling were both present at the same time.

Another example of an Unsymbolized Experience along with a Feeling was Sample #21, when Jacob was watching a movie on T.V. about a boy and his dog. The boy on T.V. was running away with his dog so the people would not take the dog away from him. At the moment of the beep Jacob was watching the boy start to walk down a dirt path through the woods with his dog by his side. Jacob was wondering how the boy must feel to have to give up his dog; he knew the boy must be sad. This he-must-feel-sad thought was Unsymbolized with no Image or words, and seemed to be located in the front of his
head just inside his forehead. Along with this knowing how sad the boy felt, Jacob also felt sad himself. He could feel a lump in his throat, but there was no Feeling anywhere else in his body that he could identify.

At times Jacob experienced more than one Unsymbolized Experience, along with a Feeling. Just before Sample #22 Jacob was playing with his little brother, Andy, and Andy's friend, Rob. At the moment of the beep Jacob was clamping a toy boat onto a trailer, his hands were working automatically to hook the boat onto the trailer. At the same time he was thinking about what he could do if the little boys would not let him play anymore. He did not think about specific other games or things he could play; he just wondered what he could do if they would not let him play. This thought was not accompanied by any sensory components; it was an Unsymbolized Experience. At the same moment Jacob was also thinking how mad he could get if the boys would not let him play. He did not see himself getting angry, but he knew he would be, and this knowing was also an Unsymbolized Experience with no Images or words present in his experience. Both of the thoughts about what he could do and how mad he would get were located in the front of his head just inside his forehead, and both received equal focus of
his attention. The thought on the left side of his head was what would he do if they did not let him play, and the thought on the right side of his head was how mad he would get. The two thoughts were going on in his head at once, and he could understand them equally well. One did not crowd the other one out. Also at the same time Jacob had a happy Feeling (because the boys had not kicked him out yet). He was not thinking that the boys had not kicked him out at the moment of the beep; he was just feeling happy. The happy Feeling felt kind of light, but was not located any specific place in his body.

Thus, it can be seen from Jacob's samples that he experienced Unsymbolized Experience alone, and that he also experienced Feelings with Unsymbolized experience. The Feelings in these experiences were sometimes in specific parts of his body, as when he felt excitement (for Maggie to wake up) in his heart and sadness (for the boy and his dog) in his throat. At other times Jacob's Feeling were in his entire body, for instance he felt bored as if his entire body were asleep (doing math) and happy as a lightness in his body (because his little brother was letting him play). Sometimes the Unsymbolized Experiences were located just behind his forehead, as when he was thinking about the trench warfare and the boy and his dog. He was also able to
experience two Unsymbolized Experiences just behind his forehead, for example, the wondering what he would do if his little brother would not let him play anymore, and how mad he could get if he could not play anymore. At other times the Unsymbolized Experience was scattered everywhere in his head when he was thinking about the Cosby show.

Summary

Jacob's moments contained some Images, all of which contained frozen motion with partial color sometimes, and full color at other times. He also noted the fading of an Image as he was writing in his notebook about the boy's treasure hunt. The image lost its color, became fuzzy, and then faded from view.

He also had frequent Unsymbolized Experiences that he defined as "weird" or "confusing" at first. These were just thoughts that had no images or words associated with them. At times he experienced more than one Unsymbolized Experience in one moment.

Jacob had a great number of Feelings in his samples. Many of them were "average" Feelings, but he always seemed sure of himself as to whether there were Feelings present in his experience or not. Many of his Feelings were associated with Unsymbolized Experience.
Chapter 10

Anita: A 12-year-old Slow Learner

Anita (not her real name) was a 12 1/2 year-old-girl at the time of the sampling. She lived with her mother and 15-year-old sister in a small four-room house in rural Nevada. Anita was selected for the research project because she was "slow:" She was in seventh grade and attended special education classes where she read at about a second grade level; her math performance was also at the second grade level. We selected her because we wanted to sample a fairly wide variety of young people. Anita sampled between November 5 to December 10, 1988. She was excited about participating in the sampling research and her mother felt it would be a good thing for her because Anita needed the special attention. Both Anita's mother and sister worked, so Anita was frequently home alone.

There were four characteristics that differentiated sampling with Anita. First, she did not like having a second interviewer present. Denise, an undergraduate the class, Describing Inner Experience,
began the sampling process with the author. She was late for the first two interviews, so the author had time to discuss some samples with Anita alone. When the author sampled with Anita alone, she was open and friendly; and she laughed and talked freely during the interview because we were good friends. When Denise and the author were together with Anita, Anita was very quiet, ducking her head often as we talked and looking as if she were about to cry at times. During the second interview when both Denise and I were there, Anita anxiously jabbed the carpet with a pencil continuously, loosening several of the woven loops. Neither the ducking-the-head or carpet-jabbing was present when I was alone with her. During the third interview when Denise was there Anita sat with one of her legs up against her body and her chin resting on her knee. She had a small rip in the outer canvas layer of each the toes of both tennis shoes. As she sat listening to Denise ask her questions, Anita took hold of the top layer of the canvas and ripped it with her finger clear up to the laces. She then put her other knee up and ripped the other shoe the same way. It seemed that she was feeling some anxiety at having Denise there. Therefore, Denise did not participate in further interviews.
Second, Anita was easily led at times during the sampling interviews, and it took several sampling days before Anita was confident enough not to answer just to please me or answer as she thought I wished her to answer. For example, at the moment of Sample #10 Anita was eating dinner; we present here a reconstruction of the sampling conversation to provide the flavor how easily Anita was led at the beginning of sampling. This reconstruction is from memory, not from a transcript, so it may contain some inaccuracies. The evidence for leading does not come until the second half of this conversation.

C. M.: What was going on at the moment of the beep?

Anita: I was eating dinner, and I said, 'There's another beep. I'd better get that beep.'

C. M.: Right when the beeper sounded what were you eating?

Anita: I was eating dinner.

Denise: What did you have for dinner?

Anita: I had food. [She laughed, apparently at the silly question.]

[We could not get her to tell us what she had eaten even though we tried repeatedly.]

C. M.: What was going on in your head at the time of the beep?
Anita: I was just eating.

C. M.: Were you thinking anything?

[She hung her head and looked as if she were going to cry.]

C. M.: Were you just eating and not thinking anything?

Anita: [Nodded her head affirmatively.]

Denise: You wrote in your book that you were thinking the food was good?

Anita: That was a mistake.

C. M.: You wrote that you were feeling good. What was that feeling like?

Anita: Good.

Denise: Tell us about the good feeling.

Anita: It was good. I was feeling the food was good.

Denise: Tell us about the food feeling good.

Anita: It was good.

Denise: What was it like?

Anita: Good.

C. M.: Could you feel the good feeling anywhere in your body?

Anita: I just felt good.

[In retrospect, after becoming familiar with Anita’s inner experience and her manner of reporting it, we believe that]
this is probably all there was for Anita to say about her experience at the beep. However, we continued to probe, and she was easily led to describe things she probably did not experience.

Denise: Sometimes I feel things in different places in my body. Sometimes a feeling is all over my entire body, and sometimes it is just in one place like my heart or my arms or my legs.

Anita: [Interrupting] The feeling was in my heart.

C. M.: So you were feeling that the food was good in your heart?

Anita: Yes.

Denise: What was the feeling in your heart like?

Anita: Good.

Denise: Sometimes my feelings seem tingly or fuzzy. How did you feel?

Anita: It felt tingly and fuzzy in my heart.

C. M.: So you were feeling that the food was good in your heart, and that this feeling seemed to be tingly and fuzzy in your heart?

Anita: Yes.

Our reconstruction is that Anita had been led into describing this tingly feeling in her heart. We
suggested it was in her heart, and she said that it was; we said maybe it was tingly or fuzzy and she said it was. We had to learn not to probe too hard to get more from her than she really experienced.

As I worked to become more skilled at interviewing, to be sure that I was getting as accurate a description of Anita's experience that was possible, I still led her to say more that she knew at times. One characteristic of our interchange that evidently signaled that I had led Anita was when she hastily interrupted me and took the first suggestion I gave her. For example, in Sample #26 Anita was hanging up her shirts after doing the laundry. I reconstructed the conversation as follows:

C. M. What were you doing right at the moment of the beep?
Anita: I was saying to myself I'd better get that beep and go write it down.
C. M.: That was just after the beep. What was going on with you just before the beep?
Anita: I was hanging up my shirts.
C. M.: Do you know which shirt you were hanging up?
Anita: All my shirts.
C. M.: But just when you heard the beep sound, which one were you hanging up.
Anita: All of them.
C. M.: Were they already on hangers, and you were putting all of them in the closet at once?
Anita: No, I was just putting them on hangers.
C. M.: So which one were you putting on a hanger when the beep sounded?
Anita: [She ducked her head.]
C. M.: Was the shirt pink or blue or red or white?
Anita: [She interrupted after I said pink and apparently did not listen to the rest of the sentence.] Pink, it was my pink shirt.

Here again it seems that I had pressed her for more details than she could accurately report, and she responded with the first one of my leading suggestions.

The third characteristic of sampling with Anita was that she answered my questions in general terms. This characteristic seemed to occur spontaneously at the beginning of a sampling description, as previously noted in Sample #10. They also occurred when Anita had told us all she knew about a sample and we were gently pressing for a little more information about her moment, instructing her somewhat in looking as carefully as possible at all the processes present in her experience. If we asked for something she could not describe or give detail about, she would usually respond with one of two words: "good" or "nothing."
For example in Sample #12 Anita was playing school by herself in her bedroom. The reconstructed conversation was:

C. M.: What was playing school like?  
Anita: Good.  
C. M.: How did your thinking go?  
Anita: Good.  
Denise: When you were playing school were you the teacher?  
Anita: Yes.  
Denise: What were you teaching?  
Anita: [She ducked her head and looked as if she were going to cry.]  
C. M.: Were you teaching something?  
Anita: [Nodded her head affirmatively.]  
C. M.: Do you know what you were teaching?  
Anita: [She ducked her head again.]  
C. M.: Were you teaching math, reading, spelling, art?  
Anita: [She interrupted the examiner as soon as she said ‘math’ apparently without listening to the rest of the sentence.]  
Math, it was math. [Anita had hastily interrupted me, so I knew I was asking more than she could tell me. I went on to something else knowing
that this beep was a learning experience for Anita and me with not a lot of validity.

C. M.: How were you feeling?
Anita: Good.
C. M.: Tell us about feeling good.
Anita: Nothing.

Denise: Did you feel the good feeling anywhere in your body?
Anita: I was just feeling good.
C. M.: Can you tell us more about it?
Anita: [She ducked her head.]

Denise: Was it all over your body or just in a certain place?
Anita: [Hastily.] It was all over my body.

[I realized again that I had asked more than she could tell and had led her to say something she did not know.]

C. M.: Can you tell us any more about it?
Anita: No.

The fourth characteristic that distinguished Anita's sampling was that when we used the sampling procedure we had used with other young people, it seemed that Anita had difficulty recalling her experience that was present at the moment of the beep. In all of the first 28 Samples she wrote that she was
Feeling "good." In 15 of the first 28 samples she wrote that she was thinking "nothing." She was unable to recall the detail of many of her beeped experiences even if she had written them in the morning and I visited with her in that afternoon. I decided to alter the sampling procedure to remove the several-hour delay between the beep and the sampling conversation. Instead of having Anita write in the notebook about the experience at the moment of the beep, I would sit in my car outside Anita's house while she wore the sampling apparatus and went about her regular activities inside. When the beep went off, Anita would come out and tell me about her experience immediately, without writing about it and without the confounding factor of the long delay. She and I then sat in the front seat of the car to talk about each beep. This procedure clearly seemed to make it easier for Anita to learn to report the detail of each beeped experience.

Beep #29 was the first sample done in the car with immediate recall, and the reconstructed conversation will provide an example of how she improved in her ability to report.

C. M.: What were you doing at the sound of the beep?

Anita: I was watching "Double Dare" and eating hot sauce and those, you know, crunchy things
and drinking pop.

C. M.: Chips?

Anita: Yeah, those kind of chips with the sauce.

C. M.: Tortilla chips?

Anita: Yeah, that's it.

[Sometimes she had difficulty recalling words, but if I supplied them her recognition was apparently good.]

C. M.: And what's going on with you at the moment of the beep?

Anita: I'm saying 'That's good food.'

C. M.: Are you saying it to yourself or out loud?

Anita: To myself.

C. M.: You're talking to yourself.

Anita: Yeah.

C. M.: And does it seem like your voice?

Anita: Yeah.

C. M.: Does the voice in your head go up and down just like when you talk in real life, or does it sound like a robot? [We had talked previously about her voice going up and down when you talk in real life, or how it could sound like a robot in a monotone.]

Anita: It is just like real.

C. M.: Can you hear the voice inside your head?

Anita: No.
C. M.: You know its your voice in your head saying
the words, but you can’t hear it?
Anita: I can’t hear it, but it’s just like in real
life.
C. M.: You have the food in your mouth. How is
that?
Anita: Good.
C. M.: There is hot sauce. How is that?
Anita: Hot.
C. M.: Can you feel it?
Anita: I can feel it in my mouth.
C. M.: Is the feeling just in your mouth.
Anita: Yes.
C. M.: Anywhere else?
Anita: No.
C. M.: What are you thinking at the moment of the
beep?
Anita: Nothing.
C. M.: You said you were watching T.V.
Anita: Double Dare.
C. M.: What were they doing on T.V. at the moment
of the beep?
Anita: I don’t know.
C. M.: What is the show like?
Anita: There are two teams of kids. Each team has
two kids. A red team and a blue team.
They answer questions and then go through all this stuff.

C. M.: What is the stuff.

Anita: It's like climbing over things, and going through things.

C. M.: Like an obstacle course?

Anita: Yeah.

C. M.: Then what were they doing when the beep went off?

Anita: The man was asking them questions.

C. M.: Do you remember what the question was when the beep went off?

Anita: No.

When I sampled with Anita immediately following the beep she became able to tell about what she was doing much better than before with the time lag. She was not led as easily as she had been before. One cannot say whether she had just gained confidence as she learned about her inner experience, or whether the immediate recall of the beep helped her remember better what had just happened in her inner experience. She did not generalize by saying she felt 'good,' or that she was doing 'nothing' as much she had done previously. She was able to recall many more details of her inner experience than she had done before, but she was still unable to tell exactly what was happening
in her inner experience at the moment of the beep. Often she could not provide any details of her inner experience at the moment of the beep; but after several beeps with the examiner immediately present, she became able to give fairly specific detail about what was going on in the environment around her.

By the time of Sample #33 she had become much better at detailing her moments of external experience. At the moment of this beep Anita was watching "Punky Brewster" on T.V.

C. M.: What was going on with you at the moment of the beep?
Anita: I was watching Punky Brewster, and said to myself, 'I'd better run out there and tell her what was on the T.V. when the beep went off.'

C. M.: That was what happened when the beep went off. What was happening just before the beep went off?
Anita: A cop caught them.
C. M.: Caught who? Tell me about it?
Anita: Punky and Sherry and Allen and Margo and the dog were at the Meadows Mall. They went to see Punky's step dad, or foster dad, I don't know which. He gave them a check to buy a skate board, and they were
skating in the mall, and they got caught by a cop.

(As I questioned Anita further she told me that her cat was sitting on her lap at the moment of the beep. She could feel the warmth of the cat's body on her lap, but could not describe it further than to say it felt warm in the area of her upper legs. She was stroking the cat's back at the moment of the beep, and she felt the softness of it's fur. However, she was not thinking about the warmth or softness of the cat; she was just watching T.V. and was aware of the other sensations.

Anita became good at running out to tell me what was on the T.V. at the moment of the beep. It seemed that relating what was on the television was all that there was to her concept of experience. As noted in Sample #33, as soon as the beep went off she knew that she had to come running out to the car to tell me what was happening on the T.V. It was as if telling what happened on the T.V. had become the task, and she could complete it well. It must also be noted, however, that I was able to draw more information about her inner experience than just what was happening on the T.V.)
For example she could tell me about the warmth and softness of her cat.

In summary, there were several characteristics of Anita's sampling that were unique to her, and not present with the other subjects samples in this project. First, Anita did not like the presence of another examiner so the author interviewed her alone. Second, she was easily led in the early interviews, which happened usually when we had asked for more details than she could provide. Third, at times Anita answered in general terms using the words 'good' or 'nothing.' At times we led her into a false amplification of those experiences, but at times it seems that 'good' or 'nothing' seemed a relatively accurate total recollection of her inner experience at the moment of the beep. As she was asked for immediate recall at the time of each sample the number of generalized responses decreased. The fourth characteristic unique to Anita was that she had difficulty recalling her experiences after a several hour delay between the sampling beep and its interview processes. When the procedure was changed and the experimenter sat outside in the car to wait for the signaled moments, Anita became able to give more detail about her moments and her inner experience.
We now turn to describe Anita's inner experience, based on Sample #29 through Sample #47, making a total of 18 samples used in our study. The validity of the samples collected before the immediate recall beginning with Sample #29 seemed questionable for the reasons previously cited. Anita was tired of sampling when we reached Sample #47, so the sampling was terminated.

Unsymbolized Experience

There were times in Anita's experience where she seemed to have thoughts that were clearly understood but that occurred without words, images, etc. (5 samples out of 18). The first report of such Unsymbolized Experience came at Sample #35. In retrospect, however, it seems likely that she had this kind of experience earlier but had not had the confidence to report that thinking was going on without words. By the time of Sample #35 Anita seemed quite sure of herself as to what was happening with her at the moment of the beep. At the moment of the beep Anita was putting the pillows from her mother's bed in her sister Lori's room. At the same time she was thinking about finishing a chain she was making for the Christmas tree. The following conversation was reconstructed in retrospect. It is interesting to note how she came to believe that she was thinking without words.

Anita: I was thinking that I hope my mom brings
home some staples so I can finish the chain for the tree.

C. M.: Were you saying it to yourself in words?
Anita: No.

C. M.: There were no words?
Anita: I was thinking it.

C. M.: Would it be just as good to say, 'I wish I had staples to finish my chain for the Christmas tree'?
Anita: Yeah, that's it.

C. M.: Or would it be just as good to say, 'I hope I get the staples for my chain'?
Anita: Yeah, that's it.

C. M.: So any of those ideas would be O.K.?
Anita: Yeah.

C. M.: So you were just thinking about the chain and hoping that your mom would bring the staples home so that you could finish it with no words?
Anita: Yeah.

By this time in the sampling process Anita seemed confident in what was happening with her at the moment of the beep, and she had come to know what it was like to think of an idea without specific words.

Another example of Unsymbolized Experience came at the moment of Sample #36 when Anita was cleaning her
room; she was picking up the mess on the floor. She had one pile that she was putting all the trash into and another pile where she was putting all her dirty clothes. At the moment of the beep she was picking up a piece of trash with her left hand and a dirty shirt with her right hand and putting them onto their separate piles on the floor. At the same time she was thinking about what her sister Lori would bring home for lunch. Anita wished that Lori would bring home McDonalds for lunch instead of Seven-Eleven food. (Anita hated Seven-Eleven hamburgers and she loved McDonalds. She especially liked the McDonalds french fries). She was thinking about lunch without words. There seemed to be no words or pictures associated with it; it was an Unsymbolized Experience that seemed to be located in her head.

Another example of an Unsymbolized Experience occurred at the time of Sample #42. Anita had been outside to put a sack of garbage by the curb and was walking back into the house. As she walked back to the house, she had been remembering how her sister, Lori, had taken away her grape candy Nerds a few days ago. She had eaten a few of the Nerds and then set them on top of the T.V. for later. When Lori came home from work, she grabbed for the candy; Anita had grabbed for them too, but was too late. Anita tried to take the
Nerds away from Lori, but Lori shoved Anita down on the couch, sat on her, and ate all the candy. At the moment of the beep Anita was just entering the house, opening the front door with her hand on the door knob and one foot into the entry way. As she entered the house she was thinking what a mean sister Lori was because Lori took away Anita’s Nerds. This was just a thought about Lori that was not represented with any words or pictures; she just knew she was thinking about how mean Lori was. There were no Feeling associated with this experience. Anita seemed confident that there was no image present.

**Inner Speech**

There were times in Anita’s samples when she experienced Inner Speech (4 samples out of 18). At the time of Sample #32 Anita was watching TV and eating an apple. At the moment of the beep she was saying to herself, "This apple is juicy." She was saying these exact words silently inside her head while she ate the apple. She could not tell where the words were located, but the words were in her own voice. Another example of Inner Speech was noted in Sample #29, as previously described. Anita was saying to herself, "That food’s good," as she ate a tortilla chip with hot sauce and watched Double Dare. Anita was confident that she was speaking the words inside her head just as
If she were speaking them out loud, but she did not hear the voice. She just knew it was her voice, and if she had heard her voice it would have sounded just like her talking-out-loud voice with the same inflection.

Another example of Inner Speech occurred at the time of Sample #34 when Anita was cleaning the house. At the moment of the beep Anita was taking the pillows off her mother's bed to make it, and taking a bite of a burrito for her breakfast. At the same time she was saying, "I want my mom to get home so we can go Christmas shopping." She was saying these words to herself with inflection just as if she were speaking out loud, and at the same time she was hearing the words being spoken in her head.

Anita's Inner Speech samples included simple sentences about the food she ate (e.g., "That food's good" in Sample #29, and "This apple is juicy" in Sample #32). However, at times her Inner Speech was more complicated (e.g., "I want my mom to get home so we can go Christmas shopping" in Sample #34).

Just Doing

Half of Anita’s samples (9 samples out of 18) involved Just Doing whatever task she was engaged in with no thought at all. At the time of Sample #45 Anita was putting a load of dark clothes in the washer; she was just pushing them in when the beep sounded.
She was not thinking anything at the moment of the beep. She was not, for example, noting the softness of the clothing, or noticing particularly what she was putting in the washer. It was a Just Doing moment.

Another Just Doing moment occurred at the time of Sample #38. Anita was making her bed and had just pulled up the sheet and the blanket. At the moment of the beep she was pulling up "the cover thing" (the bedspread). It was a Just Doing moment because Anita was not thinking of anything or experiencing anything else at the moment of the beep.

At the time of Sample #41 Anita was cleaning the dishes so that she could load them into the dishwasher. At the moment of the beep Anita was washing a plate with a yellow sponge but not really noticing anything particular nor thinking anything. There was cold water running on the side of the plate, but Anita was not paying particular attention to it. When we were discussing the beep, she knew that the sponge was wet and a little cold, but she was not noticing it at the moment of the beep. Anita was not thinking anything at the moment of the beep; she was Just Doing the dishes.

Feeling

Anita experienced only a couple of Feeling moments (2 samples out of 18). As noted in Sample #33, previously cited, 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 T.V., but she could not explain the 'hot' feeling further. The feeling moments were simple word descriptions with no elaboration as to their physical location. As noted earlier, she could be led to say more complicated things (such as the food feeling good in her heart) but they were probably not actually part of her experience.

Summary

Anita was a slow learner that presented several characteristics that differentiated her sampling procedure from the other adolescents. She did not like having a second interviewer present, she was easily led at first, she talked in general terms, and we had to eliminate the sampling recording notebook. Her inability to engage in the procedure may have been that because she is a slow learner she is unable to get in touch with her inner experience. On the other hand, her inability may have been due to a lack of inner experience altogether. This is a question that cannot be answered; one can only suppose as to the reason.

Anita's samples contained no visual imagery. Towards the end of Anita's sampling she became sure of herself in describing her inner experience. Even when
the author tried to get her to tell me if there were any Images before the beep (For example, when she was thinking about the fight she had with Lori in Sample #42), she was sure there were none. Therefore, the author is confident that Anita did not, at the time of this study, experience Images at the moments of sampling.

Unsymbolized Experience was also a part of Anita's moments, but Anita did not recognize it as such until the latter part of the sampling procedure. The author was confident that she did come to know exactly what Unsymbolized Experience was, and that she could tell me about it. It seemed to the author that much of Anita's everyday experience was involved in trying to please others.

Anita's Inner Speaking moments (4 out of 18) were short and simple containing only four or five words (e.g., "That food is good;" "This apple is juicy.") There was only one Inner Speaking experience that was not a simple sentence, and that was Sample #34 where Anita said, "I want my mom to get home so we can go Christmas Shopping."

Anita had many Just Doing experiences. Over 60% of her moments were Just Doing. During the sampling procedure, she did not complain about the number of
Jobs she had to do around the house. She seemed content with doing these jobs.
Chapter 11

Diana: A 14-year-old Above-average Student

Diana (not her real name), a 14-year-old girl at the time of the sampling, lived with her mother who was divorced from her father. She attended regular 9th grade classes in her Jr. High, and she sampled from November 29, 1988 - December 11, 1988. She was a good student with above-average grades. She was very enthusiastic about the sampling procedure and took the beeper to school and to her friends' houses; she was not afraid to wear it anywhere. She was a very verbal person who was in touch with what her inner experience was and able to explain it clearly to others. Diana was very vivacious and outgoing. She seemed to enjoy the interview sessions. However, she was always anxious to move the interview procedure along faster than it was going; several times during each beep she would say, "Ready to go on to the next beep?" Each time, we told her that we had a few more questions, and she seemed to answer all that we asked to the best of her ability.
Denise, one of the undergraduate students in the sampling class, had asked Diana to be a subject. Diana was a next-door neighbor of one of Denise's friends. Denise met with her to explain the procedures of the research, and Diana collected 20 samples the first day. Denise interviewed her, and provided a written description of Sample #10. When Diana said that she would be willing to complete an entire set of 40 beeps, Denise then involved the author in the rest of the interview sessions. Denise felt more confident in conducting the interviews with an experienced examiner present. Only Sample #10 was written up from the first interview day. Diana collected 39 samples in all, and this report is based on 16 samples: #21 through #39 (three of which were not discussed) plus Sample #10. She sampled four days.

Diana experienced Images, Imageless Seeing, Unsymbolized Experience, Inner Speech, Inner Hearing, Just Doing, and Feelings. She was very sure of herself in explaining what was happening in her inner experience even though many of her experiences were complex with several processes occurring at the same time. She also had frequent examples in her moments of talking out loud. Because her number of samples was small, it is difficult to draw inferences or generalities from just a few samples in a category.
Images

Diana experienced detailed Images (4 samples out of 16) in some of her samples. For example, at the moment of Sample #23, she was watching "Silver Spoons" on T.V., and Ricky (on the T.V.) had lost a boa constrictor in his house and was looking for it. The T.V. showed the snake under the table, but Ricky had not seen it yet. At the moment of the beep Diana was seeing the snake under the table on the T.V. and also was experiencing a knowing she had held a snake like that before. This knowing that she had held a snake before was comprehended without words or Images (she just knew she had held one), and is therefore an Unsymbolized Experience. It seemed to be located in the front of her head right behind her forehead. At the same time she saw an Image of a photograph that had been taken of her holding the snake. The Image was of a snapshot with Diana holding a boa constrictor. The imaged Diana had on a black and white shirt and her dark jeans. Her hair was short, and was permed in the picture. The snake was orange and was wrapped around her left arm that was bent at the elbow and parallel to the ground. Her wrist was cocked upwards at a 90 degree angle, and the head of the snake was poking out through a circle made by her left thumb and forefinger. Her right arm was directly below and parallel to her
left arm, supporting it because the snake was heavy. There was a man in the background of the picture that Diana did not know. The stranger had on a red and blue checkered shirt that was all buttoned up but the top button. The Image of the photograph was just as the photograph existed in real life; it was accurate in color and detail and had with a white border. The Image seemed to be located in the middle of her head, and her attention was divided equally between the thought and the Image. There were no simultaneous Feelings.

At the time of Sample #10 Diana saw an Image of words that seemed to be in the back of her head. She was watching a movie with her friend, Megan, when the beep sounded. The movie was about a nurse who had killed several patients with a syringe. At the moment of the beep Diana was saying aloud to Megan, "She is a [beep] bitch!" Besides saying the words out loud, Diana was also seeing them in her head. The words were situated on two lines in this manner:

```
SHE IS A
BITCH
```

There was no punctuation; only the letters were present. The letters themselves were white and capitalized, and they were printed like letters on a typewriter. The background was black with an oval
shape to it, and the edges were fuzzy. The Image was
located somewhere in the middle of her head. As Diana
said the sentence to Megan, the Imaged words seemed to
disappear one at a time as they left her lips, that is, when an individual word was spoken out loud, it
disappeared from the Image. A Feeling of hatred, which
she could not describe further, was also present, and as the words left her lips and disappeared from the
Image, the Feeling of hatred also disappeared, being replaced by a Feeling of relief. Thus, there seemed to
be three separate processes experienced simultaneously
in connection with the one sentence: speaking out loud; Imaging the words; and experiencing a Feeling
associated with the words. She also knew that she was sitting at the moment of the beep, but sitting was not part of her inner experience at that time.

Another time Diana experienced an Image of herself from an external perspective along with Unsymbolized Experience. At the time of Sample #37 Diana was at her friend Megan's house. Megan had seven cats and two
dogs. At the moment of the beep, Diana was lying on the living room floor playing with four of the cats. They were climbing and playing on her chest, arms, and face. She could not say exactly which cat was where when the beep went off, but Diana was thinking that she wanted as many cats and dogs as Megan had when she grew
up. This thinking was not in words; Diana just understood what the meaning was. This Unsymbolized Experience seemed to be located in the middle of her head along with an Image that was also in the middle of her head. This Image was of Diana in a house that she would own when she grew up. She pictured herself lying on the brown living room carpet playing with all seven cats and two dogs. The same cats and dogs that belonged to Megan were in the Image: two pure black cats; two black cats with white noses; two multicolored Taby cats; one pure white cat; and two brown German Shepherds with a black strip down their bellies. They were jumping and playing on her as she lay on the carpet. In the Image she viewed herself as still a teenager even though she knew this was a house she would own when she was grown up. She did not notice what she was wearing in the Image; she only noticed the animals that were playing on her. There were two pure black cats on either side of her head; she did not notice exactly where the multicolored Tabby cats were, or where the black cats with white noses were in the Image, but they were all just there playing on and around her. She was sure, however, that the two German Shepherds were on either side of her, one by her left leg and the other on her right side standing near her chest. The animals were all full grown. The
perspective of the Image was as if viewed from the front doorway of the living room of the house. She could see herself on the floor, and there was a stairway with a wooden railing in the middle of the room and to the right of the Diana on the carpet. The Image was in color with no borders, and there was movement in the Image: the animals were jumping and playing on her. Both the Unsymbolized Experience and Image were together in the middle of her head. There were no Feelings associated with this Image.

In summary, Diana had a variety of Images. She imaged objects such as the snapshot of her holding a snake (Sample #23). She imaged herself playing with dogs and cats as seen from an external perspective in Sample #37. Furthermore, she imaged words in Sample #10 where she saw the words "SHE IS A BITCH" as she spoke them.

Imageless Seeing

Diana experienced one example, Sample #29, of Imageless Seeing. During this moment she was also speaking one sentence out loud while saying another sentence in Inner Speech. The Imageless Seeing was of the words of the sentence being spoken in Inner Speech. At the time Diana was in her English class at school explaining to a friend about the beeper, and the girl did not understand about the study. Diana was saying
to her, "I volunteered [beep] for a UNLV student that is studying psychology. . ." At the moment of the beep Diana had just said aloud "volunteered," but simultaneously she was saying to herself in Inner Speech, "This girl is stupid!" This Inner Speech was experienced inside the back of her head, and was in her own voice with inflection that denoted exasperation. Furthermore, the words, "This girl is stupid!" were present to Diana's experience as if the words themselves were being seen in an Image, but the Image of the words was not in fact being seen at the moment. Thus, this was an experience of seeing without the thing seen being part of the experience, a phenomenon we are calling Imageless Seeing. The almost-seen words seemed to be located in the back of her head in the same region as the Inner Speaking was experienced. The almost-seen words had definite visual characteristics: they would have been white typewritten words on a black background if they had been seen. Diana said she could have made the words visual if she had wanted, but at the moment of the beep she experienced the words as a visual experience without actually seeing them. Along with the speaking aloud, Inner Speech, and Imageless Seeing, there was also a Feeling of exasperation and frustration in trying to make the girl understand about the experiment, but Diana could not say how it felt
physically. She just knew she was feeling that way. This feeling was less the focus of her attention than the speaking out loud, Inner Speech, and Imageless Seeing, but it was not in the background either. She could not describe the feeling further.

**Unsymbolized Experience**

We have seen examples of Unsymbolized Experience in combination with other sensory processes in previous samples: #23 where Diana knew that she had seen a snake before, and #37 where Diana wanted as many dogs and cats as her friend Megan when she grew up. We identified Unsymbolized Experience in 7 of her 16 samples. At the moment of Sample #39, Diana had just arrived home from visiting at a friend’s house and was watching T.V. An advertisement for Stouffer’s Lean Cuisine frozen dinners came on the T.V. advertising chicken with mashed potatoes and corn. At the moment of the beep the ad reminded Diana that she had been planning to eat a ham and bologna sandwich with chips and a coke when she came home her friend’s house. This thinking was not represented by any words or images; Diana just knew that she had been planning to have a snack, and she knew just what that snack was. At the same time she was just beginning to move her body up off the couch to go into the kitchen and get the food when the beep sounded. There were no feelings
associated with the sample except the direction Diana felt in her movement to go to the kitchen that she could not describe further.

There was one example where Diana's experience seemed to be a thinking only in words. At the moment of Sample #34 Diana was lying on the floor of the living room with school papers spread out in front of her; she was finishing her math. She could not remember exactly which math problem she was on, but at the moment of the beep she was wondering what the answer to the math problem was. This wondering seemed to be somewhere in the middle of her head. There were in fact words to this thought: "What's the answer to this problem," but she was not saying these words to herself in Inner Speech, nor did it seem like an Inner Hearing process. She was not seeing the words, nor did it seem like an Imageless Seeing experience. She just knew that these specific words belonged to this thought. It seemed to be like an Unsymbolized Experience, but one that had exact words belonging to it.

Diana had Unsymbolized Experience by itself as in Sample #39 when she was watching a T.V. ad about a frozen dinner, and she was reminded that she had planned to eat a sandwich. At other times Unsymbolized Experience occurred with Images, as noted in Sample #23.
when Diana imaged a snapshot of herself holding a snake, and knew at the same time that she had held a snake before. Another example of Unsymbolized Experience and Imagery happened when Diana saw herself playing with several dogs and cats in Sample #37 and knowing that she wanted that many dogs and cats when she grew up. The above examples contained Unsymbolized Experience with no specific words present. However, in Sample #34 Diana knew what the exact words of her Unsymbolized Experience should be when she wondered, "What's the answer to this problem." So there were times in Diana's Unsymbolized Experience when there were no words clearly present and times when the words were clearly present.

**Inner Speech**

There were times in Diana's samples where she experienced Inner Speech (6 samples out of 16). In Sample #29, as described in the Imageless Seeing Section, Diana said in Inner Speech, "This girl is stupid." The Inner Speech occurred while Diana was expressing a different thought out loud (explaining about the Sampling Study to an English classmate), and at the same time the words as she spoke them in her head. At the time of Sample #24 Diana was looking at the beeper and adjusting the volume on it. She was saying to herself in Inner Speech, "It's going to be
too loud next time." This speaking to herself seemed to be in her own voice with inflection as if she had spoken out loud, but she was talking to herself inside her head. This talking inside her head seemed to be located at the very back of her head near the nape of her neck. At the same time she was hearing her own voice say the words inside her head. She had no Feelings at this time.

An example of Inner Speech along with Feeling occurred at the time of Sample #38. Diana was at her friend's house eating a sandwich. The two girls were sitting at the bar in the kitchen with bologna sandwiches in their hands. At the moment of the beep Diana was saying to herself in Inner Speech, "Yum, this is good!" This was being said in her own voice with enthusiastic inflection. The Inner Speech seemed to be located in the back of her head down close to her neck. She was also hearing her voice say the words in her head. At the same time she was Feeling hungry, and this Feeling of hunger seemed to be located in her stomach. She could not explain this Feeling further; it was just a hungry Feeling. Her stomach was growling at the moment of the beep, but she said that seemed to be separate from the hungry Feeling.

Diana's Inner Speech experiences were fairly frequent and occurred as a single sensory process when
she was adjusting the beeper volume and as part of a multisensory experience as in Sample #29 when Diana said, "This girl is stupid," and in Sample #38 as she had a hungry Feeling when she ate her bologna sandwich.

**Just Doing**

There were also times in Diana's experience when she was Just Doing (4 samples out of 16). When Sample #22 occurred, for example she was just watching T.V.. It was a commercial for non-stick, spray Pam; and she was just watching it not experiencing anything else.

**Feelings**

Frequently (8 samples out of 16) Diana had feelings associated with her experience as noted in several samples previously cited. In Sample #38 Diana was Feeling hungry as she ate a sandwich; in Sample #29 Diana was Feeling exasperation and frustration while saying to herself, "This girl is stupid;" and in Sample #10 Diana was Feeling hatred associated with the words, "She is a bitch." At times it was easy for Diana to describe the physical characteristics of her Feelings, but at other times this was difficult for her. At the moment of Sample #30 Diana was walking home from school and not thinking of anything; she was simply walking, and Feeling cold. This time the physical referents for her Feelings were easy for her to describe. She was Feeling cold all over her whole body. At the same time
she felt this coldness in her entire body, she also felt a numbness in her feet and hands. It was as if there were no Feeling in the extremities of her hands and feet. She was aware that her nose was also running, and she felt a pain in her chest near her heart.

At other times Diana was unable to describe how she perceived her Feelings physically. At the time of Sample #38, described above in the section on Inner Speech, Diana was eating a bologna sandwich and saying in Inner Speech, "Yum, this is good!" She was also Feeling hungry, and this Feeling seemed to be located in her stomach, but she could not describe it further. Another example of a difficult-to-describe-physically feeling came at the time of Sample #22, described above in the section on Images, when Diana was explaining about the beeper to a classmate who did not understand. As Diana tried to tell her about the beeper, Diana said to herself, "This girl is stupid!" This Inner Speech was accompanied by a Feeling of exasperation and frustration which, although clearly felt, Diana could not describe further. She could not give, for example, a location for the Feeling or any other physical description.

Another example of Feelings that could not be physically described occurred at the moment of Sample
#35. Diana was standing in front of a full-length mirror in the living room. She was taking a break from her homework and she was engrossed in singing and dancing. She was holding her Walkman radio in her right hand and concentrating on the music. She was not looking in the mirror; she was just singing and dancing. The song that was playing was "With or Without You" by the rock group U-2. At the moment of the beep the chorus was being sung by both U-2 and Diana; they were singing "Oh, oh, oh, oh" in a high register. She was also dancing, and was fairly confident, but not positive, that at the moment of the beep she was dancing only with the upper part of her body, from the waist up. Her arms were raised and she was feeling loose and free. She was also experiencing a "fun" feeling that was also located in the upper part of her body. She could not elaborate on the fun, free, and loose feelings that she had; they were clearly part of her experience, but could not be described physically.

Feelings occurred in many of Diana's samples in wide variety: hunger, #38; frustration and exasperation, #29; hatred, #10; cold, #30; and fun, #35. Many of Diana's feelings were hard for her to explain; she knew she was feeling them, but could not tell where they were located physically in her body or
how to describe them. She just knew she was feeling them. Whereas it was true that sometimes Diana could not give a physical description of her Feelings, this did not mean that the Feeling phenomenon itself was not clear. Diana knew, for example, that she was feeling fun, free, and loose, and was confident that those terms described her subjective feelings, even though she could not describe where in her body or how those feelings manifested themselves.

Summary

Diana experienced a variety of inner processes in her samples, and she always seemed to be confident of what was happening in her experience. It was very easy for Diana to express herself. She had no trouble talking at length about a moment of her experience.

Diana’s Imagery samples were varied, including an Image of a snapshot, an Image of herself as seen from an external perspective, and an Image of words she was saying in Inner Speech. She also experienced an Imageless Seeing moment.

Diana’s Unsymbolized Experience occurred alone when she was thinking about eating a bologna sandwich and with other processes when she knew she had held a snake before and when she knew she wanted to have as many dogs and cats when she grew up as her friend Megan. These are examples of no words present in her
Unsymbolized Experience. She had words present in her Unsymbollzed Experience when she was wondering what the answer to the math problem was.

Her Inner Speech occurred as a single process when she was adjusting the beeper volume and in a multisensory experience when she said, "This girl is stupid."

Diana experienced a couple of samples where saying, thinking, and feeling seemed to be separate processes experienced together with one sentence in Sample #21 (as noted in Chapter 6) when she said, "Yuk! This gum is old." She said the words out loud, thought the words in the back of her head, and felt the words as the 'old' taste located in her mouth. She had another example of a multiplicity of processes came at the time of Sample #10 when Diana was watching a nurse in a T.V. movie and saying, "She is a bitch." She said the words out loud to her friend, experienced an Image of the words in the back of her head, and felt a feeling of hatred associated with the same words. In Diana’s experience there seemed to be times when she able to experience a combination of processes associated with a single set of words.

*Footnote: Two of the sample descriptions in this chapter were written by Denise I. Miersen: Sample #10, and Sample #35.
Chapter 12

Discussion

There was a great variety of inner experience among the subjects' moments. These experiences ranged from Just Doing, when the subject was simply performing a task and thinking nothing, to complex moments of Imageless Seeing, Wordless Speaking, Soundless Hearing, and other processes occurring in various combinations.

The following Table lists the number and percentage of samples in each category by subject. The categories were not established a priori, but emerged as the subjects described them to us. The processes Unsymbolized Experience, Inner Speech, Just Doing, and Feeling were experienced by all of the subjects. However, that is not to say that the other subjects did not experience the other processes, but the random beeper may not have sampled moments of some of the other processes for several of the subjects. All of the subjects except Anita (the slow learner) experienced Images; at the time of the sampling it seems quite certain that Anita did not experience
Number and Percentage of Samples of Each Characteristic by Subject

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Total Samples</th>
<th>Wendy (Ch7)</th>
<th>Sally (Ch8)</th>
<th>Jacob (Ch9)</th>
<th>Anita (Ch10)</th>
<th>Diana (Ch11)</th>
<th>Median%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Images</td>
<td>32</td>
<td>14 (44%)</td>
<td>13 (38%)</td>
<td>8 (25%)</td>
<td>0 (0%)</td>
<td>4 (25%)</td>
<td>25%</td>
</tr>
<tr>
<td>Unsymbolized Experience</td>
<td>8</td>
<td>8 (25%)</td>
<td>8 (24%)</td>
<td>20 (63%)</td>
<td>5 (28%)</td>
<td>7 (44%)</td>
<td>28%</td>
</tr>
<tr>
<td>Inner Speech</td>
<td>6</td>
<td>6 (19%)</td>
<td>7 (21%)</td>
<td>1 (3%)</td>
<td>4 (22%)</td>
<td>6 (38%)</td>
<td>21%</td>
</tr>
<tr>
<td>Wordless Speech</td>
<td>1</td>
<td>1 (3%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0%</td>
</tr>
<tr>
<td>Inner Hearing</td>
<td>2</td>
<td>2 (6%)</td>
<td>3 (9%)</td>
<td>1 (3%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>3%</td>
</tr>
<tr>
<td>Soundless Hearing</td>
<td>4</td>
<td>4 (13%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0%</td>
</tr>
<tr>
<td>Just Doing</td>
<td>4</td>
<td>4 (13%)</td>
<td>5 (15%)</td>
<td>1 (3%)</td>
<td>9 (50%)</td>
<td>4 (25%)</td>
<td>15%</td>
</tr>
<tr>
<td>Feelings</td>
<td>9</td>
<td>21 (62%)</td>
<td>21 (62%)</td>
<td>19 (59%)</td>
<td>2 (11%)</td>
<td>8 (50%)</td>
<td>50%</td>
</tr>
</tbody>
</table>

*Note: Percentage within each subject. Percentages do not add to 100% because multiple characteristics could occur in any single sample.*
Images (see Chapter 10). Only two of the subjects had Imageless Seeing experiences. It should be noted that these adolescents were not asked if they were experiencing Imageless Seeing; the two subjects both independently described it as part of their momentary inner experience. All of the subjects had some Unsymbolized Experience, but Jacob’s percentage was quite a bit higher than the other subjects. The result may be related to his emotional volatility and learning disability. Inner Speech was experienced by all the subjects, with Diana’s percentage being the highest. She was also the only subject that had several talking-out-loud beeps; she liked to talk whether it was out loud or to herself. Only the ‘gifted’ (Wendy) subject experienced Wordless Speech and Soundless Hearing. Again, we did not ask her if she had these processes going on at the moment of experience; she simply described them as characteristics of her experiences. Three of the subjects had Inner Hearing, and the percentages in this category were low. All of the subjects had moments of Just Doing; however Anita (the slow learner) had a higher percentage than the other adolescents. Every subject reported Feelings ongoing at the moment of the beep, and Sally and Jacob experienced Feelings in more than 50% of their experiences.
Looking at the Table, it can be noted that Wendy (the gifted adolescent) was the only subject to experience all of the characteristics that were identified. Neither Sally, Jacob nor Anita had the incomplete sensation processes of Imageless Seeing, Wordless Speech, and Soundless Hearing, and Diana had only one such experience. Anita, the slow learner, had the least differentiated inner experience, reporting only four of the nine characteristics.

Images were experienced by all of the subjects except Anita; I am fairly confident that at the moments of sampling, Anita did not experience any Images. The Images experienced by the other subjects took several forms: Images containing no movement that were viewed from an external perspective; Images containing no movement that were viewed from a being-there perspective; Images containing movement that were viewed from an external perspective; Images containing movement that were viewed from a being-there perspective; Images viewed in a series; Imageless Seeing; Images in the forming stages; and Images with no color. Here again, Wendy had the most differentiation in the inner experience of Images.

Wendy noted the slow formation of an Image in her samples, that, coupled with Jacob’s description of the fading of an Image, allows us to speculate that the
ability to form an Image may be a gradually-acquired process. As you may recall in Chapter 7, Wendy was reading a story about a girl who got a nail in her foot, and began to Image a foot. It was a side view with a dark spot on it just above the toes. The Image itself was black and white and dark and fuzzy, a little out of focus. She said that her Images frequently start out black and white, and then gradually come into color. She said further that the dark spot on the imaged foot would likely have become the nail if the beep had not interrupted the image-forming process. Jacob noted essentially the same process in reverse: one of his Images faded from view. When he was writing in his notebook about the boys’ treasure hunt, he experienced the Image fade and disappear. First it lost its color and became black and white. Then gradually it began to blur and get fuzzy, and then it was gone. These two descriptions lead us to hypothesize that these adolescents are still learning the process of forming Images. In young people the process of Imaging may not yet have become fully developed, and is not so automatic and seemingly instantaneous as is the case with adults. However, this must be purely suppositional because of the small sample size, and the heterogeneity of the sample. No
definitive statement can be made until further sampling is done.

The subjects experienced Inner Speech in the following ways: Inner Speech alone; Inner Speech as part of a multi sensory process; Inner Speech with words clearly present; and Inner Speech process with no words present. All of the subjects experienced many samples of Inner Speech except Jacob, who had only one. Jacob is learning disabled and has trouble in school, and it can be seen from his large percentage of Unsymbolized Experience samples (63%) that he does not think in words. Our educational system emphasizes verbal ability; the fact that Jacob does not think in words and, therefore, may not practice verbalizing in inner experience which results in his being penalized by the system. We note that the lack of Inner Speech is not linked with low intelligence because Anita, whose intelligence was established to be lower than the other subjects, experienced some Inner Speaking. Jacob does not seem to lack intelligence because his ability to express himself was very good. He is also very adept at putting plastic models together and building with wood.

Diana experienced Inner Speech along with several other sensory processes, including Imageless Seeing. For example, Diana was at school explaining to a friend
about the beeper. As she was talking out loud, she was saying to herself, "This girl is stupid!" She also experienced herself to be looking at these words as if they were presented as though they were not actually being seen in inner experience. At the same time she had a feeling of exasperation and frustration in trying to make the girl understand about the experiment.

Diana also had the highest percentage of Inner Speech of all the subjects in the study, and she was the only subject with speaking-out-loud samples (six samples). It did not seem to matter whether she was alone or not, she talked out loud.

Only one of the subjects experienced Wordless Speech. Wendy, when she was mowing the lawn and Imageless Seeing two lists of things done and things not done, was Wordless Speaking "30 minutes," which was the time she thought it would take to complete washing the car, the task she was currently "reading" from the list. She experienced this reading of the lists as speaking to herself, but the words themselves were implied and comprehended, not spoken.

Three of the subjects experienced at least one example of Inner Hearing. Inner Hearing presented itself in a variety of ways, from a singular sensory process to one among several sensory processes at a recorded moment. At times it was experienced as inner
sound produced by the person such as a voice talking, a baby coughing, or boys calling names such as 'four-eyes', etc.; and other times it was experienced as hearing inner music. Both Wendy and Sally were beeped while Inner Hearing their school orchestra; both noted the music as sounding better in Inner Hearing than it really did, with many of the intonation errors and wrong notes corrected.

Wendy was the only subject to experience Soundless Hearing. These experiences occurred with the words more or less present in her experience. When she was putting her eye shadow on, she was wondering if the eye shadow was too dark or too light, or if she had put on too much or not enough. This was experienced as if the wondering were being heard even though the words themselves were not heard; furthermore, she was not sure what the exact words should be. In another sample where she was more sure of the exact words, she was cleaning out last year's school papers and trying to decide whether to throw a folder away or not. It was as if she were listening to two sides of an argument. She was thinking she should not keep it because "it's all wrinkled," and that she should keep it because, "it's not that bad," but the words were not actually being heard. They were apprehended in a hearing experience even though no inner sounds were present.
Wendy and Diana were the only two subjects to experience Imageless Seeing. We did not ask either of these girls if they experienced Imageless Seeing; they both volunteered the information. Both of them also said that they could have made their experience visual if they had wished, indicating that adolescents may have some control over their visualization process.

We chose for our sample one subject who was quite clearly academically gifted (Wendy) and by contrast one who was quite clearly a slow learner (Anita). We can contrast the inner experience of these two girls and gain an impression of the differences between bright and not-so-bright experience, although we must be clear that this is a contrast between two individuals, so any conclusions about general characteristics should be regarded as extremely tentative.

The difference between Wendy's and Anita's descriptions of their inner experience was striking. Wendy was sure of her experience when we interviewed her, and described effortlessly such subtle experiences as Imageless Seeing, Wordless Speech, and Soundless Hearing. She caught on immediately to the specificity of the moments that we were interested in studying. Anita, on the other hand had a difficult time gaining the confidence to talk about her inner experience without saying what she thought the author wished her
to answer. It was difficult to get her to respond specifically with what was happening to her at the moment of the beep. Many times a complete description of inner experience seemed to be simply feeling or thinking "good" or "nothing." Anita had trouble recalling the experience that was present at the moment of each beep when interviewed after several hours delay. To get a more accurate picture of her experience it was necessary to have her tell the author what was happening in her inner experience immediately after the beep.

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 actually have more going on in her inner experience and is accurately reporting it whereas Anita 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.
It is also interesting to note that Anita had a much higher number of Just Doing samples than the other subjects (50%, see Table). Inner processes were ongoing in most of the samples for the other adolescents while they were doing their daily routines, but Anita seemed to have many moments when no inner processes occurred as she worked around the house. Furthermore, she seemed happy with her Just Doing moments, and not discontent as some adolescents would be.

Feelings were present in the experience of all the subjects; however, Jacob, Sally, and Diana had a higher percentage of Feelings than the other subjects, 59%, 62%, and 50% respectively. Jacob was better at explaining the bodily referents of his Feelings than any of the other subjects. Other subjects could just say that they felt angry or frustrated, etc. with no further physical description; Jacob, however, could be quite descriptive about how the anger presented itself to him. For example at one sample Jacob felt angry and mad because he had to do homework instead of playing a game with his family. The anger felt hot all over his body; it was hot down deep in his body, not on the surface. He could feel the heat specifically in his head, heart and legs, but not in his stomach and arms. In the next sample he was still feeling the anger, but by this time it was more intense and felt hotter in
more places than in the last sample. He felt hot all over his chest and into his arms and toes. Jacob was also the only subject that experienced two different, separate feelings at the same time. At one sample he felt happy because his dad was coming home and at the same time sad because his dad had not been home to help him build his fort in the back yard.

All of the adolescents had some Unsymbolized Experience during their sampling process. This process occurred alone and in combination with other inner experience for all of the subjects except Anita, who experienced the process only by itself. Sally and Jacob both called Unsymbolized Experience "confusing" and "weird." A characteristic held by all the adolescents except Wendy was a reticence to believe that they could think without words or images, that is to think in an unsymbolized way. Anita took the longest time to accept this. Unsymbolized Experience was found to be a characteristic of all the adolescents sampled, and they all came to know they had unsymbolized thinking as they looked at moments in their experience when they just 'understood' or 'wondered' or 'just knew.' This concept was not explained to them before they started sampling; if we had done so, I do not think they would have believed us anyway. They had to come to know it was a part of
their inner moments through experience, and all of them did.

It is interesting to note that Jacob had a large number of Unsymbolized Experiences, many more than any of the other subjects. Jacob is learning disabled and has trouble in school, and it can be seen from his samples that he does not think in words. (As noted previously, he had only one sample of Inner Speaking.) Our educational system emphasizes verbal ability, and therefore penalizes those who do not think with words. Since it has been noted that Jacob experienced more Unsymbolized Experience and more Feeling moments than any of the other subjects, the speculation could be made that difficulty in school could be correlated with frequent Unsymbolized Experience and clear Feelings. An adolescent with volatile emotions, such as Jacob had, who frequently does not think with symbolization may have more difficulty with school in general than adolescents who experience other inner processes more frequently. However, since we only have one subject of this kind, we can hardly make anything more than a guess. It is, however, an area for future research.

Sally was the only subject to have Unsymbolized Experience while reading. That is, she experienced herself to be directly apprehending the meaning of what she was reading rather than tracking it word for word.
(Wendy was the only other subject who had a reading sample, and she experienced an Image and Inner Speaking while reading; these are phenomena that Hurlburt (personal communication) reports are the most frequent reading experiences). Besides the Unsymbolized Experienced while reading, Sally had a high percentage of Feelings. These two processes may also be connected with the fact that she is having trouble with school, even though she does not have a learning disability. However, again, this is just speculation.

Diana had a difficult time explaining her Feelings: she just knew that she was Feeling hungry and could not explain it; she just knew that she was exasperated and frustrated with the girl in her English class, but she could not explain it. Some young adolescents may not yet be able to differentiate themselves from their experience enough to be able to explain their feelings.

All of the adolescents sampled in this project were interested and enthusiastic about completing their portion of the research. However, in sampling them it was noted that they were all tired of the process by the time we reached 40 beeps. They said that they would be happy to continue the process at a later date, but for now they wanted to be finished.
In conclusion it can be noted that experiences such as Imagery, Imageless Seeing, Unsymbolized Experience, Inner Speech, Wordless Speech, Inner Hearing, Soundless Hearing, Just Doing, and Feelings are basically the same characteristics that Hurlburt (in press) reported in sampling with adults. However, the forming and fading of images may be a developmental process. Further research will be necessary to answer that question. A more complete understanding of imagery, the way it develops, and the age it develops could have a significant impact on cognitive psychology. As we come to understand more about inner experience through research, it may be possible to identify at-risk individuals early enough in their lives so that through intervention they can be redirect to a more productive life. As we come to understand the perceptions of learning disabled young people through further research, new teaching methods can be identified to help them. Inner experience sampling research will provide more definitive descriptions of how people experience so that psychology can develop educational programs to help people with a variety of inner processes.
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