

The Descriptive Experience Sampling method

Russell T. Hurlburt · Sarah A. Akhter

Published online: 7 November 2006
© Springer Science + Business Media B.V. 2006

Abstract Descriptive Experience Sampling (DES) is a method for exploring inner experience. DES subjects carry a random beeper in natural environments; when the beep sounds, they capture their inner experience, jot down notes about it, and report it to an investigator in a subsequent expositional interview. DES is a fundamentally idiographic method, describing faithfully the pristine inner experiences of persons. Subsequently, DES can be used in a nomothetic way to describe the characteristics of groups of people who share some common characteristic. This paper describes DES and compares it to Petitmengin's [Phenomenol Cogn Sci, this issue] second-person interview method.

Key words Descriptive Experience Sampling · introspection · first-person methods · second-person methods · consciousness · inner experience · phenomenology · random-sampling · beepers · idiographic

Inner experience – thoughts, feelings, sensations, and so on – is at the very heart of what's important about people, and always has been. *Gilgamesh*, perhaps the world's oldest existing narrative (transmitted orally beginning in roughly 2700 B.C.), includes frequent references to inner experience (e.g., “Enkidu was pleased; he longed for a comrade, for one who would understand his heart” p. 15). Spiritual traditions focus on inner experience: Buddha said, “The mind is fickle and flighty, it flies after fancies wherever it likes” (*Dhammapada*, Verse 5, about 500 B.C.); Confucius said that his most important teaching could be embraced in one sentence, “Having no depraved thoughts” (*Analects*, Book 2, about 500 B.C.); Jesus said, “Your

R. T. Hurlburt (✉) · S. A. Akhter
Department of Psychology, University of Nevada, Las Vegas, 4505 Maryland Parkway MS 5030,
Las Vegas, NV 89154-5030, USA
e-mail: russ@unlv.nevada.edu

S. A. Akhter
e-mail: sarahaakhter@yahoo.com

souls aren't harmed by what you eat, but by what you think and say" (*Mark* 7:14–23, about 29 A.D., *The Living Bible* translation).

Inner experience was at the heart of the beginning of psychology, which devoted much of its new energy to refining introspective methods designed to reveal inner characteristics. Inner experience is at the heart of everyday interactions; we want to know how people think and feel because it provides us an intimate glimpse of the inner, personal, raw, real, unfiltered human being.

If it seems strange to have to remind ourselves that inner experience is important, it is because the science of psychology has banned inner experience from scientific discourse so thoroughly that for the last half-century the term 'introspection' doesn't even appear in textbooks of psychological method. However, things are changing. There is recently a widespread resurgence of interest in obtaining introspective reports and studying inner experience. From the historical perspective, this resurgence is legitimate, even overdue; it is becoming increasingly apparent that any attempt at understanding a person without considering his or her thoughts and feelings is likely to be sterile.

However, there are risks involved in this resurgence. Introspection was banned from psychological science for good reason: it was, a century ago, a spectacular failure (Danziger, 1980). If nothing else, the history of introspection clearly demonstrates that self-reports about inner experience should not be taken for granted.

Hurlburt and Heavey (2001) discussed whether the grim history of introspection can be transcended, concluded that it may be "possible, but not trivially easy, to provide accurate descriptions of inner experience" (p. 400), and argued in favor of careful consideration of introspective methods. They observed that orthodox (non-introspective) psychological science has come a long way in the century since introspection's demise and that many of the lessons that orthodox psychology has learned could be applied to new methods of introspection (Hurlburt, Heavey, & Seibert, 2006). For example, they argued that a random beeper that triggers the observation of inner experience facilitates the accurate observation of experience (Hurlburt & Heavey, 2004).

Descriptive experience sampling

Descriptive Experience Sampling (DES; Hurlburt, 1990, 1993, 1997; Hurlburt & Heavey, 2006) is a method for the observation and description of inner experience that follows the guidelines discussed by Hurlburt and Heavey (2001, 2004) and Hurlburt et al. (2006). Briefly, DES subjects wear random beepers in their natural environments. The random beep cues the subject immediately to pay attention to the inner experience that was ongoing at 'the moment of the beep'—the last undisturbed moment before the beep interrupted their natural environment.

Thus DES aims at observing natural occurrences, experienced phenomena in their pristine state, unspoiled by the act of observation or reflection. We use 'pristine' here in the same way that we would use it in saying that a forest is pristine: unspoiled by civilization. We recognize that a pristine forest contains things that are clean and

dirty, simple and complex, healthy and rotting; however, it does not have the clear-cut stumps and plastic bottles that are the signs of human exploitation, and it does not have the park-service maps and visitor centers that tell you how to see and therefore interfere with the seeing of what's already there. Likewise, pristine experiences can be simple or complex, clear or messy; we use 'pristine' to refer to experiences in their natural state, not disturbed by the act of observation, unplanned, unmapped, un-'figured out' already, uninterpreted, un-heuristicized real experience.

Accordingly, DES aims at observing pristine experience, actual phenomena that are actually being experienced by actual people at actual moments during actual natural activities, free of any artificial interference by the investigator. Of course it falls short of that aim because no technology for capturing/transporting/importing experience directly from one person to another exists. DES makes no pretense about the fact that it falls short; all methods in science fall short of their ideal. The object is not perfection but to create a method that aims to glimpse actual reality and falls short in manageable ways. DES attempts to accomplish that in the ways described below.

Pristine experiences are fundamental data of consciousness studies in particular and psychology in general—pristine experience is the way real people experience real things in their real lives. I as a person am who I am in large part because of the things I experience and the way I experience them; I differ from you not merely because you and I have different histories and different physicalities, but because you and I have different experiences and different ways of experiencing them. In any given moment of any real person's existence, there is a welter of potential experience, some external (a myriad of surrounding objects and people, features of the environment such as temperature, wind, brightness, sounds, tastes, smells, etc.), some interoceptive, proprioceptive, kinesthetic events (pressures, pains, hunger pangs, limb/joint positions, tickles, itches, etc.), some innerly created events (thoughts, images, feelings, etc.). At every moment, a person selects/creates some very small number (often just one) of those potential experiences to form that moment's actual pristine experience. Different people do that in different ways: one consistently creates visual images that are quite unrelated to the immediate environment; another, in exactly the same environment, consistently attends to emotional experience; a third, also in the same environment, consistently pays attention to the sensory features of that external environment. Those three people are likely to be very different from each other—or maybe not. Science needs to figure that out; to do so depends on methods that apprehend adequately pristine experience with an adequate degree of accuracy.

DES is an attempt at such a method. Our aim here is to discuss the DES method and to highlight the characteristics of DES by contrasting it with Petitmengin's second person interview method (this issue).

Brief description of the DES method

Hurlburt (1990, 1993) and Hurlburt and Heavey (2006) have discussed at some length the rationale behind DES, how to perform the DES method, and its results. As we have seen, DES subjects wear random beepers in their natural environments. The random beep, which is delivered through an earphone, cues the subject to pay

attention to the inner experience that was ongoing at the moment of the beep and immediately to jot down in a notebook (or otherwise record) the features of that ongoing experience. Within 24 h after collecting a number (typically 6) of such samples, the subject meets with the DES investigator for an ‘expositional interview’ designed to help the subject provide faithful descriptions of the sampled experiences. After the expositional interview, the investigator prepares a written description of the ongoing inner experience at each sampled moment. The sample/interview/describe procedure is repeated over a series of (typically 4–8) sampling days until a sufficient number (typically 25–50) of momentary experiences have been collected. The investigator then surveys all that subject’s moments of experience and extracts their salient characteristics.

DES is thus a fundamentally idiographic procedure: it produces a characterization of one particular person’s experiences. It is essentially irrelevant whether that person’s experiences are similar to or different from some or most other people’s experiences; the primary object is to characterize faithfully an individual person’s experiences.

Some DES studies investigate a collection of subjects who have some feature (psychiatric diagnosis, for example) in common. In those studies, the investigator produces an idiographic characterization of each subject as described above and then examines all those characterizations to discover whatever salient characteristics might emerge across the collection of subjects. This allows the investigator to produce an across-subject or nomothetic characterization of the collection’s in-common salient inner experiences.

Thus a DES investigation uses its idiographic procedure in one of two basic ways: as a purely idiographic procedure to encounter/describe the experienced phenomena of one individual; and as a series of idiographic procedures as steps in the direction of a nomothetic goal.

The salient features that emerge from DES studies (both within-subject idiographic and across-subject nomothetic) are often features of the *form* or pattern of *how* experience occurs within individuals. For example, salient form characteristics frequently involve inner speech, visual images, unsymbolized (unworded, unimaged) thinking, sensory awareness, or feelings. *Content* features or the pattern of *what* is being experienced can also emerge as salient characteristics, but in practice they have been less common.

Thus DES is a simple procedure: A subject wears a beeper and notes the inner experience that was ongoing at the moment of the beep; an investigator interviews the subject about each of those experiences and characterizes their patterns. However, behind this simplicity are considerations of substantial subtlety, to which we now turn.

Inner experience

DES seeks to describe as faithfully as possible ‘inner experience,’ by which we mean anything that is going on in awareness at the particular moment defined by the beep, whatever is ‘before the footlights of consciousness’ (as William James would say) at that moment. That is, DES seeks to describe whatever phenomena that are directly occurring to a person at the moment of the beep.

Thus inner experience might include thoughts, feelings, tickles, sensations, inner or external seeings, inner or external hearings, kinesthetic awarenenses, tastes, and so on, anything that is explicitly a part of the ongoing awareness. We throw the net widely at the concept of inner experience on the possibility that individual subjects may have features of inner experience that we have never before encountered.

Some scientists have preferred the terms ‘consciousness,’ ‘conscious experience,’ ‘experience,’ ‘subjective experience,’ or ‘in awareness’ to our term ‘inner experience,’ because ‘inner experience’ seems to favor ‘inner’ experiences such as thoughts and feelings over ‘outer’ experiences such as visual perception and sensation. DES explicitly does not favor the ‘inner’ over the ‘outer’ in this way—it is interested in whatever phenomena are occurring, whether inner or outer. We believe that there is no best term; all have their advantages and drawbacks. Suffice it to say that by ‘inner experience’ DES means *anything* (inner or outer) that emerges into a person’s awareness, or coalesces, or becomes a phenomenon, or is experienced, out of the welter of inner and outer stimuli that simultaneously impinge on a person. As Hurlburt and Schwitzgebel ([in press](#)) discussed, we modify ‘experience’ with the term ‘inner’ because the unmodified ‘experience’ is too broad—we don’t wish to consider things like work experience or the moviegoing experience unless they happen to manifest themselves as explicit phenomena that occur within a person’s awareness directly at the moment of the beep.

DES rules out anything that is outside of ongoing awareness. Thus DES rules out ‘unconscious’ processes of any kind. DES rules out physiological events (neuron firings, peristalsis, homeostatic adjustments, and the like) unless they are specifically part of awareness. DES rules out explanations and interpretations unless they are specifically part of awareness. DES rules out events that have occurred before or after the moment of the beep unless they are somehow present in awareness at the moment of the beep.

For example, a DES subject we will call ‘Juanita’ is reading *Messenger*, a novel by Lois Lowry, when the DES beep sounds. At the moment of the beep, Juanita is seeing an imaginary scene that she has created in harmony with her reading: she sees the book’s main character Kira seated on a log facing Matty, who is to the left. The seeing is quite visually detailed: Kira is wearing a blue dress that reveals her gimp leg; Matty’s arms are seen to be swollen from the injuries he has received; the trees of the forest are seen in the background behind the clearing; and so on. At the same time Juanita is aware of an itch in her nose, near the openings of both nostrils. We question Juanita thoroughly and conclude that the inner seeing of Kira and Matty and the itch in her nose are experienced to be simultaneous and that no other phenomena are being experienced in her awareness at the moment of the beep.

We consider Juanita’s seeing of the imaginary scene and the nose itch to comprise Juanita’s experience at the moment of this beep. We do *not* consider the act of reading to be in her experience. Doubtless her eyes are moving across the page; doubtless some kind of representation of the printed page occurs on her retina and at other places in her visual system; doubtless she is in fact processing the meaning of the words according to some cognitive principles; doubtless the kinesthetic, proprioceptive, and tactile sensors are firing where her body contacts the chair in which she’s sitting; doubtless she could, if she chose, make some portions of those

processes and a welter of others part of her awareness. But at the moment of the beep those processes were not part of her awareness, as best that we could ascertain under our careful questioning. Therefore those processes *do not* count as parts of Juanita's inner experience at the moment of the beep.

It can be argued, on a rich view of consciousness, that Juanita's consciousness at the moment of the beep in fact included, simultaneously, the visual seeing of the printed page, the bodily sensations, and all the rest of the welter of inner and external phenomena. DES takes no position on that issue. DES seeks to discover the main characteristics of whatever phenomena is/are immediately present in experience. It tries to do that as completely as possible, but makes no claims whatsoever about the exhaustiveness of that effort. We inquired as carefully as we could about whether the printed page was in Juanita's awareness at the moment of the beep, and she consistently claimed that it was not. That is, we would have included exterior visual perception as 'inner experience' if it had been part of Juanita's ongoing phenomenal awareness, but it was not.

Thus DES does not contend that it makes an exhaustive survey of inner experience; we believe that an exhaustive survey is beyond the possibility of introspective measures. DES examines the salient phenomena of experience; it does that as completely and thoroughly as possible, but it accepts that there may well be very faint or subtle aspects of experience that are not described. As an empirical fact, most DES subjects, once they have been adequately trained, believe that there is little ambiguity about what is and what is not in experience at the moment of the beep. For example, for Juanita there was a huge experiential difference between the seeing of Kira and Matty and the seeing of the book page. The first was a clearly, unambiguously manifest phenomenon experienced at the moment of the beep; the second was not part of experience at all.

The targeted experience (AKA the data)

DES uses the beep to aim at randomly selected, specific, manifest, ongoing, natural, contemporaneous, personal experiences. We will discuss each of those modifiers in turn.

Randomly selected DES chooses to discuss random moments for two related reasons, first for the same reasons that pollsters take random samples of voters: so that the experiences that are discussed are representative of the person's actual experiences.

Second, the DES insistence on discussing randomly beeped experiences is one important way that DES brackets presuppositions. The random beep says, in effect, "Let's discuss this particular experience, not because Juanita or the investigator thinks, in some presuppositional way, that this experience is important or significant or interesting, but merely because it was selected by a neutral, dispassionate, external, random trigger." If Juanita strays from the moment of the random beep to other experiences, she would necessarily be describing experiences that *she* selected on the basis of some presuppositional self-theory or other personal characteristic.

Selecting on the basis of one's personal proclivities can be powerfully biasing. To illustrate, imagine a couple that has communication/anger management issues. The truth, as an omniscient observer would know, is that the man is a jerk and is frequently mean to his wife; the wife is long suffering and usually patiently endures

it; occasionally she can't take it any more and says something nasty. However, we non-omniscient mortals don't know these true dynamics, so we must collect some data. Data-gathering strategy A: Beep the man at random and ask him to report what's going on. The data will show that the man is frequently a jerk. Data-gathering strategy B: Have the man self-monitor his anger; every time the anger gets strong, he is to report what's going on. The data will show that the woman frequently says nasty things. Strategy B distorts reality because the man collects data based on a personal characteristic of his—when he gets angry. He doesn't get angry while he's being a jerk; he gets angry only when she finally reacts. (We return to the discussion of bracketing presuppositions below.)

Specificity of time DES uses the beeper to identify with substantial precision the specific moment to be examined: we are interested in the phenomena that was ongoing at the 'last undisturbed moment before the onset of the beep' (an instant that DES usually calls the 'moment of the beep') and no other. DES does not care about phenomena that occurred a second, a minute, an hour, or a day before or after the moment of the beep.

This temporal specificity is a cornerstone of DES. Specifying the time allows subject and investigator mutually to consider a clearly defined slice of experience, which grounds the conversation and enables a real discussion of the phenomenal details of experience.

The substantial precision of temporal selection is not perfect: it does take some time for subjects (even skilled subjects) to process the physical sound waves that impinge on their eardrums and recognize the presence of the beep. Between people there is some variability in the time it takes to accomplish that recognition. Within a single person, there may be some variability from one occasion to another in the time to recognize the beep, and it is possible that this variability may systematically depend on the specific characteristics of the ongoing experience, and therefore may introduce some systematic bias into the data. How much bias needs yet to be investigated; our sense is that it is generally not large.

Thus, for example, in Juanita's example described above, we were interested in just one moment in time, the one that, it turned out, happened to involve imagining Kira and Matty and the nose itch. We did not ask questions such as, "For how long had your nose been itching?" because that would have inquired about events before the moment of the beep; and we ignored Juanita's comments such as, "I reached for my pen and wrote it down" because that describes events after the moment of the beep.

Specificity of experience DES focuses on the specific beeped experiences, not on generalities about or responses to those experiences. Subjects very often avoid the specific by making statements about themselves that sound like generalities; for example, Juanita said, "I *usually* create images as I read." DES refers to such statements as 'faux generalities' because although they appear to be statements about general characteristics, a true generality is the result of an actual inductive process. For example, "I have systematically observed myself reading and the majority of those observations include visual images" is a true (inductive) generality. However, the statements that most people make about themselves are faux, rather than true, generalities, and are based on heuristics such as recency or salience rather than on

inductive process. Many faux generalities are entirely or to some degree false: people are not necessarily accurate observers or reporters of their general characteristics. Some faux generalities are quite accurate, but people are not generally good at judging whether or not their faux generalities are accurate. Therefore, DES brackets faux generalities, for example by saying to Juanita, “You may well create images as you read, but let’s suspend judgment about that. If it’s true, we’ll probably discover that in subsequent samples.” (We discuss bracketing further below.)

DES supports the induction of true generalities based on the data of specific experiences: over the course of many samples, the DES investigator may discover that Juanita frequently creates images as she reads, and if so may well state that as a true generalization. However, DES does not encourage faux generalities; for example, it avoids asking whether a particular feature of experience is frequent or infrequent, typical or atypical.

Manifest The data of DES are experiences that are immediately recognized, manifest phenomena, experiences that take place in immediate awareness, experiences that are directly before the footlights of consciousness. DES does not consider processes, constructs, or structures that are presumed (whether correctly or incorrectly) to lie behind those manifest phenomena. DES does not explore constructs such as meanings, significances, explanations, or general characterizations unless those constructs are specifically present as some aspect of the phenomena present at the moment of the beep. It does not consider anything that is unconscious or so faint as to be subliminal (or very nearly so; this is the mistake that Titchener and the Würzburgers made with respect to ‘imageless thought’ a century ago; Monson & Hurlburt, 1993). DES focuses simply on describing what is obviously apparent, phenomena that manifestly appear in awareness at the moment of the beep.

Ongoing DES targets specific, concrete slices of experiences that are ongoing at the moment of the beep. DES seeks to use the beep to ‘catch experiences in flight,’ as it were, much like a photographer’s flashbulb catches an event in the midst of its occurrence. DES is not interested in experiences that are after or in reaction to the beep (“The beep made me think of...”); DES is not interested in experiences that are presumed to have caused the present experience. The DES interest is *only* in the actual phenomena that are actually already ongoing at the exact moment of the beep, because the ongoing event is the only one truly randomly selected by the beep.

Natural DES seeks to investigate naturally occurring (‘pristine’) experiences, not experimentally contrived or otherwise manipulated or forced experiences. Therefore DES asks people to wear their beepers in their natural environments and report their experiences at random times in those environments. DES does not set out to examine theoretically important experiences or specific topics of interest.

An *a priori* focus on some particular experience (rather than simply on randomly selected natural experiences) infects the entire process, making it likely that subjects will create or exaggerate some aspects of experience and overlook or minimize others.

Contemporaneous DES seeks to investigate contemporary experiences with as little retrospection as possible. There is abundant evidence from orthodox psychology

(Hurlburt et al., 2006) as well as sampling studies (e.g., Hurlburt & Melancon, 1987) that show the distortions of memory that occur when reporting an experience much after it occurs, so the less memory is involved in the process, the better.

DES typically asks subjects to jot down notes about their experience immediately after (within a few seconds of) the beep, to capture experience while traces of it are still available in short-term memory. DES interviews subjects about those experiences within 24 h, which is a compromise balancing the desire to disturb the natural experience as little as possible with the desire to discuss experience as soon as possible. We have informally explored variations on this jot-notes-immediately/interview-within-24-hours theme: we have interviewed subjects immediately after the beep (minimizing retrospection but at the expense of intrusiveness); we have asked subjects to dictate extensive descriptions into a portable tape recorder instead of jotting down notes; we have interviewed subjects after more than 24 h; and so on. Our sense is that jot-notes-immediately/interview-within-24-hours is a good general procedure, although for some purposes we prefer other variants.

Personal Phenomena present themselves to individual persons, that is, to real flesh and blood individuals undergoing real events, not to people in general. Furthermore, phenomena are actual experienced events, not abstractions such as cognitive processes (e.g., learning or memory). Therefore, because DES seeks to apprehend phenomena, it is fundamentally a personal encounter, the investigator along with the subject seeking to apprehend the subject's personal phenomena. Sometimes (usually, in fact) those personal phenomena are mundane and everyday; nonetheless they are fundamentally personal events.

The beep

As we have seen, DES aims at randomly selected, specific, manifest, ongoing, natural, contemporaneous, personal experiences. It is the beep that makes that aim possible; Hurlburt and Heavey (2004) gave five desirable characteristics of the DES beep (or other signal): it should be unambiguous, be easily detectable, have a rapid onset, be private, and be portable.

Many who have not participated in DES believe that it is difficult if not impossible to apprehend experience clearly; this mistaken belief usually arises from a failed simulation of the introspective task. They imagine asking themselves, "What's my inner experience like right now?" and then 'discover' that nothing seems to be in experience because the "What's my inner experience like right now?" question is itself in their awareness but is ruled out as irrelevant. When they rule out the very thing that is most saliently occurring, it seems to them (incorrectly) that nothing is ongoing. (It is not adequate to attempt to improve on that simulation by using, for example, their cell phone ring to simulate the DES beeper. When the cell phone rings, the person has to think something like, "I'm not supposed to answer the phone—I'm supposed to pay attention to my inner experience!" But now *that* thought is in fact central to awareness but is again ruled out.)

Those failed simulations should *not* be understood as evidence that paying attention to inner experience is impossible. Instead, it is evidence that some care

must be taken in creating the occasion on which to observe experience. The effect of using an appropriate beeper is striking. Typical DES subjects prior to sampling believe that they will not be able to perform the task at all. After sampling those same people believe that the task was easy.

The expositional interview

DES subjects receive beeps in their natural environments and immediately jot down notes about the experiences that were ongoing at the moment of the beep. After capturing the half dozen experiences in this way, they meet with the DES investigator for an ‘expositional interview’ about the characteristics of those half-dozen sampled experiences. The expositional interview is described in detail by Hurlburt and Heavey (2006); we highlight some of its main characteristics here.

Accurate observation and faithful description The intent of DES, and therefore the intent of the expositional interviews, is to help subjects gain an accurate view of their own randomly selected, specific, manifest, ongoing, natural, contemporaneous, personal experiences and then to provide faithful descriptions of those experiences. The aim of the expositional interview is simple: help the subject stay focused on the experience that was ongoing at the moment of the beeps and no other, to describe the features of that particular ongoing experience and not experience in general, and to describe the ongoing phenomena as they actually present themselves, not according to some *a priori* understanding or expectation. In a very real sense, the interviewer asks repeatedly one and only one question during the entire interview: What was ongoing in your experience at the moment of the beep? Hurlburt and Heavey (2006) called that the one legitimate question about experience.

However, for a variety of reasons (among them avoidance of pain and/or boredom, desire to impress, self-theories, self-aggrandizement, greed, delusion, fear of exposure, of rejection, of consequences, etc.), people (both investigators and subjects) at first find that question difficult; they flee from actual phenomena and distort or mask them in a variety of ways. The expositional interview is a performance art designed to support, inform, constrain, restrain, instruct, guide, and so on both the subject and the investigator so that together they may accurately apprehend and faithfully report the subject’s beeped ongoing phenomena.

Co-researchers DES views investigator and subject as co-investigators. The subject has something DES needs—access to inner experience; the investigator also has something DES needs—skill and expertise in exploring that inner experience. Together, as equal partners, subject and investigator might accurately and faithfully access experience, something that neither can likely do alone. DES calls that equality of partnership the “one legitimate relationship” (Hurlburt & Heavey, 2006) and takes that co-researcher relationship seriously. For example, DES encourages subjects to help shape the investigation by suggesting particular lines of questioning, particular situations to investigate, and so on. Therefore we consider DES to be a first-person-plural method: We (Juanita and investigator together) examined Juanita’s inner experience and evaluated her/our characterizations thereof.

Iterative Most subjects are not very skilled observers or reporters on their first sampling day or days. Despite the investigator's best efforts at describing the observation-of-phenomena task prior to participation, subjects are usually surprised and unprepared for the level of specificity and detail required by the expositional interview, saying things like, "I didn't realize you would ask that! Had I known, I would have paid closer attention at the beep."

No amount of interviewer's skill can make up for a subject's lack of observational skill at the time the phenomenon occurred; if the subject did not observe the phenomenon accurately, a probing interview is much more likely to produce confabulation than accurate description. As a result, DES usually discards the reports of experience on the first sampling day and considers the first expositional interview to be merely training for the second sampling day rather than a data-gathering procedure. As a result of the first-expositional-interview training, the subject's second-day observational skill is typically substantially improved, so the second day's expositional interview can be partly data collection and partly training for the third sampling day. The third day's observational skills are typically again improved, allowing the third expositional interview, typically, to be mostly data collection along with some additional refinement of observational skill.

This iterative training procedure is integral to DES. The faithful apprehension of pristine experience requires that the subject acquire the skills to observe accurately, and that takes time: observation, feedback, new observations, more feedback, and so on. A corollary to this is that we do not trust methods (questionnaires, one-shot interviews, etc.) that gather data on a single occasion because they do not allow this iterative skill building over time.

For example, the subject 'Ahmed' said during an expositional interview, "I was saying to myself, 'my girlfriend should buy some bananas.'" The interviewer, noting that people don't generally say to themselves "*My girlfriend should ...*" – they say the much more natural "*Jessica should...*" – recognized that Ahmed was probably not quoting himself accurately and therefore asked Ahmed, "Exactly what were you saying?" Ahmed replied, "My girlfriend was on the way to the store and I thought maybe I should call her cell phone and tell her to buy bananas." The interviewer, now noting that Ahmed wasn't responding to the "Exactly what were you saying?" question, asked, "Yes, but exactly what words, if any, were you saying?" Ahmed replied, "I'd like to have bananas for a sundae that evening and Jessica could bring them." That again was not responsive to the "exactly what words?" question, so the interviewer continued to press Ahmed for the details of his experience. Ahmed said he was talking to himself, but he was unable to say exactly what the words were; that inability was frustrating to Ahmed.

DES interviewers see this particular kind of interchange with its attendant frustration frequently, and it often means that at the moment of the beep the subject was experiencing thinking that was occurring without words, images, or any other symbols (a phenomenon DES calls unsymbolized thinking; Hurlburt, 1990, 1993, 1997; Hurlburt & Heavey, 2006). Ahmed (incorrectly) assumed that *all* thinking is in words (an incorrect presupposition held by many philosophers and psychologists as well), so if he's thinking, he must be talking to himself. When he couldn't remember the words that he must have been saying, he became frustrated.

The interviewer reassured Ahmed by saying, “Sometimes words are present during thinking, sometimes not; either way is OK. We don’t have to worry too much about this particular sample—if this phenomenon is important, we’ll see it on subsequent sampling days and we can figure it out then.” That aimed to relax Ahmed’s defenses and to help him truly describe his subsequent experience.

The point here is that Ahmed’s statement, “I was saying to myself that my girlfriend should buy some bananas,” was not true. That doesn’t invalidate the method; it does mean that the interviewer has to be careful to help Ahmed become a better observer/reporter, to help undermine Ahmed’s commitment to presuppositions, to help Ahmed become more adept at paying attention to the actual phenomena present to him. That requires the iterative, day-to-day skill building and new observations that are essential to DES.

Successive approximation to faithful reporting The iterative process we have just described refers to an improvement in observational and reporting skill that gradually accrues over several days of sampling and expositional interviews. Now we note that the description of a phenomenon typically alters within each interview; the interview about any beeped experience can be considered a series of successive approximations leading to a faithful reporting of the phenomenon. Much of what a subject jots down in the notebook or says early during the expositional interview is incomplete, misleading, partially incorrect, or completely false. This is particularly so on the first sampling day or two, but it at least potentially characterizes every interview about every experience on every sampling day. People take things for granted that aren’t true; experiences are often quite difficult to put into words; subjects may not be linguistically skilled; they try too hard to please the investigator; and so on. The interviewer’s task is to help subjects improve, revise, or outright reject and replace what they say early in an interview in favor of a more faithful alternative.

DES investigators are supportively candid with their subjects about the importance of limiting themselves to the high fidelity truth. The investigator emphasizes that not knowing at all is better than knowing a half-truth; that we’d much prefer an honest “I don’t know” to a social-desirability-driven answer. As in the previous section, the interviewer can reassure the subject that if a phenomenon is important, we will encounter it on subsequent sampling days and perhaps will be able to describe the phenomenon then. DES interviewers reassure subjects that we expect them to say things that aren’t true or at least are not confidently true—they are learning a new skill and shouldn’t expect to be good at it on their first attempts. Until subjects become confident that they are not going to be punished (shamed/embarrassed/made to feel inadequate, etc.), they cannot legitimately be expected to admit ignorance and/or mistakes of observation, to try to discover what is true for themselves, let alone to tell it to the investigator.

We accept that this alteration of reports as the interview progresses provides the opportunity for the interviewer to coerce the subject into giving skewed or biased reports. We believe that is an unavoidable part of the DES process and that the risk can be limited by the asking of non-leading questions and bracketing of presuppositions (see below). For example, if we required subjects to be very careful

when they jot in their notebooks to write only things that are perfectly true, we would put a substantial chill on notebook jottings. Instead, we want subjects to jot something that is an approximation or clue to the truth, something that can serve as a starting point and be elaborated/refined/corrected through the interview process.

Non-leading Part of the expositional interviewer's skill is to ask non-leading questions and give level-playing-field alternatives. For example, when the interviewer reassured Ahmed that sometimes words are there, sometimes not; either way is OK, the object was to raise the question about Ahmed's possible presupposition that all thinking is in words while at the same time accepting that Ahmed's thinking may well have been in words. That is, the interviewer's skill requires leaving equal room for any characteristic of a phenomenon until the characteristics are confidently observed and described. Skilled DES interviewers undermine everything including the importance of the distinction they are currently making: thinking could be in words, could be not in words, or it could be that knowing whether words are there is not important. The object is to provide a level playing field on which any phenomenon can emerge precisely as it occurs. Hurlburt and Heavey (2006) and Hurlburt and Schwitzgebel (in press) discussed in depth the skills required for this non-leading, level-playing-field questioning and its importance.

Bracketing presuppositions A central and pervasive component of the DES method is the bracketing of presuppositions of both the investigator and the subject. To bracket presuppositions (following the lead of Husserl) is to suspend or put out of play *a priori* views of the way phenomena or processes occur. To apprehend phenomena as close as possible to the way they actually present themselves, it is necessary to hold your own ideas, expectations, characteristics, beliefs, predispositions in abeyance.

However, most people have strong *a priori* presuppositions about the nature of inner experience (recall Ahmed's presupposition about the necessity of words in thinking), and these presuppositions interfere with the subjects' ability to observe their phenomena and the investigators' ability to hear the descriptions accurately and help the subject observe carefully.

Presuppositions can interfere with the apprehension of pristine phenomena in two ways. First, they can create the appearance of experience when it actually didn't exist. For example, Ahmed presuppositionally believed that he always talked to himself when thinking. Therefore when the beep caught him thinking, he incorrectly 'observed' himself as talking to himself. Second, presuppositions filter experience, causing experience to be selectively overlooked or minimized.

Presuppositions are difficult to bracket in large part for two reasons: they are 'pre' – they operate prior to all cognition and analysis – which means that they are so taken for granted that it doesn't seem that the world could be any other way; and they are insidious/sneaky/attractively seductive—they aim directly at each individual's particular vulnerabilities and weaknesses. Your presuppositions are based on *your* history, *your* experiences, *your* environment, *your* reality, *your* desires), and you are likely to be exquisitely skilled at hiding their operation from yourself. As a result,

DES believes that it is necessary to work diligently, constantly, effortfully, repeatedly, fastidiously at the task of bracketing presuppositions.

Presuppositions operate for both investigator and subject. The investigators' task is not only to bracket their own presuppositions but also to help subjects bracket theirs. Phenomenologists have written volumes on bracketing presuppositions, and Hurlburt and Heavey (2006) devoted a chapter to how to attempt to accomplish it in DES.

As mentioned above, we believe that randomness is a powerful, consistent guide to the bracketing of presuppositions. DES discusses an experience not because our presuppositions say that a particular kind of experience is important but because a dispassionate random beep selected it. DES subjects (and investigators, too) are constantly tempted to leave the experience at the moment of the beep and discuss events surrounding that moment because those surrounding events may be more interesting, less boring, less embarrassing, more macho, more theoretically important, more scientifically understood, more whatever. All those temptations reflect presuppositions; every departure from the discussion of the moment of the beep is a sign that a presupposition is at work. If you let it, the randomness of the beep will break you, one presupposition at a time.

Attending to non-content cues In determining whether the subject's statements are true or false, on target or misleading, complete or unfinished, the expositional interviewer pays attention to a wide variety of verbal and non-verbal cues, many of them similar to the cues used by other skilled interviewers (Petitmengin, [this issue](#); Hurlburt & Heavey, 2006). One that is particularly important for DES is noting the subject's use of what Hurlburt and Heavey (2006) called 'subjunctifiers.'

The object of DES is to describe a specific, manifest occurrence. People who are in fact describing such occurrences generally speak in simple declarative sentences: "I saw an image of Kira sitting on a log"; "I was saying to myself in my own inner voice, 'I should make a ham sandwich'"; "I felt a squeeze in my heart." People who are not describing a specific, manifest phenomenon often signal that non-specificity by using a subjunctive, rather than a declarative sentence: "It was *as if* I were seeing an image." Subjects use many words to signal this shift to the subjunctive: "It was like..."; "Maybe I was..."; "Well, I don't know, but..."; "Probably I was...." Hurlburt and Heavey (2006) called such phrases 'subjunctifiers.'

It is striking how consistently people, even linguistically unsophisticated people, switch back and forth between declarative and subjunctified sentences as they switch from describing actual experiences to speaking in general terms. Like all other human behaviors, this consistency is not perfect; it is a clue (and a pretty good one at that) that needs to be examined and confirmed or disconfirmed.

Bottom-up theorizing As we have seen, DES fundamentally creates an idiographic portrait, the result of making true (rather than faux) generalizations about the experiences within a single person. Thus all DES generalizations begin at the bottom – faithful descriptions of single experiences – and work up to descriptions of individual persons.

We have also seen that DES can be used to draw true (rather than faux) nomothetic generalizations across several idiographic portraits of individuals who

share a common characteristic. Thus the DES nomothetic generalizations also begin at the bottom: faithful descriptions of single experiences lead to careful descriptions of persons which lead to true nomothetic generalizations. All DES theorizing is thus a bottom-up process; it avoids beginning with a theory or hypothesis (that would be reifying a presupposition) and instead arrives at a theory as the result of a series of specific observations.

By contrast, psychological science almost always works from the top down. Based on prior theory or casual observations, the typical psychological study advances a hypothesis and then conducts an experiment to test it. We are in favor of experimentation—in fact, one of us has written textbooks in the area (Hurlburt, 2006). However, we think that experimentation is likely to be most valuable following careful examination of the relevant phenomena. In our view, adequately careful observations are rarely made, and that undermines psychological science.

We will use bulimia as an example to illustrate how the careful observation of pristine phenomena can be fundamentally important. The bulimia literature suggests that the destructive behavior of bulimia is caused by excessive preoccupation with weight, shape, or food; negative affect; cognitive distortions related to weight, shape, and appearance; and internalization of the sociocultural thin ideal (APA, 2000; Fairburn & Harrison, 2003; Polivy & Herman, 2002; Stice, 2001). Let us imagine three studies: (a) orthodox top-down validity: devise questionnaires that measure weight distortions and thin ideal and determine whether individuals with bulimia have higher scores than those without; (b) top-down sampling: devise a brief questionnaire that asks whether weight distortions or thin-ideal preoccupation are in play at the moment and administer that questionnaire repeatedly when signaled by a random beep; and (c) pure bottom-up DES: identify a group of bulimic individuals, perform hypothesis-free idiographic DES sampling of each individual and then compare across individuals to discover whatever features of pristine experience might emerge.

There have been two pure bottom-up DES studies (Doucette & Hurlburt, 1993; Jones-Forrester, 2006). They discovered that weight distortion and internalization of the thin ideal did *not* seem to be the most important feature in bulimic inner experience. Instead, the most salient feature of inner experience in these studies was a marked fragmentation of attention in which individuals were unable to focus singly and clearly on what for most people would be the center of awareness. As far as we know, there is no bulimia literature that suggests that fragmentation of attention exists in bulimia.

The Doucette and Hurlburt (1993) and Jones-Forrester (2006) studies are both small and need to be replicated further. But for the sake of argument, let's assume that replication bears out the fragmentation-of-attention finding. Without the guidance of the careful, bottom-up observations from the DES studies, it is likely that orthodox experiments and top-down sampling studies *would never have noticed* fragmentation of attention, regardless of how many experiments and other top-down studies were conducted.

Once the phenomena of bulimia are actually fully understood (which we think is possible only by beginning with bottom-up methods at least as careful as DES), then it might well be useful to conduct top-down studies to validate or further refine the bottom-up discoveries.

DES compared to Petitmengin's interview method (PIM)

This section compares DES to the interview method described by Petitmengin ([this issue](#)). This comparison has two aims: First, it will serve to highlight aspects of DES by juxtaposing it with Petitmengin's interview method (which we will call PIM hereafter). Second, it will, hopefully, contribute to science's discussion about the adequacy of introspective methods and their characteristics. Hurlburt and Heavey (2006) presented similar comparisons between DES and Giorgi's phenomenological psychology (Giorgi, 1975, 1997) and between DES and Kvale's Qualitative Research Interview (Kvale, 1996).

DES aims at pristine experience

As we have seen, DES aims at pristine experience, actual phenomena that are actually being experienced by actual people at actual moments during actual natural activities, free of any artificial interference by the investigator. The entire DES method is aimed at getting as close to pristine experience as possible. By contrast, there are three ways that the PIM focus is on something other than pristine experience. First, PIM instructs its subjects to *create* experiences rather than focusing on naturally occurring experience. Sometimes the PIM instruction is to create experience *de novo*, as for example when J instructed Chantal to imagine an elephant (Petitmengin, [this issue](#)). Sometimes these demands are to 're-create' experiences repeatedly. Neither situation is a natural occurrence. PIM apparently rests on the faith that a demanded experience (created or re-created) is essentially the same as a pristine experience; that may be so (we think it is unlikely), but it needs to be established, not assumed. By contrast, the DES beep asks subjects to report whatever was naturally occurring at that moment.

Second, it seems that PIM substantially shapes its subjects' descriptions of experience, rather than encouraging them to describe all of the experience that was actually occurring. For example, in the elephant interview, J's opening instruction to Chantal was, "I lied to you slightly. It's not an object that I'm going to ask you to think of. I'm going to ask you, right now, to think of an elephant." After a pause, J continued, "we're going to replay the sequence, and *then we'll see what you did to think of this elephant*" (Petitmengin, [this issue](#); italics added). The problem here is that J's italicised phrase pressures Chantal to describe herself as thinking about an elephant when it is quite plausible that Chantal was not thinking of an elephant at all but was wondering why J lied to her; or was angry because J had lied to her; or was wondering whether she had left her car lights on; or was noticing the ribbon in J's hair and thinking it was pretty; or was thinking any number of other things, related or unrelated to what J intended when she said "think of an elephant." Furthermore, even if Chantal was thinking of an elephant, she may well have been having other simultaneous experiences as well (such as those just described), but J did not inquire about those. Thus, when J said, "we'll see what you did to think of this elephant," she seems to be uninterested in Chantal's pristine experience; instead, she seems to be inviting Chantal to assume that the experience that had occurred (what the videotape would be rewound to) was exclusively a thinking about the elephant. By

contrast, the DES procedure explicitly asks subjects to report whatever is occurring, whether it seems relevant or irrelevant to whatever task is understood to be ongoing.

Third, PIM is sometimes interested in processes that are inferred to be taking place, rather than in pristine, directly observed phenomena. For example, the Petitmengin (1999) study aimed at describing the intuition process itself, not merely the phenomena that are involved in the experience of intuition. From our vantage point she did not draw an adequately clear distinction between phenomena that are directly available and the cognitive processes/explanations/causation speculations behind those phenomena. By contrast, DES believes that the history of introspection shows that focusing on cognitive processes/explanations/causation can infect the apprehension of the phenomena, and so if a DES subject begins to describe some process or give some explanation, the interviewer says something like, “Yes, that may be true, but let’s avoid speculating about anything that is not in plain view at the moment of the beep.”

DES aims at persons

A fundamental aim of DES is to describe individual persons: it collects a series of pristine experiences and describes characteristics of the person who had those experiences. By contrast, PIM aims at processes, such as what are the essential features of intuition or imagination.

It might be argued that PIM is interested in persons also; after all, the interviews about intuition (or imagination) are with persons. However, the personal characteristics of the intuition-study subjects are a distraction to the main goal; Petitmengin seems to want to know about her subjects’ experiences *only* in so far as they reveal the essential features *of intuition*. Any other characteristics, which is to say *all* the personal characteristics, of her subjects are avoided.

On the other hand, it might be argued that DES is really not fundamentally interested in persons any more than is PIM. For example, Doucette and Hurlburt (1993) were interested in bulimia; Hurlburt (1990) was interested in schizophrenia; Hurlburt, Happe’ and Frith (1994) were interested in Asperger syndrome; Hurlburt, Koch and Heavy (2002) were interested in the characteristics of people who talk fast; and so on. However, in all those cases, the DES procedure gathered, as purely (that is, as free of interfering presuppositions) as possible, a series of moments of *one person’s* pristine experience, and then created a description of that one person’s experience *without regard for any interest* in bulimia (or in schizophrenia, Asperger syndrome, fast talking, etc.) as an entity. Then, DES characterizes another person without regard for his or her group membership; and then another person and another. As a result, DES has collected a series of faithful descriptions of persons, as purely as possible, holding in abeyance (that is, bracketing as completely as possible) any interest in bulimia (or in schizophrenia, Asperger syndrome, fast talking, etc.). Then, and only then, does DES advance to the attempt to discern whether there are characteristics the bulimic (or schizophrenic, Asperger syndrome, fast talking, etc.) persons have in common.

Thus DES aims at persons, one person at a time. It does not aim at bulimia, one disorder at a time. This distinction is important. The person is a fundamental,

singularly unique entity. Bulimia is not a fundamental, singularly unique entity—there may well be several or many different ways of human existence (combinations of genetics, experience, societal pressures, and the like) that can result in a person's correct diagnosis of bulimia. Perhaps bulimia is a really existing unitary process, but that would have to be discovered, probably on the basis of careful, presupposition-bracketed, methodologically sophisticated investigations of persons.

DES iterates its method; PIM 're-enacts' experience

One apparent similarity between DES and PIM is that both are repetitive. We called these DES repetitions iterations above: DES subjects sample and then meet with the investigator for an expositional interview; then, with increased skill, they sample again and meet for another expositional interview; then, again with increased skill, they sample again and meet for another expositional interview; and so on.

PIM calls its repetitions 're-enactments': J says to Chantal repeatedly something like, "We're just going to rewind, and to do that I'm going to ask you to immerse yourself again in this experience."

The question is whether the DES and PIM repetitions accomplish the same goals, and we think the answer is No.

PIM 're-enacts' experience PIM's repetitions "direct the interviewee towards the 're-enactment' of the past experience" so that it can be 'relived' in the present moment of the interview. DES and PIM agree about the importance of accessing lived experience, and we agree that the PIM repetitions do enliven or embody experience—the PIM subject is no longer talking about the there and then but is describing experience here and now, and that is in general a good thing. We agree that this embodiment is directly observable in the behavior/vocal characteristics of the interviewee, as Petitmengin describes.

However, PIM seems to make the large, and we think unwarranted, assumption that this enlivened/embodyed experience is a faithful replication of some original pristine experience. To call the experiences in a PIM interview 're-enactments' or 're-livings' is to presume two things: that there was an original experience to be re-enacted; and that it is possible to re-enact experiences. Both presumptions are problematic, and we'll discuss each.

First, it is not at all certain that subjects indeed had an actual pristine experience of the kind PIM requests. For example, in Petitmengin's study of intuition (1999) she sought to investigate "what the scientist was living through at the very moment of the intuitive breakthrough" (p. 43). In that study, Petitmengin interviewed 24 subjects: eight psychotherapists who had intuitions about the lives of their patients or themselves, an economist who had an intuitive strategy for detecting mistakes in a research report, and so on. Had these 24 subjects actually had a "very moment of the intuitive breakthrough"? Perhaps some of them did, but it seems doubtful that all of them did: people often make faulty retrospective judgments about such things (Kahneman, Slovic & Tversky, 1982). Those that did have a "very moment of the intuitive breakthrough" had a pristine experience that included intuition, but the others had no such pristine experience. If there was no pristine experience, there can be no re-enactment of it.

Second, it is not at all certain that subjects who in fact had an actual pristine experience would be able to ‘re-enact’ it. There are three reasons. First, Petitmengin’s subjects’ pristine experiences are from long ago, and retrospection is highly problematic (if retrospection is believed not to be problematic, that would have to be shown, not asserted). Second, the subjects were in no way poised/ready/skilled/trained to observe these pristine experiences. Those intuition experiences took place in complex situations (psychotherapy sessions, for example) where the subject’s attention was focused elsewhere in the situation, not on the characteristics of the experience of the event, and the subject was not prepared to observe experience at that time. Third, to call the experiences ‘re-enactments’ presumes that the original pristine experience can be replicated, that her interviews “evoke[s] a particular experience from the past, in such a way that the subject ‘relives’ the past situation, with all the sensorial and emotional dimensions that it includes, and to the point that the past situation becomes more present for the subject than does the situation of being interviewed” (Petitmengin, 1999, p. 46). We doubt that that ‘reliving’ is possible even if the problems of retrospection are ignored. The interview context is much different from the original context (e.g., the scientific breakthrough); each time the subject is asked to repeat the experience again, the new experience can differ from the previous ones in response to many factors (e.g., hormonal surges, expectancy effects, social desirability, hunger pangs). Pristine experiences can be remembered (approximately) and discussed (faithfully) but whether they can actually be replicated would somehow have to be demonstrated.

By contrast, DES holds that ‘re-enactments’ are not to be trusted and so explicitly avoids them. If in a DES expositional interview a subject on her own ‘re-enacts’ an experience and then reports the characteristics of that ‘re-enactment,’ the DES investigator says something like, “Yes, but the experience that you are having here with me is not necessarily the same as the original experience. We’d appreciate it if you would limit yourself to describing the original experience as it occurred.”

DES iterates its method The DES iterations are far different from the PIM ‘re-enactments.’ The aim of DES is to encounter the naturally occurring phenomena of pristine experience, and the DES iterations further that goal in three ways. First, within each sampling day DES beeps subjects at several (typically six) randomly selected times and asks them to capture the characteristics of those momentary experiences. That provides six separate anchor points, six opportunities each sampling day to refresh the subject’s encounter with pristine experiences.

Second, within each expositional interview, discussions of experience start anew as each separate beeped experience becomes the focus. At the conclusion of the discussion of each beeped experience, the DES procedure says, in effect, “OK, that was our discussion of that experience, accurate or inaccurate, complete or incomplete. Now let’s begin again with an entirely new experience.” Of course it is possible that some of the same inaccuracies that occurred in the discussion of the first beep will recur in the discussion of the second, and every discussion of every experience (DES or otherwise) has the potential for confabulation, omission, or distortion. However, because each discussion begins with a brand new content that will highlight experience from a somewhat different direction, there is a self-correcting mechanism: it is possible to make the same repetitive mistake, but the

subject has to *remake* the mistake under new circumstances each time. By contrast, the PIM interview starts with at most one pristine experience and tries to ‘re-enact’ it as identically as possible. To the extent that that re-enactment is successful, whatever (presupposition-driven) distortions that were in play in the first telling are likely to remain in play in every subsequent re-enactment; there is no new-experience-driven self-correcting mechanism.

Third, across sampling days, the DES iterative procedure trains its subjects to be better and better prepared to apprehend and report pristine experience and then sends the subject out to observe again. Each sampling day, the subject gets more and more practice at the mechanics of responding to the beep; more and more practice at apprehending pristine experience; more and more understanding of how phenomena present themselves; more and more practice at discriminating this phenomenon from that; more and more ability to pay attention to the beeped moment and not be distracted by the before and afters; more and more capability in bracketing her own presuppositions about the nature of experience; more and more familiarity with how to put experience into words. Thus each day, DES subjects become progressively more skilled at apprehending pristine experience. By contrast, it seems that PIM builds stabilization-of-experience skills, but it *never* builds *any* skill of observing pristine experience; the pristine experience (if it exists) is prior to or at the beginning of the PIM process. DES puts ever fresh, better-observed pristine experiences through an ever-improving interview mill while PIM tries to put through the same experience again and again.

DES minimizes retrospection

There are literally thousands of studies, ranging from classical memory studies to eyewitness testimony investigations, that demonstrate that the retrospection of events is problematic (Hurlburt et al., 2006). For one example, Hurlburt (1993) used the DES procedure with a woman whose depression waxed and waned in a cyclothymic way. Hurlburt found that in periods of moderate depression, her momentary experiences were almost entirely unsymbolized thinking, whereas in periods of relative happiness, her momentary experiences were mostly inner speech or visual images. Of particular relevance here is that *she had no recognition that the characteristics of her inner experience changed dramatically from one mood to the next*: When she was sad, she could remember that she had been happy but she had no recollection whatever that when happy she spoke to herself and saw images. Similarly, when she was happy, she could remember being sad but she had no recollection of the cessation of inner speech and images or the rise of unsymbolized thinking. This is the more remarkable in that she had no insight into this change in her experience even though she had described in penetrating DES detail a series of beeped moments in both phases. It was as if the inner speaking/image-making (happy) consciousness couldn’t fathom the unsymbolized thinking (sad) consciousness, and vice versa.

That case is not unusual among the individuals we have sampled whose consciousness, as in cyclothymia, has phases. It strikingly illustrates particularly how risky it is to rely on retrospection in the reporting of conscious phenomena.

DES takes that risk seriously by minimizing retrospection as much as possible, requiring the subject to jot down notes immediately after the experience is beeped, and conducting the interview within 24 h. If the situation warrants, the interviews are conducted the same day or immediately after each beep.

DES is often criticised by noting that it is retrospective, just like all other methods. That note is true but substantially unfair, a bit like saying “All water contains impurities, so you might as well drink the water in the river.” The DES retrospection is measured in seconds, while the trace still exists in short term memory. Most other methods’ (including PIM) retrospections are measured in days, months, or years, and that is a very different memory task. Often the James quotation that Petitmengin cited (introspection is like “trying to turn up the gas quickly enough to see how the darkness looks”; James, 1890, p. 244) is used to describe the difficulty/impossibility of retrospective introspection, but that is substantially unfair as well. It is indeed possible, with modern technology, to take a flash photograph in the dark, and whereas that photo will not reveal how the darkness looks, it will reveal how things look in the dark (dilated pupils, etc.), and that is often usefully adequate.

The DES handling of retrospection is highlighted by Petitmengin’s study of experience during the preictal phase of epileptic seizures (Le Van Quyen & Petitmengin, 2002; described in Petitmengin, [this issue](#)). Petitmengin used PIM to determine whether the recently discovered changes in cerebral neuro-electrical activity that take place just before an epileptic seizure are accompanied by phenomenological changes:

Christelle describes to me her sensations in the minutes that preceded an epileptic fit. Repeatedly, she passes her hand over her forehead, which I finally point out to her: she then becomes conscious of a sensation, which until then has been pre-reflective, of a “slight touch, like a breeze, a veil that lightly touches my forehead.” (Petitmengin, [this issue](#))

Petitmengin apparently believes that she can choose “a seizure on which it is possible to work” (Petitmengin, [this issue](#)) so that the preictal experience can be reproduced, and as a result she apparently takes this touch/breeze/veil sensation to be similar if not identical to a sensation that had occurred during the patient’s preictal period of neuro-electrical disorder. That may be true, but it needs to be shown because there is substantial room for doubt: Petitmengin herself recognizes that a seizure “often obliterates all memory of the preceding moments, and sometimes even the memory of having had a seizure” (Petitmengin, [this issue](#)). Furthermore, if a cyclothymic person, whose neuro-electrical characteristics are measureably normal, can’t recall characteristics of experience from a depressive phase to a happy phase, we should be skeptical of a claim that an epileptic person can recall or re-experience at a time of neural synchrony events that took place relatively long ago during a time of manifest neural disorganization.

Therefore other reasonable interpretations of Christelle’s touch/breeze/veil sensation include that it is somehow a creation of the interview repetitions, unrelated to the actual preictal experiences; or that if it is related to the preictal experiences, it is altered in unknown ways by the interview process. We are not in a position to determine which (if any) of these interpretations is correct, although we are

systematically dubious of *all* retrospective accounts and particularly those where states are manifestly different.

Preictal experiences are important (perhaps epileptics could learn to control or at least prepare for their seizures) and deserve phenomenological exploration. But we strongly disagree with Petitmengin's statement that long-interval retrospection is the only way these phenomena can be explored ("because of the unforeseeability of the seizures, the description of the preictal period through an interview can only be performed at a distance from them"; Petitmengin, [this issue](#)). On the contrary, it is quite straightforwardly possible to examine preictal phenomena at the time of their occurrence by giving an epilepsy patient a DES beeper and sampling in the usual DES way, collecting whatever samples the random beep identifies. Eventually by chance some preictic moments will occur. Continue sampling until enough preictic experiences have been sampled; then compare and contrast them to the non-preictic experiences. If necessary, conduct the expositional interviews immediately after every beep, while the preictal phenomena are fresh and the preictal neuroactivity (whatever that is) is still ongoing.

A DES study of preictic experience would be more difficult than was Petitmengin's, perhaps 5 times or 10 times or 100 times as difficult. But even 100 times as difficult is not overwhelming if the phenomenon is important. For example, the expense of a day's DES is far less than the expense of an hour in an fMRI magnet, and science routinely funds fMRI investigations. Conducting adequate interviews of preictic phenomena is merely a matter of resource allocation once it is recognized that a nonretrospective study of preictic phenomena is important and possible.

It is possible that DES would discover the same preictic phenomena as did PIM. If so, well and good: we would know, then, that we can study preictal phenomena using the more efficient PIM strategy. But unless or until that equivalence has been established, we think science should gather data that are as faithful to the desired situation as possible, and that requires nonretrospective study.

DES brackets presuppositions

DES believes that the bracketing of presuppositions is essential if one is to encounter pristine phenomena, that presuppositions are insidiously created by each individual's particular vulnerabilities and weaknesses; and that people, including scientists, are blind to their own presuppositions. As a result, we think the following passage from PIM heads in exactly the wrong direction:

I have checked the accuracy of the descriptions I refer to, and the efficacy of the processes I describe, in two ways: 1) by myself, in the first person, in my own experience, which is as we shall see later the final validity criterion for a description. [continuing in the footnote] This is why we will illustrate the difficulties and processes described with the help of examples whenever possible, to enable the reader in his turn to check the accuracy of these descriptions by himself, in his own experience. (Petitmengin, [this issue](#))

DES believes, to the diametric contrary, that it is *hazardous* to check validity against your own experience. DES believes that if a description of a phenomenon

seems to check out against your own experience, it should be taken as a *particularly treacherous* sign. Presuppositions *always* exquisitely match your own experience, so when things match your experience, the effort at bracketing presuppositions should be redoubled so as not to be sucked in by the feelings of *Of course!* or *That's what I thought!* Sometimes, of course, reports that appear accurate actually are accurate, but that apparent accuracy should not be mistaken for validity evidence.

That checking of results against your own experience is one sign of the many presuppositions that in our view pervade the PIM methodological framework. Petitmengin's (1999) study of intuition, for example, seems to presuppose at least the following:

- Intuition exists as a general phenomenon/experience/is a unitary process
- There is always subjective experience of intuition
- Subjective experiences of intuition share common characteristics within and across people; for example, the following are all essentially similar: psychotherapists' intuitions about their patients' inner states, psychotherapists' intuitions about their own private lives; an economist's intuitive strategy for detecting mistakes; an astrophysicist's sudden intuition about the structure of quantum mechanics; a visual artists' creative intuition; people's daily life premonitions of accidents, fires, deaths; and so on
- When people are asked to recall an experience of intuition, they can do so (they are actually able to access 'the moment of intuitive breakthrough'); and they will do so (they want to/are motivated to access that experience and to report it accurately, and are not distracted by extraneous things such as feeling stress about the difficulty of the task at hand, a stomach cramp/gurgle, or the shape of the heel on the investigator's left shoe)
- Subjective experience can be re-created accurately after a long delay
- Re-created experience remains the same across repetitions

All those presuppositions wrest the PIM investigator and the subjects themselves away from the subject's actual experience. As soon as the topic is fixed to be intuition (and that is long before the interview begins), there is a grave risk that interviewer and subject will collude to talk about intuitive experience regardless of whether a pristine intuitive experience ever actually existed. Perhaps some of the subjects actually did have an intuitive experience and can recall it pretty well, but probably some did not and can not; the investigator has no way of knowing which subjects did and did not have access to intuitive experience.

The DES philosophy in this regard is that if you have an interest in intuition, and you think you know who has it and who doesn't, then find a number of people who (you think) have it and sample with them. *But then give up as completely as possible your attachment to the phenomenon of intuition.* Perhaps you'll learn something interesting about intuition. Perhaps not. Perhaps you will learn something interesting about something other than intuition. DES is like fishing. I throw my line in where I think the bass are, but then I have to wait to see if I get anything. If I get a bass, great; if I get something else, I'll keep it if it's good and otherwise throw it back. But at least I'll be pretty sure that whatever I got was real, not an apparition of a fish (tin can, turtle, whatever) created of my own wanting.

Discussion

DES seeks out, explores, and describes the very phenomena experienced by actual people doing everyday things in natural environments. DES tries to encounter those phenomena faithfully, exactly as they present themselves, as free from distortions as possible; it is therefore an uncomplicated intention: just describe the experiences that were occurring at the moments of the beeps. DES is pure phenomenology in a simple, straightforward sense: to the phenomena themselves!

The apprehension of personal experiences is not merely the collection of facts about a person; it is the encountering of bits of truth about the person herself. Allport (1942) illustrated this difference between facts and idiographic, personal truths by noticing that no collection of (nomothetic) facts about a person would help you determine what to buy your spouse for a Christmas present—that requires personal (idiographic) knowledge. DES shows that the more stringent and disciplined the devotion to the fidelity to the phenomena, the deeper the personal truth that can be discovered.

People create their own experience; they create their own way of experiencing phenomena; they create their own way of experiencing or distorting or failing to experience inner and external environmental events, whether reacted to or not. The way I go about creating experience and experiencing phenomena is an essential part (perhaps the largest part) what makes me me; the way you go about creating experience and experiencing phenomena is what makes you you and different from me.

DES is our best effort at developing a way of encountering the pristine phenomena of experience with fidelity. We recognize that DES falls well short of perfect attainment in this endeavor; there may (now or later) be better ways, and we ourselves would adopt them without looking back. However, just as a compass can point to the North Pole with great utility even though imperfectly, so DES can point in the direction of personal truth with great utility even though imperfectly. And like the earth's magnetic field, we believe that the forces toward personal truths are omnipresent; most people have access to them at some level all the time. However, those forces are subtle and they can easily get overridden by presupposition or habit.

Science should do all it can to minimize the forces away from personal truths; in particular, at this stage in the science, we think it is quite risky to believe that observing manipulated experience will reveal the important features of consciousness. Observing manipulated experience might be adequate, but that should have to be shown, not assumed.

Examining pristine experience is difficult

Thus we believe that pristine experience should be basic data within consciousness science in particular and psychology and philosophy in general, but that is not the way science currently is. Consciousness studies currently is not focused on phenomena; there is far more energy and resources aimed at *correlates* of consciousness (neural and otherwise) than at the phenomena of consciousness themselves. Phenomena are almost entirely avoided by experimental psychology, even (or perhaps especially) by cognitive psychology. Even in phenomenology, there

is usually an eidetic aim that seeks essences behind phenomena, rather than (‘merely’) the accurate apprehension of the phenomena themselves. Hurlburt and Heavey (2006) discussed that eidetic aim in their comparison of DES with Giorgi’s phenomenological psychology, and we saw the behind-the-phenomena urge here in our discussion of PIM’s exploration of intuition and imagination: the examination of the ‘re-enacted’ phenomena during the interview was undertaken not out of an interest in the phenomena themselves or in the person experiencing the phenomena but for the sake of what light they could shed on intuition or imagination.

Even in the practice of DES, staying focused on pristine phenomena proves quite difficult. Subjects flee from the moment of the beep into (faux) general statements, into explanations of causes, into events that occurred in the past, into hypothetical discussions, into flights of metaphor, into all manner of conversations *other* than straightforward descriptions of actual experience. Students learning to perform the DES skills consistently have difficulty zeroing in their subjects to the phenomena occurring at the precise moment of the beep; they frequently inquire about the characteristics of an experience before they have ascertained that the subject actually had an experience; and they fall prey to all manner of distractions from inquiry about the actual beeped experience.

The challenges don’t end once one becomes skilled at DES. The beep’s instruction is simple—let’s communicate honestly, straightforwardly, truthfully about whatever makes its way into the subject’s experience. But as in all human endeavors that involve truth, there are a myriad of distractions (comfort, promotion/tenure/merit, grant money, peer acceptance, competing responsibilities of all kinds, etc.), always personally created, always seemingly innocuous. It requires substantial courage to set all that aside and go about the slow, repetitive, demanding, painful, seemingly boring business of bracketing presuppositions.

Examining pristine experiences must therefore be recognized as being a highly challenging endeavor; there is a strong tendency to avoid it at every level. Challenging does not mean impossible; we believe that DES can be performed adequately or well, probably not by everyone but by more than a few. The situation is quite similar to that of good meditation: we could restate Buddha’s, “The mind is fickle and flighty, it flies after fancies wherever it likes” as approximating, “Examining pristine experiences is difficult.” Examining pristine experience is possible, but it requires, much like true meditation, work, patience, and perseverance over the long haul.

DES can operate at a range of depths

There is a range of depths possible in the application of DES. At the shallower end of this range, the DES beep can be simply a signal for the gathering of data about the characteristics of experience (for example, investigating how frequently inner speech occurs in some population). At the deeper end of this range, the beep can be a relentless and unflinchingly impartial guide/taskmaster to those who would give themselves over to communicating fearlessly about all aspects of experience; the beep, if you let it, can break you of the sloppy habits of fleeing from uncomfortable or conflictual experience.

In that regard, DES is like an elevator into the crypts of inner experience. You can choose to get off at a variety of depths; the deeper you choose to go, the more committed you have to be to overcoming the obstacles to the burning out of presuppositions, not just bracketing them. To examine pristine experiences deeply and thoroughly, you have to make yourself vulnerable to the truth, which means letting go of the very ground you (presuppositionally) stand on so that you can encounter experience directly—including encountering things you don't want to see about yourself and others. The deeper you want to go into personal truths, the more courage is required, the more you must open yourself, get bruised yourself, be willing to become transparent, be willing to see your own unbridled greed as well as the neurotic fallout that seems inevitably to follow the exposure of greed, be willing to be deconstructed (a process, which, if you want to avoid complete disorganization, requires varying periods of digestion, integration, maturation) with no guarantees about what gets reconstructed in its place and no guarantees about how long and deep the process has to go.

The same phenomena exist outside every door of this elevator: sooner or later, among the ham sandwiches, gas stations, and television shows you must encounter sexual desire, anger, love, hate, jealousy, temptation, disappointment, guilt, competition, frustration, lust, insecurity, fear, death, despair, longing, responsibility, failure, prejudice, heartache, and so on. All these experiences, from the banal to the difficult, can be examined at a variety of depths. At the shallower doors, those phenomena can perhaps be glossed over; at the deeper doors, they have to be confronted and personally examined when they occur. The deeper the elevator door, the more direct the impact, sometimes with foundation-shattering ramifications for the investigator when his or her defenseless sensitivities somehow line up with the subject's experience.

Here again, there are parallels to meditation. There is a range of ways meditation can be used, from a simple relaxation exercise to a tool to burn out impurities until perfection is attained. We have no wish to overdraw this comparison; the Eastern traditions have spent centuries exploring methods training practitioners to pay attention to experience at a far deeper level than DES has attained. The DES beeper can be seen as a way of jump-starting that kind of meditation practice, using the portable beep in place of the monastery gong that calls monks to pay attention now.

Thus DES has the virtue that within it there is the possibility of substantial depth, regardless of whether that depth is plumbed by any particular applier at any particular time. DES observes the phenomena of experience, and those phenomena can be observed at a variety of levels.

Ramifications for the science of inner experience

As we have indicated, we think that a science of psychology/consciousness/inner experience should value faithful descriptions of pristine experience. If that is correct, the science will have to reorganize itself to incorporate this view because explorations of pristine experience such as DES are substantially at odds with orthodox psychology. In this section we will use DES as a concrete example, but we

think all explorations of pristine inner experience will share many of the characteristics of DES.

DES is an idiographic, personal description of careful observations of natural inner experience, whereas science, by contrast, is a nomothetic, objective, experimental, manipulative, and external data-gathering enterprise. Those are fundamental epistemological differences, and as a result, the science of psychology and inner experience is not yet well equipped to integrate explorations such as DES. Here are 10 steps we think science will have to take to realize the contributions of DES and other ways of exploring pristine experience.

First, science will have to determine whether consciousness/inner experience itself is a proper topic of investigation. There has been a resurgence of acceptance of consciousness studies over the last few decades, but whether that is a long term trend or an aberration remains to be seen.

Second, the science of consciousness/inner experience will have to begin to determine whether reports of pristine experience are as necessary and desirable as we claim them to be; we trust this article will contribute to that scientific discussion. However, because faithful reports of pristine experience are currently rare or nonexistent in science, science cannot currently be counted on to make an informed judgment about the desirability of observing pristine experience—science may not know what it is missing. It is likely, therefore, that science will have to bootstrap its judgment by making some number of independent but perhaps not very adequate attempts at exploring pristine experience (our DES investigations doubtless count in this number) and then evaluating those attempts, profiting from them, and making more adequate investigations.

A frequent argument against sampling approaches is that they miss brief but important events. For example, a random beep is extremely unlikely to catch a ‘moment of the intuitive breakthrough’ that interested Petitmengin (1999). That argument is true, but we think it is usually overdrawn for two reasons. First, Petitmengin (1999) did not catch moments of intuitive breakthrough either; that study focused on distant recollections/re-enactments of intuitive breakthroughs. Second, brief-but-rare phenomena are often (usually, in our view) not as important as people make them out to be. As in earthquake science, understanding the everyday, day after day, strains and pressures has at least as much (probably more, albeit not as dramatic) scientific value as understanding the chaos of the singular events—the quakes themselves. Thus DES-type investigations might prove useful even in very rare events such as intuitive breakthroughs: knowing with precision the inner characteristics of people who are about to have intuitive breakthroughs (and/or who just had them) may be of great value even if DES can’t hit the breakthrough itself.

Third, science will have to work out the ways of evaluating methods of exploring pristine experience (including DES). Hurlburt and Heavey (2002) demonstrated that DES reports about inner speech, images, unsymbolized thinking, feelings, sensory awareness, and multiple experiences have very high interobserver reliability. Hurlburt (1997) discussed the idiographic validity of DES reports. Those are starts, but will have to be replicated and/or improved by individuals apart from Hurlburt and his colleagues. A theory of idiographic validity in particular will have to be worked out.

Fourth, science will have to work out how to deal with idiographic reports. The repeated-observation nature of DES, each observation grounded in a new environment/occasion/pristine experience, allows truly idiographic investigations of experience and persons for the first time (not even Allport himself mounted a sustained idiographic effort; see Barenbaum 1997). The science of psychology has conflated the idiographic with the clinical, and as a result idiographic science has been a casualty of the war (Tavris, 2003) between experimental and clinical psychology. We have observed that there are substantial differences between DES expositional interviews and the clinical interviews that the science of psychology has shown to be invalid, but whether DES is enough different from the typical clinical interview to be valid enough on which to base a science of inner of inner experience remains to be shown. Under what circumstances should idiographic reports be considered at all? Under what circumstances should idiographic reports be considered ends in themselves or merely high-quality stepping stones on the way to nomothetic theory? How should idiographic reports be massed to draw nomothetic conclusions?

Fifth, science will have to focus on how to perform accurate observation, including the bracketing of presuppositions and naturalistic observation techniques. Is bracketing necessary? How thoroughly? Under what conditions? Is natural-environment observation necessary? Under what conditions? Are PIM's re-enactments adequate substitutes for natural observations? Are the simulations recommended by Davison (e.g., Davison, Vogel & Coffman, 1997) adequate substitutes for natural observations? Science for the most part makes relatively casual observations and relies on the experimental method to elaborate/amend those observations. Is that adequate, or would science be better served if it began with a thorough observation of the phenomena and only then applied the experimental or validation processes?

Sixth, science will have to determine how to evaluate individual DES practitioners and/or particular DES reports. It cannot be assumed that everyone who says they are 'doing DES' will do it with skill, nor that everyone who claims to have bracketed presuppositions will actually have done so adequately. The evaluation of a person or a report is a difficult process fraught with prideful and political pressures, but it is a necessary hurdle that has to be overcome if science is to admit reports such as DES. If science cannot determine with substantial reliability which DES reports are to be trusted and which are not, then DES is likely to have little scientific utility. An important first step is to distinguish between the following two questions: (1) Is it possible to examine inner experience with accuracy and report it faithfully? and (2) Can science distinguish between investigators who rightly claim they have examined inner experience accurately/faithfully, and those who make that claim without warrant? Those are two very different questions that are often confused. We believe the answer to (1) is Yes; we don't know the answer to (2).

It remains to be seen whether science can perform the discriminations required by question (2) adequately. The process has some similarities to the licensure issues facing clinical psychology, but there is one important difference: in most cases, there is a substantially correct answer to the fundamental DES question, "What was in the subject's experience at the moment of the beep?" Therefore, judgments about the correctness of any particular answer to that question may be much more concrete

and specific than is usually possible in the evaluation of clinical interview or psychotherapy skills.

Seventh, we have said that the openness to pristine experience can require a substantial amount of personal deconstruction/reconstruction. Science will have to determine the conditions under which more or less of that effort is required. There may well be classes of pristine-experience investigations where the bracketing of presuppositions can be straightforwardly accomplished, but others that require a thorough-going burning out of presuppositions. Which kinds of studies are which?

Eighth, science will have to refine DES or to develop methods better than DES to obtain faithful reports of experience.

Ninth, science will have to work out ways of rewarding/supporting those who attempt to explore inner experience. At best, DES is a labor intensive enterprise, requiring 5 to 10 h of interview time per participant. Intensive though that is, we have noted that it is not expensive by comparison, for example, to an hour in an fMRI magnet, but at present it is far easier to obtain funding for magnet time than for DES time. Furthermore, the required support is not likely to be merely financial—the bracketing of presuppositions is likely to require personal support as well. Deconstruction/reconstruction takes time and effort.

Tenth, science will have to work out how to teach skills like DES. How does one teach accurate observation, the bracketing of presuppositions, the commitment to personal reorganization? The modern curriculum emphasizes the teaching of experimental methods with their necessary manipulations, standardizations, objectifications, operationalizations, and statistical analyses, and those are positively inimical to the DES skills. Should we teach DES skills to the same people to whom we teach standard experimental skills? Or should we specialize and train the observers separately from the validators? What would a curriculum that actually fostered a skill like DES look like?

Postscript

We believe that the future of first- and second-person methods depends on the science of inner experience coming face to face with the issues of what constitutes an adequate introspective method under what circumstances. Otherwise the whole introspective enterprise may go down in flames brighter than the crash of introspection a century ago. As we have tried to make clear here and in other venues, we think that there is good reason to be highly skeptical of introspective reports, but that introspective reports can be quite accurate if an adequate method is used (Hurlburt & Heavey, 2004, 2006; Hurlburt & Schwitzgebel, *in press*).

We have discussed here the differences between DES and PIM to expose the anatomy of introspective methods and lay them open for consideration and analysis, but the important discussion is not merely about DES and PIM but about all introspective methods, including armchair introspection, simply inquiring “What’s in your experience?”, the various sampling methods (Hurlburt, 1997), and so on. We are of the opinion that DES avoids the risks imperiling introspection more adequately than do other methods, but the final decision in such matters belongs

to science, not to us. It is imperative for science to examine all introspective methods and their individual features to determine which features are necessary, which are desirable, which are inadequate, and so on. We think that it would be a mistake for science to treat the differing introspective methods as simply alternative ways of exploring experience, as if all were equally good. Science simply must face these issues/methods squarely and soon; failure to discriminate/evaluate/endorse/criticize/discard will in the long run destroy all first- and second-person investigations.

References

- Allport, G. W. (1942). *The use of personal documents in psychological science*. New York: Social Science Research Council.
- American Psychiatric Association (2000). *Diagnostic and statistical manual of mental disorders*, 4th edn., text revision. Washington, DC: American Psychiatric Association.
- Barenbaum, N. B. (1997). The case(s) of Gordon Allport. *Journal of Personality*, *65*, 743–755.
- Danziger, K. (1980). The history of introspection reconsidered. *Journal of the History of the Behavioral Sciences*, *16*, 240–262.
- Davison, G. C., Vogel, R. S., & Coffman, S. G. (1997). Think-aloud approaches to cognitive assessment and the articulated thoughts in simulated situations paradigm. *Journal of Consulting and Clinical Psychology*, *65*, 950–958.
- Doucette, S., & Hurlburt, R. T. (1993). Inner experience in bulimia. In R. T. Hurlburt, *Sampling inner experience in disturbed affect* (pp. 153–163). New York: Plenum.
- Fairburn, C. G., & Harrison, P. J. (2003). Eating disorders. *The Lancet*, *361*, 407–416, February 1, 2003.
- Giorgi, A. (1975). An application of phenomenological method in psychology. In A. Giorgi, C. Fischer, & E. Murray (Eds.), *Duquesne studies in phenomenological psychology, II* (pp. 82–103). Pittsburgh: Duquesne University Press.
- Giorgi, A. (1997). The theory, practice, and evaluation of the phenomenological method as a qualitative research procedure. *Journal of Phenomenological Psychology*, *28*, 181–205.
- Hurlburt, R. T. (1990). *Sampling normal and schizophrenic inner experience*. New York: Plenum.
- Hurlburt, R. T. (1993). *Sampling inner experience in disturbed affect*. New York: Plenum.
- Hurlburt, R. T. (1997). Randomly sampling thinking in the natural environment. *Journal of Consulting and Clinical Psychology*, *65*, 941–949.
- Hurlburt, R. T. (2006). *Comprehending behavioral statistics*, 4th edn. Belmont, CA: Wadsworth.
- Hurlburt, R. T., Happe', F., & Frith, U. (1994). Sampling the form of inner experience in three adults with Asperger syndrome. *Psychological Medicine*, *24*, 385–395.
- Hurlburt, R. T., & Heavey, C. L. (2001). Telling what we know: describing inner experience. *Trends in Cognitive Sciences*, *5*, 400–403.
- Hurlburt, R. T., & Heavey, C. L. (2002). Interobserver reliability of Descriptive Experience Sampling. *Cognitive Therapy and Research*, *26*, 135–142.
- Hurlburt, R. T., & Heavey, C. L. (2004). To beep or not to beep: obtaining accurate reports about awareness. *Journal of Consciousness Studies*, *11*, 113–128.
- Hurlburt, R. T., & Heavey, C. L. (2006). *Exploring inner experience: The Descriptive Experience Sampling method*. Amsterdam/Philadelphia: John Benjamins.
- Hurlburt, R. T., Heavey, C. L., & Seibert, T. (2006). Psychological science's prescriptions for accurate reports about inner experience. In R. T. Hurlburt, & C. L. Heavey, *Exploring inner experience: the Descriptive Experience Sampling method* (pp. 41–60). Amsterdam/Philadelphia: John Benjamins.
- Hurlburt, R. T., Koch, M., & Heavey, C. L. (2002). Descriptive Experience Sampling demonstrates the connection of thinking to externally observable behavior. *Cognitive Therapy and Research*, *26*, 117–134.
- Hurlburt, R. T., & Melancon, S. M. (1987). How are questionnaire data similar to, and different from, thought-sampling data? Five studies manipulating retrospectiveness, single-moment focus, and indeterminacy. *Cognitive Therapy and Research*, *11*, 681–703.
- Hurlburt, R. T., & Schwitzgebel, E. (in press). Describing inner experience? Cambridge, MA: MIT.
- James, W. (1890/1950). *The principles of psychology*. New York: Dover.

- Jones-Forrester, S. (2006). Inner experience in bulimia. Unpublished Masters Thesis, University of Nevada, Las Vegas.
- Kahneman, D., Slovic, P., & Tversky, A. (1982). *Judgment under uncertainty: heuristics and biases*. New York: Cambridge University Press.
- Kvale, S. (1996). *InterViews: An introduction to qualitative research and interviewing*. Thousand Oaks: Sage.
- Le Van Quyen, M., & Petitmengin, C. (2002). Neuronal dynamics and conscious experience: An example of reciprocal causation before epileptic seizures. *Phenomenology and the Cognitive Sciences*, 1, 169–180.
- Monson, C. K., & Hurlburt, R. T. (1993). A comment to suspend the introspection controversy: introspecting subjects did agree about imageless thought. In R. T. Hurlburt, *Sampling inner experience in disturbed affect* (pp. 15–26). New York: Plenum.
- Petitmengin, C. P. (1999). The intuitive experience. *Journal of Consciousness Studies*, 6, 43–77.
- Petitmengin, C. (this issue). Describing one's subjective experience in the second person: an interview method for the science of consciousness. *Phenomenology and the Cognitive Sciences*.
- Polivy, J., & Herman, C. P. (2002). Causes of eating disorders. *Annual Review of Psychology*, 53, 187–213.
- Stice, E. (2001). Risk factors for eating pathology: Recent advances and future directions. In R. H. Striegel-Moore, & L. Smolak (Eds.), *Eating disorders: Innovative directions in research and practice*. Washington, DC: APA Service Center.
- Tavris, C. (2003). Mind games: Psychological warfare between therapists and scientists. *Chronicle of Higher Education*, B7–B9, February 28, 2003.