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RESEARCH

Evaluating Reliance on Narratives in the Psychological Study of Religious Experiences

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In studying religious and spiritual experiences (RSEs), psychologists of religion have relied heavily on narratives. How sound is this practice? Using the Phenomenology of Consciousness Inventory (PCI), we diagnosed basic features of RSEs as narrated by 39 participants. This information permitted comparison with third-party ratings of narratives of the same experiences using the PCI's phenomenological categories. Analyzing participant ratings against baseline happy and ordinary experiences showed that the RSEs in our sample possess distinctive phenomenological features. Analyzing participant ratings against third-party ratings of RSE narratives disclosed significant and intelligible differences. Psychologists of religion should rely on RSE narratives where they are effective at communicating experiential content and supplement them with other approaches where narratives are less effective. Combining best practices from both approaches yields a more complete description of RSEs.

Religious and spiritual experiences (RSEs) are a central aspect of human religiosity and spirituality. Because of this, RSEs have received a great deal of scholarly and scientific attention. Psychologists of religion have focused on their meaning and personal effects, medical researchers have analyzed their health effects, sociologists have investigated their cumulative social effects, philosophers of religion have analyzed the reliability of RSEs as sources of religious belief, and neurologists have sought to identify their neural correlates. To understand RSEs is to gain insight into the almost-universal appeal of religious beliefs and behaviors and to shed light on the enormous existential and social power of religious movements.

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The questions guiding this study are how psychologists of religion should study RSEs and what picture of RSEs emerges from each of the techniques used to study RSEs. We argue that the long-standing reliance on RSE narratives is useful but problematic, and needs to be complemented by approaches more sensitive to the phenomenological content of RSEs.

NARRATIVE APPROACHES IN THE STUDY OF RELIGIOUS EXPERIENCES

RSEs are almost universally studied using narratives supplied by people who accept invitations to describe them. Many RSEs are recorded for posterity in the writings of mystics or other religious authors. The largest collections of RSEs, such as those of Edwin Starbuck, William James, and the Alister Hardy Trust, were built through collecting accounts submitted in response to newspaper advertisements, word-of-mouth invitations, and personal encounters (see Hardy, 1979; James, 1902; Starbuck, 1899). More recently Web-based invitations have become important (as at the Hardy Trust). People narrate such experiences relative to the plausibility structures and conceptual frameworks furnished by their religious or spiritual beliefs and practices. Sometimes the experience defies straightforward comprehension within extant patterns of understanding. Thus, researchers often include prompts to help narrators convey elements of RSEs that might be taken for granted or difficult to express.

It is easy to take for granted the central role of narratives in the psychological study of RSEs. But it was not always so. Indeed, it was not easy in the late 19th-century getting the scientific study of RSEs started, as Christopher White (2008) has explained. Early researchers experienced recrimination and outrage from those who felt that requests for RSE narratives improperly reduced wondrous living experiences to lifeless text. For example, while a student at Harvard Divinity School, and conducting research under the supervision of James, Starbuck circulated a request for stories of conversion and sanctification experiences. He asked for details about personal motivations for the experience, social influences on it, contextual features of it, belief in its supernatural origins, strange alterations of experience during it, and aftereffects of it, including relapse. James warned Starbuck that this would not sit easily with conservative New Englanders but permitted the study to go ahead. Leading liberal reformer Thomas Wentworth Higginson demanded to know whether James had truly signed off on the project, which he thought amounted to “moral and spiritual vivisection.” Starbuck’s early results were greeted by many with dismay and anger in the Divinity School context. Yet Starbuck’s effort on this and future studies eventually paid off. James relied heavily on his student’s work in his *Varieties of Religious Experience* (James, 1902). Eventually psychologists of religion became more comfortable with asking for detailed accounts of RSEs without fear that the meaning and value of such experiences were being depreciated.

After this rocky start, researchers compiled vast collections of RSE narratives. In most cases, written accounts were solicited by asking people to identify experiences that they themselves (rather than the researchers) considered religious or spiritual. Most of the insights we have into the nature of RSEs derive from these collections. James based his analysis in *Varieties* on extreme and colorful experiences, drawing on Starbuck’s and his own collections of narratives. Documenting the extremes sheds light on the range of experiences possible in human life—possible for some people, at least. Hardy took a broader view than James and based his analysis

on a much wider range of RSEs, including everyday experiences that people were prepared to call religious or spiritual (Hardy, 1979). He and his coworkers analyzed thousands of narratives for their distinctive features, producing a rich descriptive classification that continues to guide the field. The analysis of mystical experiences, which (despite James' and Hardy's wider interests) was the leading edge of the philosophical wing of the study of RSEs during the 20th century, depended almost solely on the writings of mystics long dead. Almost every aspect of the study of RSEs depends on narratives.

This cursory survey underlines the historic importance of RSE narratives in the psychology of religion. It also makes clear why this is fundamentally a useful state of affairs. Indeed, a psychologist might prefer narratives over other conceivable approaches on the grounds that, without the texture of story, the actual meaning of an experience in a person's life and social context is lost and subsequent interpretation is severely hobbled (see Yamane, 2000, who reminds sociologists of the dangers of isolating the study of RSEs from their concrete meaning in individual lives, as manifested in personal stories).

EVALUATING STRENGTHS AND WEAKNESSES OF NARRATIVE APPROACHES

Given the undeniable practical importance of narrative approaches to studying RSEs, researchers are wise to ask about potential liabilities. Alternative methods of studying RSEs have become increasingly sturdy, so comparative evaluations are increasingly tractable. Consider four alternatives to narrative methods in the study of RSEs, in order of increasing usefulness.

First, neurological imaging studies help researchers generate neural models of RSEs but offer little leverage to evaluate the reliability of personal accounts of RSEs.

Second, studies using linguistic analysis have demonstrated that measurable features of the way people use words correlate with mental and physical health, with mood and intention, and with state of mind (Campbell & Pennebaker, 2003; Gottschalk & Gleser, 1969; Landauer, Foltz, & Laham, 1998; Lepore & Smyth, 2002; Pennebaker, 1997; Pennebaker, Mayne, & Francis, 1997; Rosenberg & Tucker, 1978; Stiles, 1992). Linguistic analysis of RSE narratives should be useful for evaluating reliability of narratives. For example, a match between the presence of "meaning" vocabulary in a narrative and a subject's affirmation of the meaningfulness of the narrated experience would rightly increase confidence in the ability of narratives to convey relevant content. Similarly, if linguistic analysis suggests rich social embedding of the experience, yet this is not prominent in narrative structure, we would rightly wonder whether the narrative effectively communicates the experience in respect of its social texture.

Third, "live" techniques from experimental psychology are increasingly useful for studying RSEs, from inducing such experiences in artificial environments to priming experiments (Butler, McNamara, & Durso, 2009; Dijksterhuis, Preston, Wegner, & Aarts, 2008; Koole, McCullough, Kuhl, & Roelofsma, 2009; Pinchon, Boccato, & Saroglou, 2007). Such techniques can be made fruitful for evaluating RSE narratives because live experiences can also be narrated, and analysis of narratives then compared with experimental results. For example, the effect of visual priming on RSEs may or may not be detectable in expert interpretation or linguistic analysis of the corresponding RSE narratives; that would tell us something about the capacity of accounts of RSEs to convey priming effects.

Fourth, survey instruments are flexible methods for generating meaningful evaluations of RSE narratives. Using questionnaires about recalled RSEs that are also recounted, researchers can determine what kinds of information tend to be offered spontaneously in RSE accounts and what kinds tend not to appear without special prompting. Neither narratives nor surveys achieve “pure” access RSEs, unaffected by the way they are remembered as meaningful (on methodological challenges facing the scientific study of RSEs, including the problem of access to first-person states of consciousness, see Lutz & Thompson, 2003; Varela, 1996; Wildman & McNamara, 2008; also see the discussion of limitations later). Yet they can still be useful for evaluating RSE narratives. For example, suppose Hood and Rosegrant’s Religious Experience Episodes Measure (REEM; see Hill & Hood, 1999, pp. 220–224) was used in conjunction with a request to recount a RSE. The shortened and revised version of the Religious Experience Episodes Measure (Rosegrant, 1976) asks participants to rate on a 9-point Likert scale the similarity of the RSE in question to each of a series of 10 narratives drawn from James’s *Varieties*. A participant could rate standard narrative number 6 as similar to their own experience, whereas a third-party reader detects little relationship. An accumulation of such results would help to isolate the features of RSEs that tend to be important to those who experience them yet suppressed in narratives.

With this fourth kind of comparative evaluation in mind, but aiming for a more detailed assessment, we used a survey instrument that supplies a multidimensional phenomenological profile of a recalled experience. If participants recount experiences and score them using this instrument while independent raters score narratives using the same instrument, then we have a basis for sensitive quantitative comparison.

PHENOMENOLOGICAL METHODS AND THE PSYCHOLOGY OF RELIGION

Accessing the phenomenological features of a recalled experience (rather than observing behavioral consequences, analyzing cognitive structures, or experimenting with causal triggers) is not straightforward. Psychologists of religion have long debated problems of introspective recall and phenomenology of experience.

Behaviorists attempted to place psychology on a firm empirical basis by eschewing discussion of internal states of consciousness. In the phenomenological study of RSEs, there is cause to think that the behaviorists may have been wise: The diversity of descriptive analyses is pronounced and proposals are difficult to reconcile. For example, full recognition of the cultural, historical, and personal context for mystical RSEs (Bagger, 1999; Katz, 1978; Proudfoot, 1985) rightly corrected the decontextualized and apologetically driven approaches that previously dominated the study of mysticism (classically, Otto, 1917/1923; Schleiermacher, 1799/1893; Stace, 1960; Zaehner, 1957). But contextualism also produced a kind of particularism that threatened to exclude recognition of any patterns in or types of RSEs (see the analysis in Burhenn, 1995). The cognitive and emotional similarities of human beings across cultures may be limited, but they are significant enough to make such an extreme particularism as implausible as decontextualized abstract theological analyses of RSEs. The intractability of these disagreements about how RSEs register context suggests that phenomenologically

focused research is deeply problematic. Similarly intractable debates persist over whether RSEs are similar or different across cultures, eras, and individuals; whether they occur to religious and nonreligious people in similar ways; and whether they have recurring essential features.

The rapid growth of consciousness studies in the last few decades suggests that many psychologists and cognitive scientists believe that more can be done with internal states of consciousness than these intractable debates suggest. The recent flourishing of works on the cognitive science of religion takes seriously internal states of consciousness and attempts to analyze their conditions and consequences in some detail (Andresen, 2001; Atran, 2002; Boyer, 1999, 2000; essays in McNamara, 2006; McNamara, 2009; Wildman, 2011, in press). Psychologists studying RSEs have also been unwilling to treat the phenomenal content of experience as either intractable or unimportant, believing that the meaning-for-people of experience remains inaccessible if the cognitive and emotional content of consciousness is left out of the interpretative picture (e.g., Alschuler, 1993; Currie, Klug, & McCombs, 1982; Donovan, 1979; George, 1995; Hallman, 1963; Hardy, 1979; James, 1902; Kason, 1997; Kokoszka, 1992; Moehle, 1983; Murphy, 1992; Oxman, Rosenberg, Schnurr, Tucker, & Gala, 1998; Stace, 1960; Tart, 1975; Taves, 1999; Wildman, 2002, in press; Wildman & Brothers, 1999). Yet the variability of phenomenological analyses of RSEs casts doubt on the usefulness of phenomenological methods.

At root, the study of RSEs must rely on subjective reports as primary data sources. It is difficult to penetrate beyond subjective reports of recalled experiences to the phenomenological characteristics of the experiences themselves. (Revonsuo, 2006, offers an exhaustive analysis of the problem of subjective reporting in consciousness studies.) For instance, it is difficult to know whether impressionistic similarities among subjective reports reliably indicate the same type of experience, even when those impressionistic similarities are identified by experts. It is also difficult to allow for distortion involved in recall. In short, *Is salient information about the phenomenological qualities of states of religious consciousness reliably preserved in verbal reports of recalled RSEs?*

This question has led us to begin a research program that combines both third-party analysis of RSE narratives and participant rankings of phenomenological features of RSEs (Wildman & McNamara, 2008). Our research program demonstrates some of the ways that phenomenological approaches can be useful within the psychology of religion. First, appropriate phenomenological approaches allow for fine-grained analysis—in the case of the current study, analysis both of participants' recalled RSEs and of third-party interpretations of RSE narratives, thereby facilitating evaluation of the relative strengths and weaknesses of RSE narratives. Second, phenomenological approaches facilitate the systematic comparison of competing categorizations of RSEs and thereby the potential stabilization of a rich set of categories for describing and distinguishing types of RSEs. Third, and to our minds most importantly, suitable phenomenological approaches can help to isolate the formal cognitive features of RSEs, which then function as core components in cognitive models of RSEs, ultimately constraining neurological models. Our phenomenological approach not only helps answer methodological questions within the psychology of religion, it also illumines the nature of RSEs themselves, which is a central question within the field. To realize these benefits, however, it is important to adopt a protocol that mitigates the problems associated with recalling and describing past experiences.

METHOD

We asked a convenience sample of healthy volunteers to recall and narrate a religious experience, a happy experience, and an ordinary experience. Participants rated the degree to which a number of phenomenological features were present in each experience. We later asked two raters, one an expert and one a novice, both blinded to the purposes of the study, to rate participant narratives by means of the same instrument used by the participants themselves. We expected significant differences in phenomenological ratings on religious versus happy versus ordinary experiences, but made no predictions about the direction of difference. Centrally for the purposes of this article, we expected significant differences between participant ratings of the phenomenological properties of recalled RSEs and third-party ratings of RSE narratives.

Participants

Thirty-nine healthy, unpaid volunteers (15 male, 24 female) between the ages of 18 and 79 (M age = 34) were recruited from the Boston area by word of mouth. Participants had varied educational backgrounds (6 had some high school, 20 had some college, and 13 had some postgraduate training), ethnicity (31 European descent, 4 Asian descent, 3 African descent, 1 Hispanic descent), religion (9 Catholic Christian, 8 Protestant Christian, 5 Other Christian, 1 Jewish, 2 Pagan, 5 Atheist/Agnostic, 9 No Religion), and handedness (5 left, 34 right). This study was part of a larger study on religious social cognition, which was approved by the VA New England Healthcare System, Jamaica Plain Campus Institutional Review Board.

Measures

In addition to the Phenomenology of Consciousness Inventory (PCI; in forthcoming discussion), we used two instruments to ensure that our participant sample was not extremely atypical or unusually distributed regarding mood or religiosity. We used the in-built reliability feature of the PCI to check that our participants were completing the PCI accurately.

Depression, Anxiety, and Stress Scales (DASS). The DASS, developed by Lovibond and Lovibond (1995), is a 21-item questionnaire that assesses depression, anxiety, and stress on three separate subscales. There are 7 questions for each subscale. Participants were asked to indicate on a scale of 0 (*did not apply to me at all*) to 3 (*applied most of the time*) how much each question applied to them over the past week. It follows that scores for each scale range from a minimum of 0 (low depression, low anxiety, low stress) to a maximum of 21 (high depression, high anxiety, high stress). Antony, Bieling, Cox, Enns, and Swinson (1998) and Crawford and Henry (2003) reported excellent reliability, validity, and other psychometric properties for the three subscales of the DASS.

Our sample yielded means of 3.26 ($SD = 3.75$) for the DASS Depression subscale, 2.67 ($SD = 2.67$) for the Anxiety subscale, 6.21 ($SD = 4.76$) for the Stress subscale, and 12.13 ($SD = 9.84$) for the DASS Total (minimum = 0, maximum = 63). The sample was close to normally distributed around these means (Kolmogorov-Smirnov with Lilliefors Correction (KSL) statistic was .212 with significance $<.001$). None of our participants was unusually depressed, anxious, or stressed by DASS norms.

Brief Multidimensional Measure of Religiousness/Spirituality (BMMRS). The BMMRS was developed by a panel of experts on religion and health with the assistance of the Fetzer Institute (1999) and the National Institutes of Health and Aging. The BMMRS contains 38 statements in Likert scale formats, along with several yes/no, selection, and narrative responses, covering 11 domains of religious behavior, belief, and experience. Examples of questions and statements on the BMMRS include, “To what extent do you consider yourself a religious person?” and “I feel God’s presence.”

For this study, we read to participants the following preface prior to reading the directions that are on the BMMRS and administering the instrument itself:

This is a questionnaire that assesses your religious beliefs and spirituality. This instrument uses the language of God, religious congregation, and religious experience, but we understand that this does not apply naturally to everyone. If you have trouble with the concept “God,” please translate that concept into “Ultimate Reality” or “Ultimate Meaning.” If you have trouble with the idea of a religious congregation, then please translate that into the group of people who are most spiritually important to you. If you have trouble with the idea of religious experience, then interpret it as a spiritual experience.

The BMMRS Overall Self-Rating dimension yielded a mean of 4.92 ($SD = 1.48$) for our 39 participants (minimum = 2, maximum = 8), with the sample close to normally distributed (Kolmogorov-Smirnov with Lilliefors Correction was .177 with significance = .003). This indicates that the participants in our convenience sample were neither especially religious or spiritual, nor especially hostile to religion or spirituality.

The Phenomenology of Consciousness Inventory (PCI). To obtain participant and third-party ratings on an extensive range of phenomenological properties, we used the PCI developed by Pekala and associates (Pekala, 1991). The PCI is a self-report, 53-item questionnaire on phenomenological aspects of a state of consciousness associated with a particular stimulus condition. The subject is asked to complete the inventory while recalling a previous experience—thus the PCI is a *retrospective phenomenological analysis* tool. We designed our recall procedure to be like those used to produce the large databases of RSE narratives, previously discussed.

The PCI yields a quantitative profile of the quality of personal consciousness along 26 measures, grouped into 12 major dimensions (positive affect, negative affect, altered experience, imagery, attention, self-awareness, altered state of awareness, internal dialogue, rationality, volitional control, memory, and arousal). Twenty-one of the 26 dimensions are independent; the other 5 are averages of subdimensions. The 26 dimensions of the PCI, with their meanings and the abbreviations used for them throughout this article, are shown in Table 1. The 12 major dimensions are in italics.

Pekala and colleagues validated the PCI for the state of “sitting quietly with eyes open for four minutes” on sample of 112 subjects, and it was further tested for the state of “sitting quietly with eyes closed” with a sample size of 217. Pekala provided detailed validity and reliability data on the instrument (Pekala, 1991, chap. 5–7). The PCI has demonstrated excellent internal consistency, yielding coefficient alphas between .70 and .90 (Pekala, Steinberg, & Kumar, 1986). The PCI has been repeatedly tested and its domain of validity extended in numerous

TABLE 1
The 26 Dimensions of the Phenomenology of Consciousness Inventory (PCI),
Grouped into 12 Major Dimensions

<i>PCI Dimensions</i>	<i>Meaning of Dimension on Left (0) ... Right (6) Poles of Scale</i>
<i>Altered experience</i>	<i>Average of:</i>
Body image	Bodily feelings: within skin ... expand into world
Meaning	Insight, awe, reverence: none ... strong
Perception	World's appearance: no difference ... strong difference
Time sense	Flow of time: no change ... strong change
<i>Altered awareness</i>	<i>State of awareness: normal ... strikingly different</i>
<i>Physical arousal</i>	<i>Muscular tightness, tension: low ... high</i>
<i>Attention</i>	<i>Average of:</i>
Inward direction	Attention: directed to external world ... to internal experience
Absorption	Attention: distracted, low concentration ... completely absorbed
<i>Imagery</i>	<i>Average of:</i>
Amount	Amount of visual imagery: low ... high
Vividness	Imagery: vague, dim, diffuse, normal ... vivid like real-world objects
<i>Internal dialogue</i>	<i>Silent talking, internal dialogue: none ... strong</i>
<i>Memory</i>	<i>Memory: blurred, hazy, vacant ... sharp, distinct, complete</i>
<i>Negative affect</i>	<i>Average of:</i>
Anger	Anger, rage, upset: none ... strong
Fear	Fear, terror: none ... strong
Sadness	Sadness, unhappiness, dejection: none ... strong
<i>Positive affect</i>	<i>Average of:</i>
Joy	Ecstasy, extreme happiness, joy: none ... strong
Sexual excitement	Sexual feelings: none ... strong
Love	Feelings of love, living-kindness: none ... strong
<i>Rationality</i>	<i>Thinking: unclear, obscure, irrational ... clear, distinct, rational</i>
<i>Self-awareness</i>	<i>Self-awareness, self-consciousness: low ... high</i>
<i>Volitional control</i>	<i>Control over thoughts, attention: none ... high</i>

Note. The 12 major dimensions are in italics.

studies including hypnotic susceptibility, out-of-body experiences, eating disorders, shamanic states, drumming, creativity, phobias, depression, antisocial feelings, kleptomania, epilepsy, and meditation (see Angelini, Kumar, & Chandler, 1999; Forbes & Pekala, 1993, 1996; Grant, 2004; Hand, Pekala, & Kumar, 1995; Huang, Himle, & Alessi, 2000; Hutchinson-Phillips, Jamieson, & Gow, 2005; Johanson, Valli, Revonsuo, Chaplin, & Wedlund, 2008; Kumar, Marcano, & Pekala, 1996; Kumar & Pekala, 1988, 1989; Kumar, Pekala, & Cummings, 1996; Maitz & Pekala, 1991; Manmiller, Kumar, & Pekala, 2005; Maurer, Kumar, Woodside, & Pekala, 1997;

McCloskey, Kumar, & Pekala, 1999; Pekala, 1995a, 1995b, 2002; Pekala & Forbes, 1997; Pekala, Forbes, & Contrisciani, 1989; Pekala & Kumar, 1984, 1987, 1988, 1989; Pekala, Kumar, Maurer, Elliott-Carter, & Moon, 2006; Pekala & Nagler, 1989; Pekala et al., 1986; Spinhoven, Labbe, & Rombouts, 1993; Szabó, 1993; Rock, Wilson, Johnston, & Levesque, 2008; Vanderlinden, Spinhoven, Vandereycken, & van Dyck, 1995; Varga, Józsa, Bányai, & Gösi-Greguss, 2001; Venkatesh et al., 1997).

The PCI has been used with considerable success in its original domain of application, which was to investigate hypnotic susceptibility. There it produced predictions of the hypnotizability of experimental subjects that comport well with existing measures such as the Harvard Group Scale of Hypnotic Susceptibility and the Stanford Hypnotic Susceptibility Scales. The PCI has not been applied extensively to the study of RSEs, though it has been used in the study of religious meditation and a variety of altered states of consciousness that typically possess spiritual meanings for those who have them. Our use of the PCI is ambitious and its application to RSEs requires discussion, which we take up later in the Limitations section. For the purposes of this study, the way we use the PCI is sound, and the suggestiveness of our results for further study is clear.

The PCI includes five Reliability Item Pairs (RIP) used to assess the consistency of a participant's answers. Each pair consists of two similar questions with reverse polarity, widely separated on the questionnaire. Pekala's guideline in prior studies was that, if the average RIP score exceeded 2.0—that is, if the difference between the answers to the paired items, which range from 0 to 6 on a 7-point Likert scale, exceeded 2.0—then the participant might well be judged unreliable in filling out the PCI questionnaire. Our participants produced an average RIP score of .738 for happy experiences, .686 for ordinary experiences, and .938 for religious experiences. This indicates high average reliability. None of the participants produced an average RIP score for all three experiences that exceeded the cutoff of 2.0, so we excluded no participants from the study.

Experimental Protocol and Recall Procedure

All volunteers were informed of the nature of the study, consented to participate, and completed a demographics questionnaire. We then administered the DASS and the BMMRS. Subsequently, we carried out a recall procedure three times, one for each type of experience recalled.

All participants were asked to recollect three separate experiences: a religious experience (in the sense that the participant considers it religious or spiritual, following the Hardy Trust's approach to soliciting accounts of such experiences), an ordinary experience (neither particularly religious nor particularly intense), and a happy experience. The order of experiences was randomized. We requested experiences from within the last year. This proved possible for almost all happy and ordinary experiences, but 9 participants needed to go back several years to find a religious or spiritual experience that they were willing to share.

The recall prompt for all three experiences was, "I want you to tell me about a personal experience from within the last year that you remember as being X. Now I want you to take a moment to think about this X event. You may even close your eyes and think about all of the X events you have experienced. Then think about one X event, conjure it up, relive it, and then open your eyes and tell me about it. When you are ready to tell me about it, say *I'm ready*." For happy experiences, X was "very happy"; for religious experiences, X

was “intensely religious”; for ordinary experiences, X was “ordinary” and, on first mention, the definitional phrase “neither particularly religious nor particularly intense” was added. We defined a challenge procedure to be used when the experiences seemed inappropriate and in this way limited the effects of any misunderstanding of instructions. It was employed rarely. After the event was narrated, an approximate date of the event was requested. Most participants were able to recall an event from within a year of the testing date.

We then asked participants a series of questions about the event such as whether the experience changed the way they thought about themselves or other people; what images or metaphors would help explain the meaning of the event; what emotions were felt at the time; how subjectively intense the event was; whether the experience led to a desire to take any action; what time of day and year the experience occurred; where the experience occurred; whether the experience occurred while alone and who was involved; how often they thought about the experience in the days, weeks, and months following; how often they related the experience to others; the extent to which the experience was subjectively intense; the extent to which the experience was a spiritual experience. The questions were designed in part to help subjects recall more details about the event and in part to gather data relevant to estimating the problem of recall.

After these probe questions were answered, subjects were asked to renarrate the event, with the following prompt: “Now, I want you to tell this X event to me again, but this time I want you to imagine that you are at a dinner party and are being asked about your experience, or imagine that you are being interviewed on a talk show and getting ready to share your experience with the audience. You will not be dominating the conversation and you have plenty of time to relate your experience. All of the listeners are very interested in what you have to say, so I want you to tell me a really good story. You may begin whenever you are ready.”

After narrating an experience, dating it, answering questions about it, and then renarrating it, participants completed the PCI—a procedure repeated for each of the three experiences. Participants were asked to fill out the PCI on the basis of how they felt at the time of the experience. This closely matches the way RSE narratives are compiled in the major collections of reports of religious experiences.

The recall procedures were tape-recorded and later transcribed for analysis. Also, for each experience, latency to retrieval of the experience was measured from after the participant had heard instructions until the participant began sharing the memory. There was no time limit for recalling an experience. The protocol was administered by one of two people, both following identical procedures, in a private office setting.

Procedures for Raters

Using the transcribed narratives, two third-party raters not informed about the purpose of the study—an advanced graduate student in religious studies with extensive training in the academic study of RSEs, and an undergraduate student with no training in the academic study of religion—rated the 117 narratives that our 39 participants produced using the PCI instrument. For each narrative, this required the independent rater to read the first version of the narrative, read the answers to probe questions about the experience, read the second version of the narrative, and then assign a score to each of the 26 PCI dimensions for the experience underlying the narrative material they read. Raters had no access to demographic,

DASS, or BMMRS information. Their instructions were to use the questions relevant to each of the 21 independent PCI categories to define the meaning of each category, to imagine the experience for themselves, and then to assign an overall score to each PCI category. Raters were instructed, when information relevant to a particular PCI category seemed scarce, to draw on their intuition and knowledge to estimate a score. Training consisted in ensuring that raters could carry out the instructions properly. No attempt was made to instruct raters about RSEs in order to preserve the expertise contrast.

Our decision to allow raters access to two versions of each narrative, as well as probe questions about the underlying experience, is contestable. By furnishing information beyond a single narrative we potentially bias our results toward the conclusion that narratives are more effective means of communicating RSEs than they actually are in practice. We elected to do this because our participants were not particularly skilled narrators, whereas those volunteering RSE narratives for large collections, such as that of the Hardy Trust, did so in part presumably because they felt confident about the quality of the narration that they produced. Access to two versions of the narratives and to probe questions probably offers about the same amount of information as a polished, written narrative. Moreover, supplying the extra information to third-party raters before they rate the PCI categories makes the comparison with participant PCI scores more meaningful. Most important for the purposes of this study, supplying the extra information will tend to increase the impression of reliability of narratives, if anything, thereby making mismatches between participant and third-party PCI ratings that much more informative about the strengths and weaknesses of narrative communication.

Statistical Analysis and Multiple Comparisons

We calculated Pearson correlations to determine whether third-party interpreters of RSE narratives could produce PCI ratings matching those supplied by participants recalling experiences. Even if the means of the ratings differed—say because of a muting effect when moving from recalled experiences to interpreted narratives—Pearson correlations could still detect whether third-party raters were able to make the same kinds of discriminations in *relative* strength of phenomenological features by interpreting narratives that participants produce by recalling experiences.

Detecting significant differences among religious, happy, and ordinary experiences involves two types of multiple comparisons. One is straightforward: We allow for multiple comparisons in the analyses of variance (ANOVAs) comparing the three types of experiences. In relation to the numerous comparisons involved within the various dimensions of the PCI instrument, however, the question of allowing for multiple comparisons is theoretically less clear-cut.

Allowance for multiple comparisons is clearly necessary when comparing groups across statistically fully independent features. Allowance for multiple comparisons is clearly misleading when comparing groups over statistically dependent features. Consensus on these extreme cases is strong in statistical theory, but there are many mixed cases that are less clear-cut. A compromise can be struck using empirical methods on massive data sets to determine confidence levels that reduce the probability of Type I errors to a specified level, but that possibility does not exist for this study.

The PCI presents such a mixed case. On one hand, the 26 PCI dimensions depend on 21 measures, shown to vary significantly independently of one another. This suggests that

allowance should be made for 21 independent multiple comparisons. On the other hand, the PCI measures features of a relatively determinate state of consciousness, without asking about behaviors, cognitive content, religious beliefs, or contextual triggers. This suggests that no allowance should be made for multiple comparisons. Pekala's original studies and most since have assumed that allowing for multiple comparisons in the multidimensional PCI is misleading.

In the current study, comparison of participant and third-party ratings on most PCI dimensions falls clearly on one side or the other of the line of significance, whether or not that line is drawn making allowance for multiple comparisons. That is, whether significance is set at $\alpha = .05$ (not allowing for multiple comparisons), at .0038 (allowing for 21 multiple comparisons using $\alpha = 1 - (1 - .05)^{21}$), at .0024 (allowing for 21 multiple comparisons using $\alpha = .05/21$), at .0054 (allowing for 12 multiple comparisons of the major dimensions using $\alpha = 1 - (1 - .05)^{12}$), or at .0042 (allowing for 12 multiple comparisons using $\alpha = .05/12$), the correlations we obtained are consistently either significant or not significant for almost all PCI dimensions. This being the case, we decided to proceed conservatively by making allowance for 21 comparisons and assessing significance at the $\alpha = .0038$ level.

RESULTS

Using the PCI to Compare Introspective Recall and Narrative Analysis

The narratives. The following is an example from among the narratives of happy experiences we collected:

I went on a trip to Bermuda with my wife and my kids. I wasn't very enthused that the father-in-law and the mother-in-law were coming. They come like the package deal. But I accepted that anyway, so they came. And we had a great time. It was nice, enjoyable, relaxing. Spent time with the kids, the family, my wife. Just doing things, you know, 'cause I'm always working. Also it was my daughter's birthday.

An example of a narrated, ordinary experience follows:

One of the traditions in my household is that I make popcorn on Sunday night. It's a real ordinary event. If popcorn isn't made by 7 pm someone is asking "Where's the popcorn?" So on a typical Sunday night I will go into the kitchen between 6 and 7 in the evening and get out the big silver bowl and an air popper we have had for who knows how many years. I get the popcorn out of the refrigerator. We usually get about two tablespoons of butter and I put it in the microwave first. Then in the air popper I would pour in exactly a quarter cup of popcorn and it usually takes no more than 3 or 4 minutes before it is popped. And when that is done I dribble the butter into the pan as it is coming out of the air popper so there is an equal amount of butter throughout. And after it is all buttered I always take half a dozen popped corns, throw them into the butter dish, and sap up the last pieces of the butter and eat them. Rewards for being the maker. Then I dish out the rest to all interested parties. And then I take the remains and go upstairs and watch TV and eat popcorn.

Participants narrated diverse RSEs. Some were recognizably religious, such as the following:

I'm standing in front of a huge door, an open door, which is the entrance to the church I belong to. As I enter I know that I have to take my hat off and make a cross and walk in. I was anxious to

walk in because I hadn't been to church for two years. And I experienced this feeling I had every time I used to walk into church. I knew that it was going to be strong. As soon as I walked in, the smell of the candles—the special candles that we light in the church for good luck, for health, for just acknowledging all the dead people, just thinking of everyone that had touched you or been in your life and had gone—all the smell kind of hit me as I was walking into church. I knew I had to get my own candles to light. Passing by some other religious people standing there in the quiet, I walked all the way down to where the icons are and I just stood there staring at the pictures and all the paintings of all the religious scenes and Jesus. I just stood there and I lit my candle. I felt like I was collecting or ingesting this good energy that was coming to me from the entire place. I had been to church before but I had never felt like this. So that was something that I got addicted to and I had to do it almost like a little ritual every day.

Other RSEs occurred in nonreligious settings, such as the following:

I went running on the edge of the mountains in Utah, near the University of Utah, where it comes right up to the mountains. And it was nice outside, it was green and the sky was blue. And I was exercising. And I felt like, “Yeah, there's something more.” It could've been the euphoria of exercise.

We found that the second narration of experiences furnished detail additional to that available in the first account but that the extra detail did not necessarily make a better story. Sometimes the retelling dropped out key points from the first narrative or was less emotionally compelling. In all cases, however, having two accounts and the answers to probe questions enriched the data available to help the reader grasp the underlying experience. This effect seemed equally pronounced for all three types of experience.

RSE narratives (M word count of second narrative = 324, SD = 205) were significantly lengthier than narratives for both happy (M = 224, SD = 168) and ordinary (M = 199, SD = 146) experiences. A one-way ANOVA on word count of the second narrative across the three groups yielded $F(2) = 4.31$, ($df = 2$, $p = .016$). Post hoc testing with Bonferroni correction showed significant mean differences for RSE versus ordinary ($p = .02$) and marginally significant differences for RSE versus happy ($p = .082$).

Latency to recall was much longer across the board on the first narration (M = 46 sec., SD = 101) than on the second (M = 8.1, SD = 13.4), with RSEs having the longest latency both times. For the second narration, latency for RSEs (M = 13.9 sec, SD = 19.2) was significantly longer than both happy (M = 5.3, SD = 9.8) and ordinary (M = 5.0, SD = 5.7) experiences. A one-way ANOVA on latency to recall for the second narrative across the three groups yielded $F(2) = 5.67$, ($df = 2$, $p = .005$). Post hoc testing with Bonferroni correction showed marginally significant mean differences in latency to recall for RSE versus ordinary experiences ($p = .010$) and marginally significant differences for RSE versus happy experiences ($p = .016$).

Almost all participants recalled happy or ordinary experiences from within the previous year, but 9 participants only felt comfortable sharing a religious experience from several years earlier. This made the average time-since-experience significantly higher for religious than for happy or ordinary experiences (a one-way ANOVA yielded a between-groups F value of 7.128, $p = .001$). Yet this difference between experience types did not have an impact on latency to recall, which was not significantly related to time-since-experience on a univariate ANOVA (between-subjects $F = 1.573$).

The muting effect of narratives. We calculated means (and standard deviations) across the 117 narratives for our 39 participants, the expert rater, and the novice rater. The results are presented in Table 2. A suggestive way to present these data is a radar graph. The mean for each PCI dimension is plotted on a radius stretching from the center outward to 6 at the circumference. The plot in Figure 1 displays participants versus raters for all 117 experiences (happy, ordinary, and RSE), and the plot in Figure 2 does the same just for the 39 RSEs. Note that the radius has been lengthened to unpack results close to zero at the center of the plot.

The most obvious feature of these results is that the participant scores tend to be higher than the scores of both raters for most PCI dimensions. This impression is confirmed by comparing the means of all 117×21 ratings: participant ratings ($M = 2.64$, $SD = 2.12$) are significantly higher than both expert ($M = 1.93$, $SD = 2.10$) and novice ratings ($M = 2.40$, $SD = 2.25$).

TABLE 2
Comparison of Participant PCI Ratings Based on Introspective Recall Versus
Narrative-Based PCI Scores From Two Independent Raters

<i>PCI Dimensions: 117 Narratives</i>	<i>Participants M (SD)</i>	<i>Rater 1 (Expert) M (SD)</i>	<i>Rater 2 (Novice) M (SD)</i>
AE	1.86 (1.39)	0.86 (0.91)	1.83 (1.25)
AE_Abody	1.89 (1.73)	0.17 (0.93)	1.38 (1.61)
AE_Amean	2.22 (1.77)	2.47 (1.98)	1.46 (1.82)
AE_Aperc	1.23 (1.41)	0.35 (1.31)	2.09 (1.96)
AE_Atime	2.00 (1.85)	0.44 (1.29)	2.37 (1.94)
ALA	1.89 (1.86)	1.76 (2.24)	1.10 (1.78)
AR	1.79 (1.54)	1.12 (1.54)	2.52 (1.44)
AT	3.42 (1.17)	3.38 (1.28)	3.44 (1.27)
AT_Absorption	4.33 (1.31)	4.05 (1.23)	4.12 (1.35)
AT_Direction	2.81 (1.58)	2.77 (1.70)	2.75 (1.84)
IM	2.02 (1.28)	0.67 (1.20)	2.32 (1.23)
IM_Amount	2.96 (2.94)	0.84 (1.36)	2.04 (1.52)
IM_Vivid	2.83 (1.66)	0.50 (1.22)	2.60 (1.20)
IND	2.52 (1.93)	0.85 (1.54)	1.73 (2.17)
M	4.82 (1.07)	3.91 (1.20)	5.64 (0.90)
NA	1.04 (1.24)	1.04 (1.41)	0.59 (1.04)
NA_Anger	1.05 (1.53)	1.08 (1.66)	0.57 (1.23)
NA_Fear	0.83 (1.41)	0.98 (1.51)	0.47 (1.21)
NA_Sad	1.19 (1.58)	1.07 (1.83)	0.72 (1.49)
PA	2.44 (1.41)	1.76 (1.22)	1.31 (1.29)
PA_Joy	3.26 (1.98)	3.13 (1.99)	2.03 (2.14)
PA_Love	3.32 (1.97)	1.97 (1.93)	1.82 (2.02)
PA_SE	0.77 (1.40)	0.16 (0.74)	0.09 (0.53)
R	4.80 (1.31)	4.56 (0.97)	5.62 (0.73)
SA	4.60 (1.14)	4.10 (1.09)	3.62 (1.64)
VC	4.23 (1.40)	4.19 (1.15)	5.69 (0.75)

Note. PCI = Phenomenology of Consciousness Inventory; AE = altered experience; Abody = body image; Amean = meaning; Aperc = perception; Atime = time sense; ALA = altered awareness; AR = physical arousal; AT = attention; Direction = inward direction; IM = imagery; Vivid = vividness; IND = internal dialogue; M = memory; NA = negative affect; Sad = sadness; PA = positive affect; SE = sexual excitement; R = rationality; SA = self-awareness; VC = volitional control.

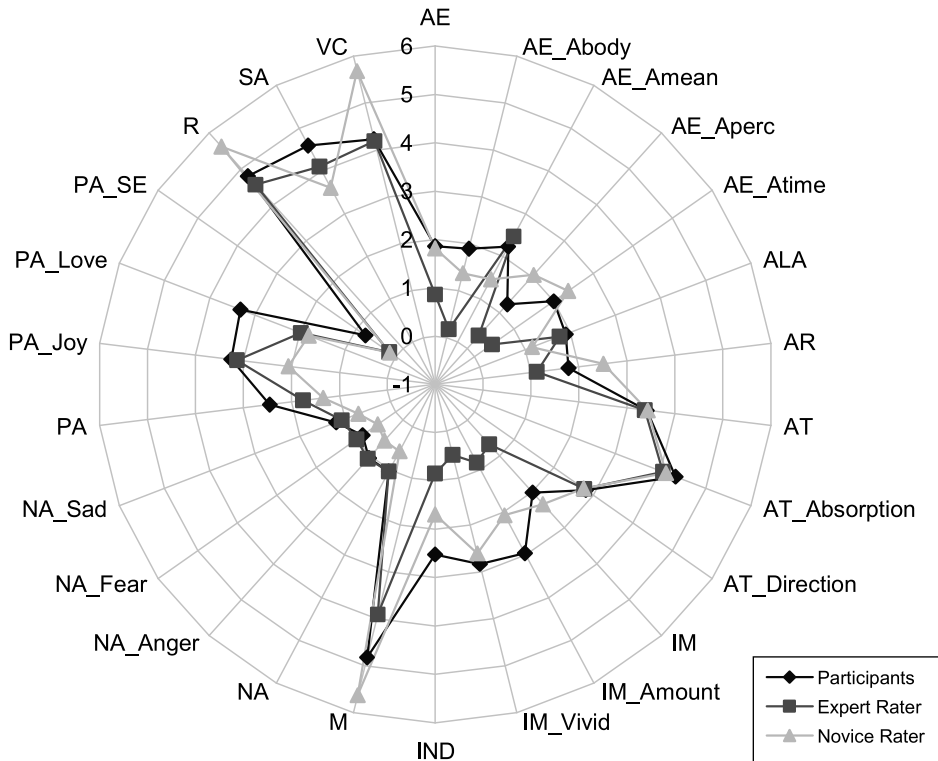


FIGURE 1 Radar plot of Phenomenology of Consciousness Inventory ratings of 117 experiences (happy, ordinary, and religious) for participants and two raters. *Note.* AE = altered experience; Abody = body image; Amean = meaning; Aperc = perception; Atime = time sense; ALA = altered awareness; AR = physical arousal; AT = attention; Direction = inward direction; IM = imagery; Vivid = vividness; IND = internal dialogue; M = memory; NA = negative affect; Sad = sadness; PA = positive affect; SE = sexual excitement; R = rationality; SA = self-awareness; VC = volitional control.

Paired-samples t tests yielded $p < .0001$ for all three comparisons. This is also the case for the 39 RSE narratives considered separately.

This indicates the presence of a muting effect, whereby the phenomenological features of experience are more pronounced for those who recollect and narrate the experiences than for those who approach the same experiences through reading narratives. Presumably introspectively and expressively gifted storytellers might do better in this regard, but we did not evaluate this. The muting effect may be due to the nature of narratives or to the nature of interpretation; we did not attempt to evaluate this because it is not relevant to our conclusions.

Correlations for PCI dimensions. Pearson correlations between participant PCI scores and third-party rater PCI scores enable us to discriminate between the phenomenological features that narratives communicate well and those that narratives convey poorly, while allowing for the muting effect just described. For the reasons just discussed, *significance of*

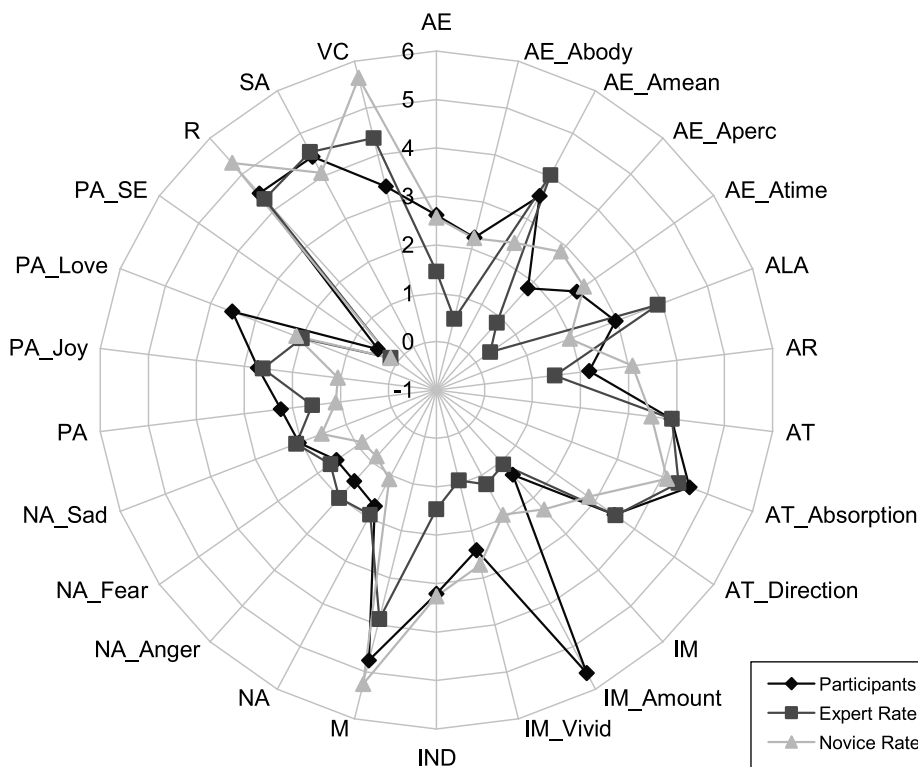


FIGURE 2 Radar plot of Phenomenology of Consciousness Inventory ratings of 39 RSEs for participants and two raters. *Note.* AE = altered experience; Abody = body image; Amean = meaning; Aperc = perception; Atime = time sense; ALA = altered awareness; AR = physical arousal; AT = attention; Direction = inward direction; IM = imagery; Vivid = vividness; IND = internal dialogue; M = memory; NA = negative affect; Sad = sadness; PA = positive affect; SE = sexual excitement; R = rationality; SA = self-awareness; VC = volitional control.

correlations is assessed at the .0038 level. The correlations are presented in Table 3. The most notable conclusions to be drawn from these correlation results are as follows.

First, certain phenomenological features of experiences communicated quite clearly through narratives, in the sense that their relative strength was registered by both expert and novice interpreters in much the same way. Note that this result is consistent with the “relative muting” result from the previous section: a narrative reader can get the sense that anger is stronger than fear and weaker than sadness in roughly the same degree that the narrator recalls these features of experience, even though all of the impressions are muted for the narrative reader relative to the narrator. We add comments about ways in which results for the 39 RSEs differ from results for all 117 narratives.

- Affect, both negative (anger, fear, sadness) and positive (joy, love, sexual excitement). Narrators communicate emotion quite well, and both expert and novice interpreter accurately registered the relative strength of affect dimensions. Love was more difficult to

TABLE 3
Correlations Between Participant and Third-Party Rater PCI Scores for All 117 Narratives

PCI Dimension	Participant With Expert Rater		Participant With Novice Rater		Expert With Novice Rater	
	Correlation	Sig.	Correlation	Sig.	Correlation	Sig.
AE	.45	.00	.10	.31	.38	.00
AE_Abody	.22	.02	-.08	.38	-.09	.34
AE_Amean	.59	.00	.25	.01	.29	.00
AE_Aperc	.11	.22	.03	.74	.24	.01
AE_Atime	.31	.00	.04	.68	.05	.62
ALA	.48	.00	.39	.00	.30	.00
AR	.26	.01	.06	.52	.07	.48
AT	.26	.00	.05	.59	.02	.84
AT_Absorption	.13	.17	.05	.57	.02	.86
AT_Direction	.26	.01	.02	.87	.04	.65
IM	-.07	.44	.06	.54	.18	.05
IM_Amount	.36	.00	.11	.24	.19	.04
IM_Vivid	.12	.20	.08	.41	.16	.08
IND	.12	.20	.14	.13	.23	.02
M	.02	.81	-.03	.77	.02	.87
NA	.63	.00	.59	.00	.63	.00
NA_Anger	.57	.00	.43	.00	.49	.00
NA_Fear	.48	.00	.52	.00	.53	.00
NA_Sad	.59	.00	.67	.00	.64	.00
PA	.72	.00	.63	.00	.71	.00
PA_Joy	.74	.00	.54	.00	.60	.00
PA_Love	.48	.00	.49	.00	.58	.00
PA_SE	.61	.00	.58	.00	.79	.00
R	.15	.10	.34	.00	.24	.01
SA	-.00	.99	.02	.88	.14	.12
VC	.04	.66	.28	.00	.23	.01

Note. PCI = Phenomenology of Consciousness Inventory; AE = altered experience; Abody = body image; Amean = meaning; Aperc = perception; Atime = time sense; ALA = altered awareness; AR = physical arousal; AT = attention; Direction = inward direction; IM = imagery; Vivid = vividness; IND = internal dialogue; M = memory; NA = negative affect; Sad = sadness; PA = positive affect; SE = sexual excitement; R = rationality; SA = self-awareness; VC = volitional control.

convey in RSE narratives ($r = .37$ for participant-expert, $r = .42$ for participant-novice) than in other types of narratives.

- Alterations of awareness. Inexperienced narrators can convey when their state of consciousness departs from the normal and familiar. Our expert interpreter ($r = .48$) did slightly better than the novice interpreter ($r = .42$) at picking up on the strength of altered awareness in RSEs.

Second, another set of phenomenological features of experiences proved easier to convey to our expert interpreter than to our novice interpreter. The phenomenological features that have this characteristic correspond to the following PCI dimensions.

- Alterations of experience—*significant* difference for changes in experience overall, changes in meaningfulness, and changes in sense of time; *marginally significant* difference for alterations of body sense; but *not* alterations of perception. Alterations of experience appear to be more difficult for ordinary narrators to explain, giving expert interpreters an advantage in discerning the qualities of the underlying experience. When moving from all 117 experiences to just the 39 RSEs, only the alteration-of-meaning subdimension produced a significant correlation, and here again the expert interpreter enjoyed a large advantage over the novice ($r = .58, p < .0001$ vs. $r = .13, ns$).
- Arousal, in the physical not sexual sense—marginal for all narratives and significant for the 39 RSEs ($r = .47, p = .0025$ vs. $r = .055, ns$).
- Attention in general—marginal for all narratives and significant for the 39 RSEs ($r = .49, p = .0014$ vs. $.22, ns$); the inward directedness of attention specifically—marginal for all narratives and significant for the 39 RSEs ($r = .48, p = .0034$ vs. $r = .16, ns$).
- Amount of imagery ($r = .51, p < .0008$ vs. $r = .25, ns$, for RSEs alone). This did *not* apply to vividness of imagery or to imagery overall, though our expert interpreter achieved a marginally significant result for vividness of imagery in RSEs ($r = .36, p = .023$).

Third, the remaining dimensions of the PCI correspond to phenomenological features of experience that appear to be difficult to convey in narrative form, or unlikely to come to mind when narrating an experience. The result is that both expert and novice interpreters struggle to appreciate the relative importance of these dimensions in the narrator's experience. This holds for all experiences generally and for RSEs specifically; indeed, in the case of RSEs interpretation seems to be more challenging in regard to most PCI dimensions.

Using the PCI to Evaluate Narrative Content

We also attempted to assess the adequacy of narratives at the level of narrative content. The most obvious content question—so obvious that it might be overlooked—is whether the basic meaning of the three types of narratives—namely, that they convey happy, ordinary, or religious experiences—corresponds to characteristics in the underlying experiences themselves. We used the PCI to determine whether there are *significant and intelligible differences* in the phenomenological profile of experiences that participants called happy, ordinary, and religious.

Happy versus ordinary versus religious experiences. We analyzed differences among the three experience types by performing a one-way ANOVA on the 26 PCI dimensions between the three groups of ordinary, happy, and religious experiences. Results are displayed in Table 4. All p values are Bonferroni adjusted for multiple group comparisons (i.e. ordinary vs. happy vs. religious). The main results are as follows.

- Altered Experience was rated as significantly higher for religious experiences than both happy ($p = .012$) and ordinary ($p < .0001$) experiences; in particular, Altered Meaning was rated as significantly higher for religious experiences than both happy ($p < .0001$) and ordinary ($p < .0005$) experiences. Altered Perception was significantly higher for religious experiences than ordinary experiences ($p = .002$). Altered Awareness was significantly

TABLE 4
PCI Means (With Standard Deviations) for Happy Versus Ordinary Versus Religious Experiences

<i>PCI Dimension</i>	<i>Happy</i>	<i>Ordinary</i>	<i>Religious</i>	<i>Overall Sig.</i>
AE	1.76 (1.26)	1.20 (1.01)	2.61 (1.50)	<.0005 ^{b,c,*}
AE_Abody	2.08 (1.73)	1.36 (1.45)	2.24 (1.89)	.056 (<i>ns</i>)
AE_Amean	1.96 (1.36)	1.17 (1.39)	3.54 (1.68)	<.0005 ^{b,c,*}
AE_Aperc	1.14 (1.32)	0.735 (0.986)	1.82 (1.66)	.002 ^{c,*}
AE_Atime	1.89 (1.75)	1.56 (1.71)	2.54 (2.00)	.060 (<i>ns</i>)
ALA	1.72 (1.59)	0.991 (1.46)	2.97 (1.96)	<.0005 ^{b,c,*}
AR	1.51 (1.43)	1.67 (1.52)	2.18 (1.60)	.133 (<i>ns</i>)
AT	3.11 (1.04)	3.26 (1.19)	3.89 (1.16)	.007 ^{b,c,*}
AT_Absorption	4.03 (1.41)	4.37 (1.42)	4.60 (1.03)	.147 (<i>ns</i>)
AT_Direction	2.42 (1.53)	2.51 (1.58)	3.49 (1.44)	.004 ^{b,c,*}
IM	2.46 (1.33)	2.23 (1.26)	1.36 (0.970)	<.0005 ^{b,c,*}
IM_Amount	1.74 (1.49)	1.51 (1.64)	5.62 (3.26)	<.0005 ^{b,c,*}
IM_Vivid	3.17 (1.58)	2.91 (1.45)	2.41 (1.88)	.142 (<i>ns</i>)
IND	2.00 (2.06)	2.36 (1.90)	3.21 (1.64)	.017 ^{b,*}
M	4.87 (1.12)	4.85 (1.01)	4.75 (1.08)	.874 (<i>ns</i>)
NA	0.461 (0.703)	0.945 (1.22)	1.71 (1.38)	<.0005 ^{b,c,*}
NA_Anger	0.282 (0.605)	1.32 (1.71)	1.53 (1.70)	<.0005 ^{a,b,*}
NA_Fear	0.487 (0.885)	0.487 (0.970)	1.53 (1.91)	.001 ^{b,c,*}
NA_Sad	0.512 (0.949)	1.03 (1.41)	20.4 (1.88)	<.0005 ^{b,c,*}
PA	3.49 (1.03)	1.61 (1.18)	2.24 (1.32)	<.0005 ^{a,b,*}
PA_Joy	4.81 (1.03)	2.24 (1.61)	2.72 (2.13)	<.0005 ^{a,b,*}
PA_Love	4.38 (1.52)	2.06 (1.77)	3.51 (1.90)	<.0005 ^{a,c,*}
PA_SE	1.29 (1.76)	0.526 (1.01)	0.474 (1.20)	.014 ^{a,b,*}
R	5.06 (1.05)	4.88 (1.41)	4.46 (1.39)	.115 (<i>ns</i>)
SA	4.63 (0.901)	4.71 (1.21)	4.45 (1.29)	.599 (<i>ns</i>)
VC	4.41 (1.06)	4.96 (1.22)	3.32 (1.38)	<.0005 ^{b,c,*}

Note. PCI = Phenomenology of Consciousness Inventory; AE = altered experience; Abody = body image; Amean = meaning; Aperc = perception; Atime = time sense; ALA = altered awareness; AR = physical arousal; AT = attention; Direction = inward direction; IM = imagery; Vivid = vividness; IND = internal dialogue; M = memory; NA = negative affect; Sad = sadness; PA = positive affect; SE = sexual excitement; R = rationality; SA = self-awareness; VC = volitional control.

Pairwise significance results are expressed using superscripts: ^aSignificant difference between happy and ordinary. ^bSignificant difference between happy and religious. ^cSignificant difference between ordinary and religious.

*Significant at the .05 level.

higher for religious experiences than both happy ($p = .004$) and ordinary ($p < .0005$) experiences.

- Attention was rated as significantly more inward and/or absorbed for religious experiences than both happy ($p = .009$) and ordinary ($p = .046$) experiences; in particular, attention was significantly more inwardly directed for religious experiences than both happy ($p = .007$) and ordinary ($p = .017$) experiences.
- Imagery content was rated as significantly higher in religious experiences than both happy ($p < .0005$) and ordinary ($p = .005$) experiences; in particular, the amount of imagery was significantly higher for religious experiences than both happy ($p < .0001$) and ordinary ($p < .0001$) experiences.

- Internal Dialogue was rated as significantly higher for religious experiences than happy experiences ($p = .016$).
- Negative Affect was rated as significantly higher for religious experiences than happy ($p < .0001$) and ordinary ($p = .010$) experiences; this is especially due to Anger being lower for happy experiences than both ordinary ($p = .005$) and religious ($p = .001$) experiences. Fear was rated significantly higher for religious experiences than both happy ($p = .003$) and ordinary ($p = .003$) experiences, and Sadness was rated significantly higher for religious experiences than both happy ($p < .0001$) and ordinary ($p = .008$) experiences.
- Positive Affect was rated as significantly higher in happy experiences than ordinary ($p < .0001$) and religious ($p < .0001$) experiences; this is especially due to Joy for happy experiences being significantly higher than ordinary ($p < .0001$) and religious ($p < .0001$) experiences.
- Volitional Control was rated significantly lower for religious experiences than for both happy ($p < .0005$) and ordinary ($p < .0001$) experiences.

The graph in Figure 3 displays the PCI dimensions for which religious experiences displayed significant differences from both happy and ordinary experiences. The error bars indicate 95% confidence levels.

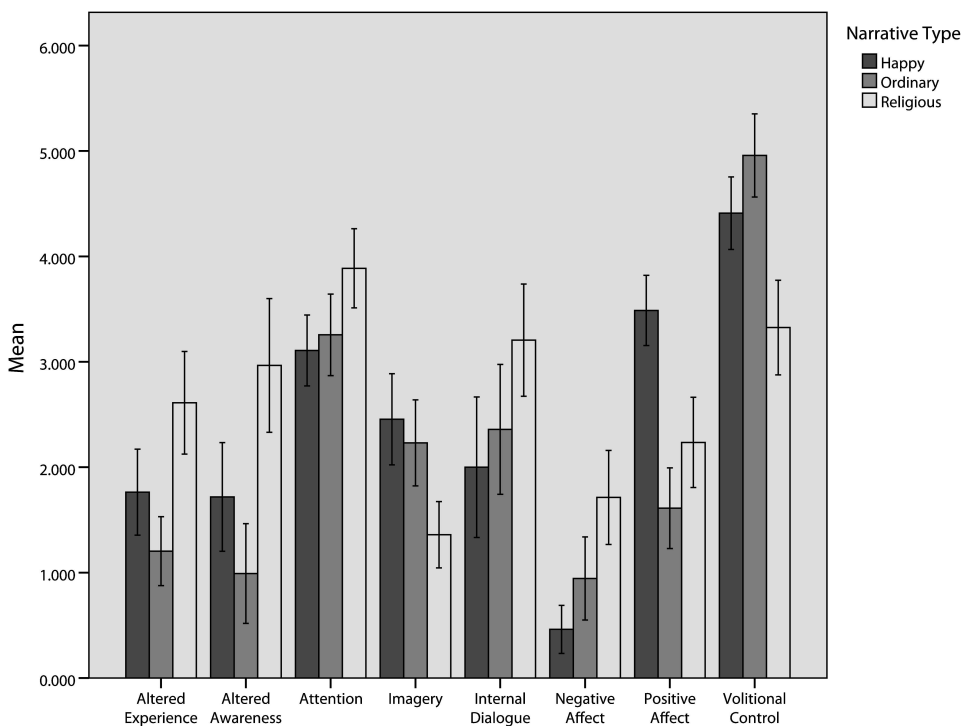


FIGURE 3 Phenomenology of Consciousness Inventory dimensions for which religious experiences displayed significant differences from both happy and ordinary experiences. *Note.* Error bars indicate 95% confidence levels.

The radar graphs in Figure 4 and Figure 5 display the results. PCI dimensions with significant pairwise mean differences (at the .05 level) are marked on the radar graph using the same convention as in Table 4: superscript a indicates significant difference for Happy versus Ordinary, superscript b indicates significant difference for Happy versus Religious, and superscript c indicates significant difference for Ordinary versus Religious. Figure 4 displays PCI scores for only the 12 major dimensions for the sake of clarity; Figure 5 shows all 26 dimensions.

It is conceivable that the differences among happy, ordinary, and religious experiences could be due in significant part to differential difficulty in recalling these three types of experiences. It is also conceivable that subjective intensity of the experience might differentially affect ease of recall. Using happy experiences as a baseline complicates the role of positive affect in the PCI-based contrasts. To investigate such potential confounds, we ran multivariate analyses of

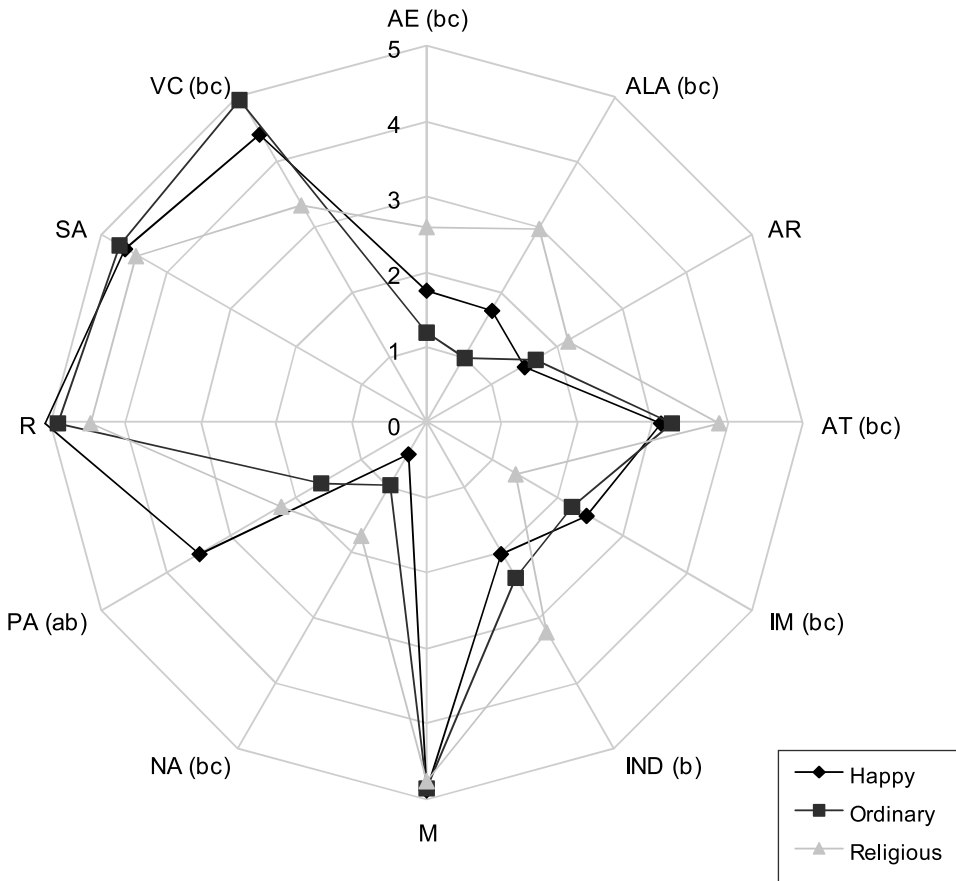


FIGURE 4 The Phenomenology of Consciousness Inventory’s 12 major dimensions for happy versus ordinary versus religious experiences. *Note.* AE = altered experience; ALA = altered awareness; AR = physical arousal; AT = attention; IM = imagery; IND = internal dialogue; M = memory; NA = negative affect; PA = positive affect; R = rationality; SA = self-awareness; VC = volitional control. a = significant difference between happy and ordinary; b = significant difference between happy and religious; c = significant difference between ordinary and religious.

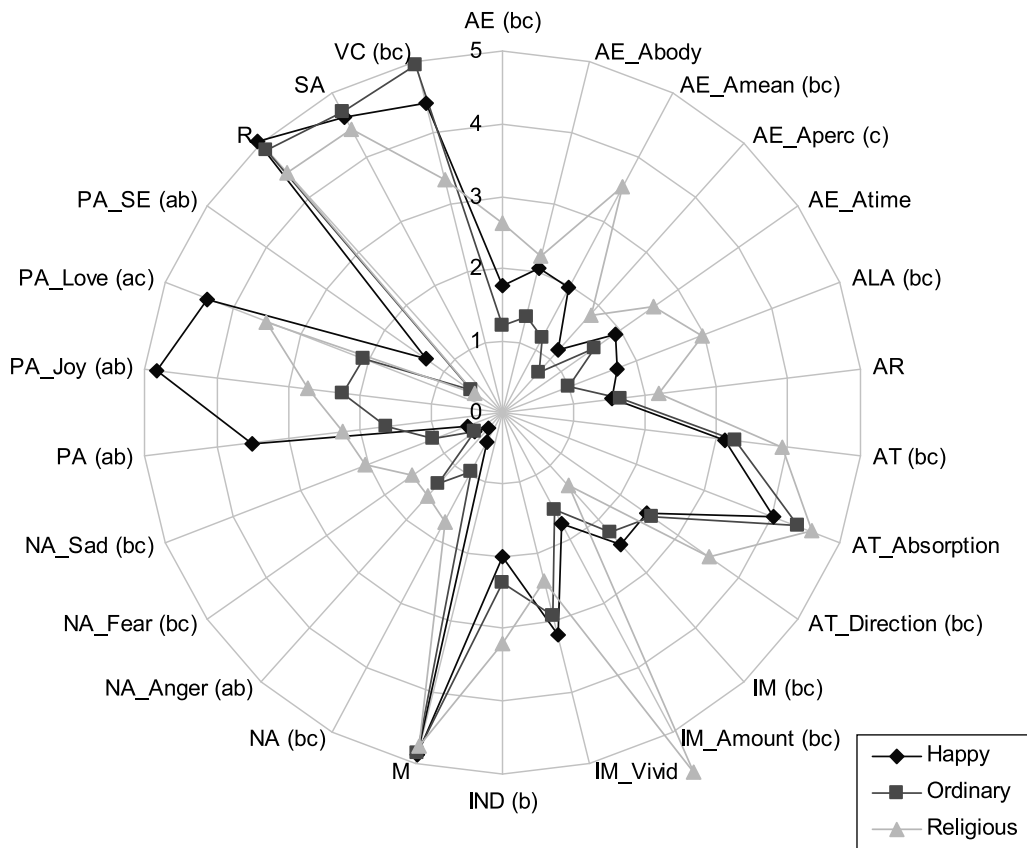


FIGURE 5 The Phenomenology of Consciousness Inventory's 26 major and minor dimensions for happy versus ordinary versus religious experiences. *Note.* AE = altered experience; Abody = body image; Amean = meaning; Aperc = perception; Atime = time sense; ALA = altered awareness; AR = physical arousal; AT = attention; Direction = inward direction; IM = imagery; Vivid = vividness; IND = internal dialogue; M = memory; NA = negative affect; Sad = sadness; PA = positive affect; SE = sexual excitement; R = rationality; SA = self-awareness; VC = volitional control. a = significant difference between happy and ordinary; b = significant difference between happy and religious; c = significant difference between ordinary and religious.

covariance for happy versus ordinary versus religious experiences, controlling for both latency to recall and subjective intensity ratings, for just one or the other, and for positive affect. The result of these analyses, which are too extensive to report in detail here, is that the formal phenomenological features distinguishing RSEs from happy and ordinary experiences remain substantially the same in all cases.

PCI ratings and affect. Our rater analysis showed that narrators communicate all aspects of both positive affect and negative affect to both expert and novice interpreters quite easily and accurately. That being the case, can we use the rater analysis to confirm the reliability of narratives for communicating the more complex features of affect, such as relative strength? We ran a one-

TABLE 5
One-Way Analysis of Variance Showing Means (With Standard Deviations) for Happy Versus Ordinary Versus Religious Experiences on Major PCI Affect Dimensions

<i>PCI Dimension</i>	<i>Happy</i>	<i>Ordinary</i>	<i>Religious</i>	<i>F</i>	<i>Overall Sig.</i>
Participant_NA	0.46 (0.70)	0.95 (1.22)	1.71 (1.38)	12.06	<.0005 ^{b,c}
Participant_PA	3.49 (1.03)	1.61 (1.18)	2.24 (1.32)	25.49	<.0005 ^{a,b}
Expert_NA	0.48 (0.75)	0.73 (1.08)	1.92 (1.77)	14.40	<.0005 ^{b,c}
Expert_PA	2.72 (0.79)	0.97 (0.95)	1.58 (1.20)	31.30	<.0005 ^{a,b,c}
Novice_NA	0.15 (0.33)	0.47 (0.79)	1.09 (1.34)	1.34	<.0005 ^{b,c}
Novice_PA	2.12 (1.41)	0.79 (0.98)	1.10 (1.19)	13.09	<.0005 ^{a,b}

Note. Participant scores and expert and novice rater scores are shown. Overall significance results are Bonferroni corrected for multiple comparisons of the three groups of narratives. PA = positive affect; NA = negative affect.

Pairwise significance results are expressed at the .05 level using superscripts: ^aSignificant difference between happy and ordinary. ^bSignificant difference between happy and religious. ^cSignificant difference between ordinary and religious.

way ANOVA for happy versus ordinary versus religious experiences, comparing the two major PCI affect dimensions for participants and both raters, using Bonferroni correction for multiple comparisons (across the happy, ordinary, and religious groups). The results are in Table 5.

These data indicate that both raters derived from narratives the same picture of affective complexity in RSEs that the PCI analysis of recalled experiences yielded. Specifically, participants recalling experiences and expert and novice raters interpreting narratives of those experiences agree that

- RSEs tend to be affectively more positive than negative overall,
- RSEs tend to contain higher positive affect than ordinary experiences and lower positive affect than happy experiences, and
- RSEs tend to contain higher negative affect than both ordinary experiences and happy experiences.

DISCUSSION

The major goal of this study was to evaluate the adequacy of narratives for conveying the phenomenological features of RSEs. This question is vital because the psychological study of RSEs has relied heavily on narratives. A secondary goal was to learn something about the nature of RSEs themselves.

The Meanings of Key Terms

There are many definitional questions surrounding the terms *happy*, *ordinary*, *religious*, and *spiritual*. Following the standard methods of collecting RSEs (Hardy, 1979; James, 1902; Starbuck, 1899), and consistent with attributional approaches to studying RSEs (Taves, 2009), we allowed participants to define what the terms *religious* and *spiritual* mean to them rather than stipulating the meanings of these terms. The result was narratives of apparently quite

diverse RSEs, as illustrated in the aforementioned sample narratives. This diversity presumably reflects (a) individual differences in participants' usage of the key descriptor terms *ordinary*, *happy*, and *religious*; (b) the clarity of the experimental protocol that evoked the narratives; and (c) the features of the underlying experiences themselves. We sought to get behind the limitations imposed by (a) and (b) to clarify the relationship between the phenomenological features of an experience and the features of the narrative produced when a participant recalls that experience. There are several reasons to think that this should be possible, at least to a degree sufficient for the purposes of this study.

First, and most obviously, the key words *happy*, *ordinary*, and *religious* are not hopelessly variable in semantic scope, at least as far as our study sample is concerned. As the large extant collections of RSEs show, prompting for RSEs using people's own definition of the key terms produces intelligible, analyzable narratives that seem naturally to belong in a meaningful class with fairly clear-cut subclasses and distinctive patterns of phenomenological, cognitive, emotional, behavioral, and social content (Hardy, 1979). The same is true of happy experiences: the affect marker seems more or less universal. Admittedly ordinary experiences are more problematic. Any protocol that asks for more than one type of experience risks priming participants to furnish an experience that is "ordinary" simply in the sense of not being like the other experiences they have shared.

Second, however, we employed an experimental protocol with several checks that minimize the problem with vagaries of meaning, especially for "ordinary" experiences. As described in the Methods section, we used a challenge procedure when the ordinary experience appeared not to be of the "neither particularly religious nor particularly intense" variety. We asked for a subjective rating of intensity to confirm that ordinary experiences were in fact not intense. We asked for a subjective rating of the extent to which experiences were spiritual to confirm that ordinary experiences were in fact not highly spiritual. We randomized the order in which experiences were obtained, allowing us to evaluate whether that order made a substantive difference in the nature of the experiences offered. And we used the PCI to obtain analyses of the class of ordinary experiences (and the other classes also) that are far more fine-grained than is possible with impressionistic assessment of narratives. These efforts did not yield a perfect protocol; indeed, we believe that eliminating unwanted demand characteristics is virtually impossible in any contrastive recall procedure of the type required for this study (see Orne, 1962, and the forthcoming discussion of limitations).

Third, with happy experiences and ordinary experiences providing two different baselines, we used the PCI to investigate whether the class of RSE experiences contrasts meaningfully with those baselines, and on PCI dimensions that make theoretical sense. For example, we could evaluate whether affect dimensions were highly positive for happy experiences but not for others, and whether alterations of experience were low for ordinary experiences but higher for RSEs.

In all these ways, our protocol navigated and managed the difficulties of variable terminology, yielding reasonably clear and intelligibly contrasting groups of experiences.

Reliability of Narratives Using the PCI and Raters

Comparing participant and independent rater PCI scores indicates that narratives of RSEs are more or less reliable depending on both the phenomenological feature in question and the

expertise of the interpreter. The breakdown in terms of the 26 major and minor PCI dimensions is as follows:

- PCI dimensions for which narratives communicate phenomenological features of experiences clearly to both expert and novice interpreters: *negative affect* (including anger, fear, sadness subdimensions), *positive affect* (including joy, love, sexual excitement subdimensions), and *altered awareness*.
- PCI dimensions for which narratives communicate phenomenological features of experiences clearly to expert interpreters but *not* to novice interpreters: *alterations of experience* (meaningfulness, time sense, and marginally also body sense subdimensions), *physical arousal*, *attention* (and inward directedness subdimension), and *amount of imagery*.
- PCI dimensions for which narratives communicate phenomenological features of experiences clearly *neither* to expert interpreters *nor* to novice interpreters: *perception* subdimension of alterations of experience (marginally also body sense subdimension), *absorption* subdimension of attention, *imagery* (especially vividness of imagery subdimensions), *internal dialogue*, *memory*, *self-awareness*, *rationality*, and *volitional control*.

This conclusion offers valuable guidance to researchers who depend on narratives to access information about the phenomenological characteristics of RSEs. Also valuable is the conclusion that the vividness of experiences is muted across the board when narrated, relative to the way they are recalled.

The Phenomenological Profile of RSEs and Extant Knowledge About RSEs

Our study yielded a phenomenological profile of RSEs. Specifically, the PCI's phenomenological signature for RSEs differs significantly from the profiles for baseline normal and happy experiences on the following PCI major dimensions: altered experience, altered awareness, attention, imagery, internal dialogue, negative affect, positive affect, and volitional control. This result allows us to evaluate the connection between the phenomenological content of recalled experiences (which is what the PCI profiles register) and the semantic content of narratives based on those experiences (which is expressed in the most basic way in the three-way classification of narratives as happy, ordinary, or religious). We think the phenomenological signatures for the three classes of experience differ *in theoretically intelligible ways* relative to the existing phenomenological literature.

First, alterations of experience—particularly changes in meaningfulness, perception, and time—and altered awareness—feeling that one's conscious awareness has slipped into a strange or unfamiliar state—are classic markers of RSEs. Hardy (1979) documented numerous ways in which such changes in experience and awareness occur within RSEs and our own collection of narratives is replete with examples. As we saw in the blinded rater analysis, however, our narratives most clearly indicate altered awareness in RSEs. Expert interpreters do better than novices in discerning the presence within RSEs of alterations in meaning and time flow, and it is genuinely difficult discerning when RSEs involve alterations in perception and body sense. When expert interpreters are used, however, the PCI yields a phenomenological signature for recalled RSEs that closely matches the features discernible in RSE narratives.

Second, the PCI signatures also suggest that RSEs dominate attention, particularly in the sense of catapulting it outward, beyond the self, to some transcendent Other. Again, this is a classic feature of many types of RSEs, richly documented in the phenomenological literature, and it is a feature that experts (though not novices) readily detect in RSE narratives.

Third, the most marked contrast between RSEs and happy or ordinary experiences is in the PCI subdimension measuring amount of imagery. The phenomenological literature likewise suggests that RSEs are often loaded with imagery, and expert interpreters appear to detect this feature of RSEs from narratives quite easily. Thus, we have another match between PCI signature and existing knowledge of RSEs based on analysis of narratives.

Fourth, the PCI signature suggests that internal dialogue markedly increases and volitional control markedly drops relative to happy and ordinary experiences. The internal dialogue result is slightly surprising, as the phenomenological literature does not stress this feature of RSEs except in a few types of RSEs such as supernatural encounter experiences and internalized moral debates. By contrast, the drop in volitional control is unsurprising: RSEs are often so powerful that those undergoing them feel less able than usual to make choices about how to regard what is happening to them or about how to respond (see James, 1902, especially Lectures IX–X on conversion). Our independent rater analysis showed that narratives were difficult to interpret accurately in regard to both internal dialogue and volitional control. We can conclude, however, that at least the volitional control aspect is intelligible against the wider phenomenological literature on RSEs.

Fifth and finally, the PCI signature offers a rich portrayal of affect within RSEs. Religious experiences appear to be affectively complex. They are more positive than negative overall, with positive affect markedly less than for happy experiences and more than for ordinary experiences. But negative affect is decidedly stronger in RSEs than in both happy and ordinary experiences, meaning that RSEs tend to be both affectively positive and negative simultaneously. Although the phenomenological tradition in the study of RSEs does occasionally present accounts of almost purely affectively positive and almost purely affectively negative experiences, most RSEs appear to be affectively complex in just this way. A person might simultaneously feel fear and love in the presence of a powerful spiritual being, or a conversion experience will trigger both sadness and joy, intensely intermingled. Thus, the PCI signature makes good sense against the background of existing knowledge of RSEs.

We conclude that the PCI-derived phenomenological signatures for RSEs versus happy and ordinary experiences make good sense against the long run of interpretation of the phenomenological features of RSEs using narratives and introspection. This result should increase our confidence in the PCI as a useful tool within the psychology of religion. To some degree it should also increase our confidence in reliability of narratives to convey the basic phenomenological features that distinguish RSEs from other types of experience, particularly when interpreted by experts.

The Value of the PCI

The PCI is a valuable tool for generating quantitative profiles of states of consciousness. This approach is superior to independent rater analysis of narratives alone for the purpose of identifying distinctive phenomenological features of states of consciousness. For other purposes, narrative analysis may be quite serviceable; indeed, narrative analysis remains indispensable

for identifying the specific cognitive content of states of consciousness. We believe the PCI instrument can be tailored to the specific application of studying RSEs but even in its original form it proved to be a sensitive and robust tool.

The PCI may also have other benefits. It permits finer discriminations among types of RSEs, such as the major types discriminated within the Hardy classification (Hardy, 1979), though we do not report on that here. This could be vital for stabilizing the categories used to describe types of RSEs. Moreover, to the extent that RSE subtypes distinguish neurologically quite different types of experiences (e.g., dominantly cognitive-emotional vs. dominantly perceptual), the PCI has the potential to constrain cognitive models of the production of RSEs. Thus, psychologists of religion and cognitive scientists studying RSEs have a number of reasons to add the PCI or similar phenomenological instruments to their working toolkit.

Limitations of the Study

The limitations of the current study are in two domains: our use of raters and our use of the PCI.

Regarding raters, using only one expert and one novice rater means that there are no interrater reliability statistics. It would be useful to repeat the experiment with a team of expert raters and another team of novice raters. Also, we did not ask our raters to categorize the narratives they scored as happy, religious, or ordinary, which would have been a useful check on the validity of the experimental procedure.

Regarding the PCI, Pekala originally used the instrument to assess the phenomenological features of subjective states of consciousness very recently recalled. He had large groups of subjects sit quietly for a few minutes and then report on the qualities of that experience using the PCI. Following previous studies using the PCI, we modified this procedure by working with participants individually, by teaming the PCI with other measures and procedures, and by asking participants to recall experiences not from mere minutes earlier but from weeks or months earlier. These modifications involve several limitations, as follows.

First, the PCI was used three times for three different experiences, so participants may have been able to discern that the purpose of the experiment included discriminating religious versus happy versus ordinary experiences. Randomizing the order of the experiences mitigates this problem to some degree. The basic result comparing participant PCI ratings to third-party ratings is not particularly affected by this limitation.

Second, subjects engaged in introspective recall may rely more on inference than memory, which may interfere with accessing the phenomenological features of the original experience. Two considerations mitigate this limitation. On one hand, introspective recall is more accurate when asking about the contents of consciousness (which we were doing) than about the reasons why the conscious state arose (which we were not doing; see Nisbett & Wilson, 1977; Pekala & Wenger, 1983). On the other hand, we designed the recall procedure to be similar to the process of recall involved in producing the narratives filling the large databases of religious experiences, which is important for the applicability of our study to RSE research. It is likely, therefore, that problems surrounding introspective recall affect our procedure in about the same ways and to about the same degree as the longstanding procedures we are evaluating.

Third, the states of consciousness originally investigated by Pekala (prompted by sitting quietly with eyes opened and eyes closed) were less temporally extended, less cognitively

determinate, and less temporally remote than the experiences we studied. Although previous studies have used the PCI in this way, it is still important to acknowledge the limitation that we use the PCI in manner not originally intended. In fact, we believe the PCI has proven itself useful, in this and other studies, for applications not originally envisaged by Pekala. In particular, we believe our study helps to show that the PCI can be used to obtain an estimate of the phenomenological characteristics of something like the average state of consciousness for a recalled episode. This use of the PCI leaves experimental procedures more vulnerable to demand characteristics and expectancy effects (see Hirsch, 1991) but, so long as these problems can be mitigated or controlled, the procedure can be valid and the results reliable.

Conclusion

The long-standing tradition within the scientific study of religion has been to detect the phenomenological features of RSEs by means of analyzing narratives of RSEs solicited from those who have such experiences and are willing to recall and narrate them. Our study shows that this traditional reliance on narratives is sound in some respects but questionable in other respects. Although narratives remain indispensable for interpreting RSEs, future research into the phenomenology of RSEs should proceed with clear awareness that narratives can be misleading as well as illuminating. Researchers should ensure that their reliance on narratives for detecting phenomenological features of RSEs should emphasize the respects in which narratives tend to be reliable and supplement interpretation with other resources (such as PCI results) for the respects in which narratives tend to be unreliable.

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