

This is a post-print of the article published as:

Luhrmann, T. M. and Morgain, R. (2012), Prayer as Inner Sense Cultivation: An Attentional Learning Theory of Spiritual Experience. *Ethos*, 40: 359–389.
doi:10.1111/j.1548-1352.2012.01266.x

The final published version can be accessed at:

<http://onlinelibrary.wiley.com/doi/10.1111/j.1548-1352.2012.01266.x/abstract>

Prayer as Inner Sense Cultivation: An Attentional Learning Theory of Spiritual Experience

T.M. Luhrmann and Rachel Morgain

Tanya Marie Luhrmann is Watkins University Professor in the Department of Anthropology, Stanford University

Rachel Morgain is an ARC Fellow in the School of Culture, History and Language, College of Asia and the Pacific, Australian National University.

Abstract: How does prayer change the person who prays? In this article we report on a randomized controlled trial developed to test an ethnographic hypothesis. Our results suggest that prayer that uses the imagination—the kind of prayer practiced in many American evangelical congregations—cultivates the inner senses, and that this cultivation has consequences. Mental imagery grows sharper. Inner experience seems more significant to the person praying. Feelings and sensations grow more intense. The person praying reports more unusual sensory experience and more unusual and more intense spiritual experience. In this work we explain in part why inner sense cultivation is found in so many spiritual traditions, and we illustrate impacts of spiritual practice on spiritual experience. We contribute to the anthropology of religion by presenting an attentional learning theory of prayer. [key terms: spiritual experience, prayer, Christianity, Evangelical congregations, inner experience; imagery]

Please convert footnotes to endnotes.

In 1985, Richard Noll published an article in *Current Anthropology* in which he argues that mental imagery cultivation is a cultural phenomenon and that it is central to shamanism and other religious traditions. He argues there that the deliberate, repeated induction of mental imagery is found in most cultures; that mental imagery cultivation involves skill; that the skill increases the vividness of and ability to control imagery; and that the result of this trained skill—in select individuals who are particularly responsive to training—is an increase in visions: in spontaneous vivid mental images with great cultural significance. Noll then set out to provide evidence of training in shamanic practice, but he admitted that it was difficult to find because anthropologists had not been looking for it. “While visual mental imagery has been reported in shamanism, there has been little acknowledgment of the possibility that a central goal of shamanic training may be the development of visual mental imagery skills” (Noll 1985: 445).

What made the article so compelling is that it suggested that there was a learning process that made the invisible agents postulated by the religion seem more real. This was a novel idea. Anthropologists of the time took for granted that invisible agents were experienced as real by those they studied. Their puzzle was why their subjects did not notice the apparent irrationality of these beliefs, which the anthropologists treated as propositional truth-claims, and what light this might shed upon belief itself and the meaning and use of symbols (Geertz 1973; Needham 1973; Sperber 1975). Indeed, under the influence of Paul Ricoeur and the “the linguistic turn” in the social sciences, anthropologists were more likely to treat evidence of spiritual experience as learned social behavior expressed in language. Michael Lambek’s (1981) fine account of Mayotte possession is an example of this approach to spiritual experience that still influences anthropologists today. While Lambek

certainly recognized that people went into trance, his analytic approach was to treat spiritual possession as a text and trance as a communication. He was interested in what made possession legible to others—not in how trance made spirits real to those who were possessed.

Since the 1980s, the question of what cognitive mechanisms contribute to the realness of the supernatural has become more pressing, no doubt because of the increasing vibrancy of religion despite the prediction, by mid-twentieth century scholars, that religion would fade away. The major scholarly advance has come through the new field of evolutionary psychology, which explains that the fundamentals of religious belief are in effect automatic. These scholars argue that our ancestors were more likely to have survived if they over-interpreted ambiguous noise; if they reacted to unexpected rustling as if warned of an approaching predator, even if it was more likely to be the wind. As a result, they argue, the cognitive apparatus humans have inherited is preadapted to look for agency. Different scholars theorize this preadaptation differently. Some emphasize innate anthropomorphism (Guthrie 1993; Atran 2002). Others argue for modularity: they write of a “hyperactive agency detection device” or HADD (Boyer 2001; Barrett 2004). The basic argument is that belief in the supernatural is “natural:” that when humans think quickly, effortlessly, and intuitively, they attribute agency, infer other minds, and assume that an omniscient moral observer is watching them (Boyer 2003; Barrett 2004).

Yet to become a profound commitment that intuitively plausible inference must be sustained in the face of other, equally plausible accounts of events. Our understanding of the role that learning plays in maintaining a sense of the realness of these invisible agents is still at a relatively early stage. That learning is required,

however, has become increasingly clear, largely as anthropologists have begun to engage with Christianity and Islam and as they have sought to understand the experience of prayer. Saba Mahmood found that she was unable to treat the Islamic practice of her Egyptian subjects as communicative discourse (simply conceived) because those subjects worked so hard to transform their subjectivity. She focuses on prayer because “mosque participants identified the act of prayer as the key site for purposefully molding their intentions, emotions and desires in accord with orthodox standards of Islamic piety” (2005:828). She has sought to describe what she calls disciplinary acts through which pious Muslims avoid seeing, hearing, and speaking about the things that make faith weak, and focus upon those that make faith strong. Scholars working on Christianity have similarly found themselves seeking to make sense of prayer as a reality-making process because their subjects pray so fervently and are so clear that prayer matters. Matt Tomlinson describes the way ambiguous language in prayer both creates an awareness of dangerous presence and a sense of protection from it. “How do these invisible beings become frightening?” he asks (2004: 8). He answers that they are described so vividly in the prayer that protect people from them that those prayers make them seem more real. Joel Robbins (2001) makes the case that the Christian God becomes real to the Melanesian Urapmin he studied through the wholesale replacement of ritual action by speech. “God is nothing but talk” was a local cliché.

For the most part this new research on the way prayer changes people has drawn our attention to language (see also Keane 1997; Shoaps 2002; Capps and Ochs 2002) and to the body (see Desjarlais 1993, 2003). In her study of a Mexican convent, Rebecca Lester (2005) described a seven-stage process through which postulants—women (really, girls) who have not professed their vows—travel across the course of

a year if they come to experience their vocation as rightly chosen. The seven stage process is not simply a movement toward the acceptance of a vocation, but also entails an emotionally powerful experience of relationship with God. She argues that women go through these stages sequentially:

1. *brokenness*: the postulant acknowledges a sense of discomfort as a call from God to become a nun.
2. *belonging*: the postulant comes to feel socially integrated within the convent.
3. *containment*: the postulant comes to experience her body as complete within and contained within the convent walls.
4. *regimentation*: the postulant learns to enact certain practices which she experiences as remaking her rebellious, desiring human body into one more suitable for God.
5. *internal critique*: the postulant chooses to subject herself to intense self-scrutiny, and identifies her faults as the source of her broken relationship with God.
6. *surrender*: the postulant chooses to turn her self, faults and all, over to God; she comes to acknowledge that she is for God, rather than that she does for God.
7. *recollection*: the postulant comes to experience herself as truly present with God.

The model is above all a description of the way that the postulants discipline body and emotion within the social world of the convent in order to imagine God persuasively as central in their lives. Lester's account of their iterative process through which postulants repeatedly attend to their body in new ways is also central to Thomas Csordas's account of embodiment (1994), which identifies a series of bodily actions through which symbolic representations come to be experienced as more than "mere" language. Csordas focuses in on the way that psychological processes can become experienced in the body—and so manipulated.

Our contribution to this nascent literature is to argue that one of the central learning mechanisms which help people to experience the invisible as real is mental imagery cultivation. We (the authors of this article) not only think that Noll is right about shamanism, but that he captured one of the most powerful effects of Christian prayer. Here we look at these effects through the experience of charismatic evangelical Christians, who say that prayer changes the one who prays and enables those praying to experience God as more real (e.g., Foster 1998; Warren 2002).¹ In these churches, congregants are encouraged to pray by spending “quiet time” with God. In these prayers they have daydream-like interactions: going for walks with God, having coffee with God.

This kind of prayer has a long tradition in the Christian church. Broadly speaking, there are two forms of Christian “spiritual discipline,” or prayer practice beyond the simple recitation of the Our Father and other scripted forms. The *apophatic* tradition asks practitioners to disattend to thought and mental imagery. The term is based on the Greek term for “denial.” Its most popular contemporary form is Centering Prayer in which the person praying seeks to focus the mind on a simple word like *peace*. The other is *kataphatic*, or affirmative, prayer. The person praying uses the imagination in the practice of prayer, usually to represent God and the scriptures. The most prominent examples of kataphatic practice can be found in medieval Christianity (Caruthers 1998) and in the Spiritual Exercises of Ignatius Loyola. But the emphasis on using the imagination to seek God is found throughout

¹ The term *evangelical* covers a broad range of people: around 35-40 percent of United States adults describe themselves as either born again or evangelical (Princeton Religion Research Report 2002). “Describing Self as Born-Again or Evangelical,” bar graph, online. See <http://www.wheaton.edu/isae/Gallup-Bar-graph.html>. By *evangelical* people typically mean that they believe that the Bible is literally or near-literally true (accurate in all it affirms); that salvation depends on a personal relationship with Jesus; and that to some extent, one should share the good news of this salvation with others. More generally, people use the term to assert what the sociologist Christian Smith describes as “an activist faith that tries to influence the surrounding world” (1998: 242).

Christian history, and it is the dominant form of prayer in many modern churches, among them the charismatic evangelical churches, whose congregants read the Bible as a story in which they have a part—as some congregants say, as a love letter written to them. The goal of these practices in the modern evangelical church is to enable the practitioner to experience God as a being with whom one can converse and interact. When people describe prayer as “talking to God,” they are describing kataphatic prayer because they are using the imagination to enact the dialogue of prayer.²

This in effect is mental imagery practice—or, more precisely, it is inner sense practice. The person praying is seeing in the mind’s eye, hearing with the mind’s ear, smelling with the mind’s nose—imagining an interaction with the mind’s inner senses. Evangelical writers who write to encourage people to pray often encourage them to use their inner senses deliberately. That, for example, is the advice Richard Foster gives in his bestselling book on prayer, *Celebration of Discipline*: “Seek to live the experience [of scripture]. Smell the sea. Hear the lap of the water against the shore. See the crowd. Feel the sun on your head and the hunger in your stomach. Taste the salt in the air. Touch the hem of his garment” (Foster 1998: 29-30). The pastor Ken Wilson makes a similar comment in his book on prayer, *Mystically Wired*: “words are useless without the imagination ... So imagine that you are part of the scene the words invite you to imagine. Notice the greenness of the pasture [in the 23rd Psalm]. Feel the texture of the grass as you lie down on it. Stay there for a while in the grass. Notice the smells. Feel the warmth of the sun” (Wilson 2009: 106).

Does this kind of prayer make mental imagery more vivid and generate more visions and other unusual experiences among those who report it? Congregants say

² We use the term *kataphatic* broadly here, to capture prayer practice that actively engages the imagination. This is the contrast that Dionysius the Areopagite sought when he introduced the term (see Turner 1995).

that it does. The first author has done extensive ethnographic work in a “new paradigm” or “neo-Pentecostal” church, the Vineyard Christian Fellowship (Luhmann 2012). There are over 600 Vineyard churches in the United States, and thousands and thousands more like them in America and around the globe (Miller 1997). They present the shift in American Christianity since 1965, toward a more personally experienced God. At the Vineyard, church members are largely middle-class, largely white, and often college-educated. They seek to experience God as interacting with them when they pray. These congregants assert, clearly and consistently, that to know God one must pray; and that those who pray change because they know God differently (Luhmann 2010).

A scholar influenced by the linguistic turn might protest that this is the kind of thing people learn to say when they go to church: that when people say that their experience of God has changed, they are simply communicating membership in the Christian community to others. But among the changes congregants report, they sometimes mention that their mental imagery grew sharper with prayer. They also say that some people are naturally better than others in prayer practice. The experts report more intense, unusual spiritual experiences: seeing visions, or hearing the voice of God. These comments suggest that prayer practice does indeed involve training; that the training trains mental imagery skill and the other inner senses; and that to some degree, the training changes the mind so that what is imagined is experienced as more real.

We designed the Spiritual Disciplines Project discussed here to test the hypotheses, derived from these ethnographic observations, that kataphatic prayer practice makes mental imagery more vivid; that it leads to unusual sensory

experiences; and more generally, that it made what people imagined more real to them. We recruited subjects and assigned them randomly to different practices, primarily to kataphatic prayer (kataphatic condition) or to the study of the Bible (lectures condition). They were asked to engage in these practices for one month. Both before and after the intervention, participants filled out standard questionnaires and did computer-directed exercises asking them to use mental imagery. They were interviewed in depth before the month of prayer began and afterward.

Our results suggest that inner sense cultivation has identifiable training effects. Our experimental measures found significant differences between those subjects assigned to the prayer condition, and those assigned to the lectures condition. Those randomized to the prayer condition reported more vivid mental imagery. They were more able to detect letters as they flashed by quickly, a task that requires sustained attention. They were better at a task which demanded that they use mental images. These cognitive measures are reported elsewhere (Luhmann et al. n.d.; Luhmann 2012).

In this article, we report on what we learned from our interview material with the same subjects through quantifying their responses. We had a significant amount of material: between two and four hours with each subject produced the equivalent of 13,000 pages of transcript material. The two authors have spent hours upon hours with this material, reading it, coding it, and reflecting on it. These interviews have much to teach us about the experience of being this kind of Christian, and about this kind of prayer.

We identify two primary effects of the inner sense cultivation in kataphatic prayer practice supported by this interview material:

- a. First, using sensory imagery makes what is imagined feel more real.
- b. Second, attributing significance to inner sensation generates unusual experience.

Reports of increased mental imagery vividness, increased unusual sensory experience, increased spiritual experience and more vivid experience of God are consistent with these two effects.

Participants

Participants were recruited through an advertisement seeking people “interested in spiritual transformation and the Christian spiritual disciplines,” primarily through notices placed in church bulletins in four charismatic evangelical congregations on the San Francisco peninsula (two were Vineyard churches and two were churches similar to the Vineyard). In these congregations, reports of the direct spiritual experience of God is welcomed, but not required or presumed. Most participants shared similar expectations about prayer and about God’s presence. (Indeed, some of them had attended more than one of the churches.) We had a total of 104 subjects primarily from four congregations randomly assigned to two conditions (56 in the kataphatic; 48 in the lectures). Eighty-one were female. Their average age was 44. Sixty eight percent were white; 33 percent had no more education than high school or an associate’s degree, while 28 percent held postgraduate degrees (we have data on education for only 78 of the subjects). Subjects who reported a history of psychotic illness in the initial screening, either through hospitalization or through prescribed pharmaceuticals, were excluded. All subjects consented to participate and

the study was given approval by Stanford's Institutional Review Board. Prior to our research project, 67 percent of subjects reported that they prayed 15 minutes or less each day.

Conditions

For the kataphatic condition, subjects were given instructions used by an evangelical spiritual director to introduce congregants to this kind of prayer: "The core of this method is the use of the imagination to draw close to God, to enter into the scriptures and to experience them as if they were alive to you." We provided iPods with four tracks of thirty minutes each, in which a biblical passage was read to background music, and then reread while inviting the subject to use all the senses to participate in the scene with the imagination. (The tracks were created by T.M. Luhrmann.) Here is an example of the recorded instruction from the track on the 23rd psalm:

The Lord is my shepherd ... see the shepherd before you .. see his face ... his eyes ... the light that streams from him .. he turns to walk, and you follow him.... Notice his gait see the hill over which he leads you ... feel the breeze over the grass .. smell its sweetness ... listen to the birds as they sing .. notice what you feel as you follow this shepherd ...

On each track there were pauses which invited the listener to carry out a dialogue with the shepherd, or with Jesus, and more pauses in which the listener was invited to

remember a moment from the past and to imagine Jesus present as a comforter in that moment. Each track asked participants to close their eyes.

For the lectures condition, subjects were given an evangelical text extolling the spiritual benefits of intellectual study of the scripture. They were also provided with iPods which held 24 30-minute lectures on the Gospels from the Teaching Company, by Luke Timothy Johnson. (One copy was purchased for each iPod.) These lectures give an introduction to the way that the different gospel authors chose to portray Jesus, placing each in the historical, social, and literary context in which it was written. Seventy-three percent of those who were randomized to this condition reported that they enjoyed the lectures.

We also told all subjects that we had an apophatic condition. For this condition, subjects were given the instructions for Centering Prayer developed by Thomas Keating and others, which draws from the fourteenth century monastic writing, *The Cloud of Unknowing* (Pennington 1980; Johnston 1973). Participants were asked to choose a word as a focus (such as *mercy* or *Jesus*). The goal of Centering Prayer is to quiet the mind; when they found their mind wandering, participants were to bring their thoughts back to the word they had chosen. Their iPods were loaded with thirty minutes of “pink noise” (a pleasant version of white noise, which is the auditory equivalent of greyscale).

In practice, the apophatic condition served as a means to avoid having participants draw the inference that, if they received the lectures condition, they had been randomized into the control arm. We thought that this inference would be less likely if there were three arms of the research. All subjects were told that there were three conditions, and presented with three identical envelopes from which to choose,

but the apophatic condition was in fact not presented until sixty five subjects had entered the study, approximately halfway through our process of subject selection. There were so few subjects in that condition (fifteen) that we will not discuss them in the statistical analysis here.

Procedure

A single interviewer, Christina Drymon, ran all subjects in 2007-8. Participants were told that they would be randomly assigned to one of three conditions: apophatic, kataphatic, and the discipline of Bible study (the lectures condition). They were asked to listen to their iPods 30 minutes a day, six days a week, for four weeks. (In evangelical circles, a half hour is sometimes presented as the ideal daily prayer time.) We monitored use with the iPod playcount and by daily comment sheets. All subjects were asked to return their iPods upon finishing the month.

Before the intervention, participants were given standard psychological self-report questionnaires, computer-directed exercises, and they were interviewed. This procedure was repeated upon their return.

Interview

We asked all subjects the same questions, although we encouraged them to talk freely and easily throughout the interview. We began with a series of general questions about how they understood prayer and how they understood God to be interacting with them through prayer.

Let's begin by talking about prayer. Do you ever pray? And if so, how do you understand that?

Some people feel comfortable saying that they "hear" from God, that he communicates personally and directly to them, or that they feel that they are in conversation or in dialogue with him. Do you feel that you have experiences like these?

Then we proceeded to a set of questions about the ways in which subjects experienced God as interacting with them. These questions were developed out of the first author's ethnographic fieldwork in Christian evangelical churches. They reflect assumptions common to many such churches about the way congregants report that they "hear" from God:

Do you feel that God guides you or speaks to you through everyday circumstances?

Have you ever felt that God speaks to you or guides you through your personal reading of scripture, (as opposed to someone giving a word or hearing a good sermon in church?)

Have you ever felt that God has spoken to you in your mind, through thoughts that he may have placed in your mind for you to experience?

Have you ever felt that God has given you feelings or sensations to guide you, or have you ever had a physical awareness of God's presence? (Some people talk about this as feeling the Holy Spirit.)

Some people talk about getting "pictures" or "images" from God. Have you ever felt that that God has placed a visual image in your mind, or that you have suddenly experienced a mental image that God intended for you to experience for some reason?

If the subject responded positively to any question, we asked for an example, and we asked how often the experience took place. The interview then turned to unusual sensory experiences.

Some people hear what seems to be a voice when they are alone, sometimes when they are falling asleep or waking up or even when they are fully awake. Has anything like that happened to you?

Have you ever had an experience in which you had an experience of hearing something inside your head which seemed different from your normal thoughts and important?

We asked equivalent questions about visual experiences. If the subject said yes, we followed up with questions to determine whether the event was experienced as perceptual (for example, "When you heard it, did you feel that it came from outside your head or inside your head?" and "Did you hear it with your ears?") We also asked about noises and about unusual experiences "out of the corner of your eye."³

³ These questions were modeled on those used to determine the presence of unusual perceptual experiences in Horwood and colleagues 2008. Both the interviewer and the first author were trained in the use of the interview instrument.

The interviewer then turned to questions about classic spiritual experiences. These were taken from the classics in Christian spirituality, above all William James *The Varieties of Religious Experience* and Rudolf Otto *The Idea of the Holy* and experiences common in the charismatic condition, like speaking in tongues. Among them were these:

Have you ever had the clear sense that God was almost tangibly present, as if God was sitting or standing beside you?

Sometimes people have a deep and profound spiritual sense that they know something in a really different way, more profoundly than they have ever known anything else. For example, they may be suddenly aware that they are immortal. Have you ever had an experience like this?

Have you ever had a very unusual and very powerful spiritual experience which was so powerful that it seemed to completely change every thing all at once?

If so, did you feel that you were suspended in space and time?

Did you have an overwhelming feeling of love and light?

Did you feel that the experience could not be described in words?

Did you feel that you knew something in a way you'd never known it before?

Have you ever had an experience in which you felt this intense rush of power run through your body, as if some great force were running through your

body? Perhaps your mouth was dry and your palms were sweaty (some people call this a Holy Spirit experience)?

Have you ever had an experience of uncontrollable trembling or shaking, or an experience in which you felt that a spiritual power had pushed you down (some people call this being “slain in the spirit”)?

Have you ever had an experience of intense, overwhelming emotion, perhaps with uncontrollable weeping or uncontrollable laughing, that felt like a spiritual experience?

We also asked about a range of other low-frequency events (out of body, near death, terror of God, demonic, dissociated agency, and sleep paralysis experiences). Again, if a subject said yes to any question, we asked for an example and for a rate: how often, and how often in the last month.

Upon return for the post-interview, these questions were repeated. First, however, we asked a series of question about the month’s experience, including these:

Do you feel that engaging in your discipline this month changed your faith or spirituality?

Did you ever have moments where you slipped into a different state of awareness?

Did you find yourself starting to think differently?

Did you find that your mental images seemed sharper or different in some way?

Did you find yourself having different emotions, or more intense emotions?

Did your sense of God change this month?

Did you feel that you had a more playful relationship with God in any way?

Did you experience God more like a person?

Finally, all participants were contacted one month after the end of the study, and asked many of these questions again.

Results

All interviews were transcribed by a commercial firm and corrected by Rachel Morgain for word-for-word accuracy. The primary coding for all interviews was done by Rachel Morgain and checked by Tanya Luhrmann, who was blind to the subject's condition. It was essential that one coder know each interview well, because subjects moved back and forth in their conversations. That person could not, of course, be blind to condition, because particularly at the beginning of the post-intervention interview, subjects talked about what they had done. At the same time, we felt it was helpful to have one of us unfamiliar with the interviews as wholes so that we could protect against bias. At the beginning of the process we spent many hours discussing the coding process until we felt confident that we shared a high degree of uniformity. Then Rachel Morgain coded the answers to each question and pasted the transcript text into a box. This enabled Tanya Luhrmann to go back through all the answers without knowing the subject condition. The large number of subjects contributed to their anonymity.

Hearing from God

The portion of the interview focused on communication from God was most diffuse. This was intentional: we encouraged people to talk broadly about the way

they identified God in interaction with them. Nevertheless, it was clear that most people were comfortable with a language of experiencing God through circumstances, thoughts, scripture, feelings and sensations, and images. These are common, everyday experiences for the congregants of our study. Most evangelical and charismatic Christians are familiar with this way of talking about God and reporting God's presence. To identify these experiences, they pick out moments that register in their minds as spontaneous and in some way surprising. Our first subject talked about these experiences in ways that illustrate how these Christians commonly report recognizing interaction with God. She described prayer in general like this:

Prayer to me is sort of like a conversation with God. I don't necessarily do it verbally, like I am here with you. Although, if I'm in a car sometimes I'm carrying on a verbal conversation. . . .sometimes it's like talking to your best friend where they just let you talk and they don't really say anything back to you. And sometimes it's like—where they're nodding their head in an affirmation, you know, and it's never a physical thing, where I'm seeing somebody—sometimes it's just a feeling like there's an agreement to what I'm thinking. [Subject 1, female, 47, white, pre-interview]

She understands prayer as a back-and-forth conversation with God, which is commonly the way charismatic evangelical Christians describe prayer, although notice that she qualifies this description immediately: "I don't necessarily do it verbally." For these subjects, and for many evangelicals, "conversation" is the cultural model for interaction with God—but what they identify as the act of communication in the back-and-forth exchange includes more than words. She described hearing from God through circumstances like this:

One time my husband and I were driving in downtown San Francisco. We decided to take a scenic detour for no particular reason, just to take a scenic detour. No particular reason. It was out of our way. And we drove by an open electric—one of those big electrical boxes you see on the side of the road, one of the big gray electrical boxes that's supposed to be locked. This thing's hanging open with live wires hanging out of it. And my husband—he works for [a utility company]-- knew exactly who to call. Now, we had no reason for going down that road. And, you know, we talked about it later and it was like, he looked at me and I looked at him and I said, “Did you feel like you were ...” and he said “Yeah, did you?” ... I don't believe in coincidences. I believe there's always a reason for something happening. So to me, little things that people might chalk up as coincidence, I think I was led there for a purpose.

[Subject 1, female, 47, white, pre-interview]

For her, as for many Christians like her, what appear to be coincidences can be interpreted as part of this prayer conversation. God “led” her there because he wanted her to act. This is the way this subject spoke about hearing from God in her thoughts:

I was thinking about somebody the other day that I had a friendship with, I hadn't seen [her] in a long time. We'd sort of parted on not-so-good-terms. I thought about them that night and they emailed me the next morning. So you know, it felt like maybe God was preparing me for this person to contact me. There was no reason for me to have thought of this particular person. I think if they'd emailed me out of the blue without me having thought about it first, maybe my response would have been different. But I was able to call her, talk to her, and we've had lunch, and I think we are going to be okay. [subject 1, 47, white, pre-interview]

She also reports that God places thoughts in her mind that are not her thoughts, but his communication to her. This is the way she talks about hearing from God through scripture:

So I was going through a lot of personal turmoil, and I remember reading a particular scripture in Kings that just really seemed to speak to me one of the prophets that went up on the mountain after battling Jezebel and Baal. And he was just tired and just completely exhausted. And the Lord fed him and gave him a place to rest and then wakes him up and says, you know, “Listen ...” And that’s what I needed to hear that time, is don’t let all this big stuff get you down ... I’m gonna take care of you, I’m here. You know, I haven’t abandoned you. So, yeah, that’s a very specific one, and it’s one that stuck out along time. [Subject 1, 47, white, pre-interview]

Here she explains that her reaction to the scripture told her that God was telling her that he specifically intended her to read this passage, and her interpretation of it is what God intended to say to her. This is the way she talks about hearing from God through feelings:

When my father was passing a few years ago ... there were times when my father was in Hospice ... I would be the only one in the room with him and just feeling a sense of peace where, you know, I was communicating with God. [Subject 1, 47, white, post-interview]

She also explains her feeling of peace as communication from God. This subject did not talk much about sensations from God, nor about images. Another did:

Sometimes a sense when the Holy Spirit shows up at church, or at an evening thing. And all of a sudden you just love everybody with this amazing sense of

love, so there is both a physical thing and sometimes—it's like you are moving in slow motion. It's almost like you're on drugs. It's just like butter in the room. ... Sometimes I feel like electricity's going through me. My hands will shake. Or I'll sway ... I was just getting jolts of energy. [Subject 60, 44, male, white, pre-interview]

He had an unusual physical sensation, and attributed its source to God. He talked about images like this:

It's not as much for me. My wife, that's all, that's totally how she sees. She reads words and sees pictures over people. Sometimes when I pray, though, or when I'm praying for somebody, I get a picture and what I get in under a second, takes me thirty seconds to explain. [Subject 60, 44, male, white, pre-interview]

His account of seeing “pictures” is characteristic of the way people describe mental images in these churches.

In all these cases, people are identifying events in the mind and body as given to them by God. The church community teaches them how to pick out these events from others in their awareness: this is called *discernment*. Typically, the events that are good candidates for being identified with God stand out in some way to the subject: the event feels spontaneous and unchosen; it seems “not-me,” not something the person has been thinking about; the subject can interpret it in a way that seems consonant with the character of God; and typically, experiencing the event (in churches like these) feels good. If the person does not feel peace, he or she is unlikely to interpret the mental event as a communication from God.

Comparing the responses of those in the kataphatic condition and the lectures condition at the end of the month long intervention, there were no differences between the groups in their reports of whether they had heard from God that month (almost all reported that that they heard from God; most (55 percent) said that they had done so a few times a week or more often). There was no difference between them on whether they had heard from God through circumstances (almost all said that they did hear from God through circumstances, but on this question our data are too poor to compare frequencies). There was no difference on whether they had received thoughts from God (79 percent said that they had; 20 percent reported they had been given such thoughts daily; 22 percent said a few times a week; 23 percent said a few times a month; 18 percent reported that God had not placed thoughts in their mind during the month).

However, in the post-interview, those in the lectures condition were significantly more likely to report that they experienced God as speaking through scripture that month (responses were coded as 0=no, 1=maybe, 2=yes). Those in the kataphatic condition reported more frequent guidance from God through intense feelings and vivid physical sensations. We derive this comparison from the coding of subjects' answers to the question "This month did you feel that God gave you feelings or sensations to guide you, or did you have a physical awareness of God's presence?" (see Table 1). In general, these events were variable in the lives of our subjects. More than half reported significant feelings or sensations from God during the month; 17 percent said that they occurred a few times; 19 percent said that they occurred weekly. Judging according to evaluations along these scales, subjects in the kataphatic condition reported more frequent intense feelings and vivid sensations when compared with the lectures group (see Table 2). Kataphatic subjects also were more

likely to report that God guided them through clear images and meaningful images (see Table 2). Again, these events were variable. 60 percent of the subjects reported none over the course of the month; 15 percent reported that they took place a few times in the month, and 13 percent said that they occurred a few times each week.

We include in Table 2 a separate column comparing those experiences that we are confident took place outside of the discipline.

Table 1 and Table 2 about here

Unusual Sensory Experiences

The portion of the interview concerning unusual sensory phenomena was independently coded by three people blind to the discipline each subject had received. This group, with both authors, met to discuss disagreements, while still remaining blind to subject condition.

By unusual sensory experience, or “sensory override,” we mean experiences that seem to subjects different from ordinary perceptions: moments when the senses seem to override the stimulus. People sometimes see or hear something without a material source. They hear a phrase, or see something that then disappears, or resolves into another form. When dramatic, these phenomena play a significant role in religious history, as in Acts 9:3-4: “As [Saul] neared Damascus on his journey, suddenly a light from heaven flashed around him. 4 He fell to the ground and heard a voice say to him, ‘Saul, Saul, why do you persecute me?’”

Less dramatic sensory overrides are far more common than many people suppose (Sidgwick et al. 1894; Posey and Losch 1983; Tien 1991). For the most part,

such experiences in the non-clinical population are quite different from those among individuals who meet criteria for psychosis: they are rare, brief, and not distressing, although they are frequently startling and sometimes are experienced as odd, weird or unusual (Luhrmann 2011). The voices heard by those who are psychotic are often strikingly caustic and mean; they are frequent and often quite lengthy, and they cause intense pain to those who hear them.

About three quarters of our subjects reported some kind of unusual visual or auditory experience prior to the intervention, although we judged that only half of them were reporting experiences that had been important for them. Probably the most common auditory experience in the general population is hearing one's name called, in that twilight state between sleep and awareness. Here is an example from one of our subjects:

...hearing my voice .. that happened only once. ... when I went to bed I heard something, like I was right about to fall asleep and I heard someone right in my ear whisper my name like in a really weird tone. And I bolted awake and I was, like what the hell was that? [Subject 3, 28, female, white, pre-interview]

But people also have experiences that are not perceptual, but which stand out strongly as “not me” phenomena. These are not ordinary mental images or thoughts. People sometimes call them “visions” or “God’s voice” but when asked, say that the experience occurred inside their head. Here is an example of a voice heard inside the head, as reported by one of our subjects:

I was in the store, and I know that the spirit of the Lord told me, “why don’t you write her a card, get her a card and write her?” [Interviewer: “when you had that experience, would you describe that as hearing that inside your head

or outside your head?"] Inside my head, yeah. It's a quickening spirit, you know? [Interviewer: "How is it different from your normal thoughts?"] Well, you know, you're going about your normal things to pick up what you want. And all of a sudden you hear, "you should get a card for your Aunt," you know? ... It's outside my normal ... that's why I believed it's God, because I didn't gear it up or anything. It just comes to me all of a sudden. [Subject 123, 52, female, African-American, post-interview]

Here is an example of what we called a "vision in the head," in which someone reports a powerful visual experience that is given an external cause but not experienced perceptually; the subject says that it is experienced with the mind's eye.

I had a vision once. I was praying, and I had my eyes closed, and I just had this vision of

Jesus ... He just came and he was all dressed in really shiny white—he looked just like

the Jesus pictures you see!—with a big gold crown on his head. He just sat down across

from me and went like this [moving her hand in a blessing]. And then it just went away. It blew my mind, but for a few

seconds, I just felt real joy. [Subject 48, female, 48, white pre-interview]

Several different indicators suggest that the kataphatic practice increased the rate of unusual sensory experience. Many of our subjects reported in their second interview that they had some kind of unusual experience during the month they were engaged in one of the disciplines. (We had in effect primed them to be alert for unusual experience by asking them about it so carefully in the pre-interview.) Sixteen reported some form of unusual auditory experience; 21 some kind of unusual visual

experience. Thirty-two said that they had heard a voice in their head; 33 said that they had had a vision in their head. In general, these reports were more likely to come from those in the kataphatic condition (see Table 3).

Table 3 about here

We also coded the reports of unusual experience to reflect the apparent meaning given to them by subjects (see Table 4; this table also illustrates the kinds of phenomena people reported). Note that we include in this table one account of a reinterpretation. It is included because the subject asserts it as an external sensory experience in response to our direct question about her experiences that month, although clearly she is referring to an earlier experience. In her first interview, she presents the experience as non-sensory. The reinterpretation then occurred within that month. This seemed important data to include. It is the only reinterpretation in our data.

Table 4 about here

In general, those in the kataphatic condition were more likely to report that they had meaningful experiences. The data trend towards significance when looking at the raw return data, but the difference becomes significant when controlling for the lifetime frequency of auditory and visual sensory experiences among subjects for whom there is complete data.

There does however remain an anomaly. Fleeting peripheral hallucinations (for example: “Just yesterday, I was really tired. I thought I kept seeing a person, but it was just a parking meter or something”) were more common in the lectures condition. There were nine such reports in the lectures condition (20 percent of the

subjects on which we have reports) but only eight in the kataphatic condition (15 percent of the subjects on whom we have reports).

Classic Spiritual Experiences

With the exception of the sense of presence and noetic awareness, these experiences are rare. If any subject gave an affirmative response during the post-intervention interview, the first author coded the response blind to subject condition. In each case, both first and second authors examined the positive responses to ask whether subjects were reporting an actual phenomenological experience, using verbs like *feel* and *sense* rather than only verbs such as *know*. In the one-month intervention, we judged that no one had experienced a true near death experience, although two people reported frightening near-miss automobile accidents; no one reported “holy terror.” We judged that no one reported a full out-of-body experience (in which someone experiences him or herself to leave the body) although three out of the four people who answered in the affirmative gave enough detail to persuade us to mark the experience as a “maybe.” Two people reported something that seemed to suggest dissociated agency. Three people clearly asserted that they had had a sleep paralysis experience, and two of them perhaps had done.

Many people however said yes when asked whether, at some point in the month, they had had a clear sense that God was near-tangibly present. We judged subjects to be reporting presence if they said yes to the question and mentioned a sensation or bodily experience, like these responses to the question:

Pure peace, pure confidence ... all the positive emotions packed into one feeling, that’s how it makes me feel.... I just felt it was him [God] telling me. I

don't know, I just feel like sometimes I just get this sensation like He's just with me. [Subject 3, 28, female, white, post-interview]

I'm just suddenly and immediately and quickly calmed by something that feels like a hug. [Subject 70, 32, female, white, post-interview]

We determined that eighteen people reported this experience in response to our question, and that five more may have reported this experience (as above, responses were coded 0=no, 1=maybe, 2=yes). Significantly more of those responses came from the subjects in the kataphatic condition (see Table 5).

Table 5 about here

Many people also reported that they had “a deep and profound spiritual sense that they know something in a really different way” during the month. This question was our attempt to capture the “noetic” experience, the sense of sudden, deep understanding that (for example) James describes as part of the mystical experience, but which can also be experienced independently. Here is one example of such an experience reported in response to our question during the post-interview:

Definitely, a couple of those... the wilderness one [from earlier in the interview; she is describing being in the valley of the shadow of death, in the 23rd psalm kataphatic track] was the first that came to mind because it was really painful to watch and to experience ... [Interviewer: “And so what was it that you knew in a way you hadn't known before?”] I think that, in October of 2005, I felt a word from God saying, you know, “I need you to –” that was

right in the middle of the divorce. “But I need you to get over this because my kids need you, my children need you.” [She is describing God talking inside her head]. That was the exact phrase. ... and in that particular moment what became clear was that I was taking that way too literally. And that what I saw there in the valley were just God’s people... I needed to understand that the work is more than the people he’s just putting in my life. [Interviewer: “ And so when you realized that, when you understood that, how did you feel? What did it feel like?”] I was scared to death. [Subject 55, 31, female, white, post-interview]

We judged that three lectures subjects clearly reported some kind of sudden, deep understanding (with seven maybes) and eight kataphatic subjects (with ten maybes).

Eleven people said something affirmative in response to our first post-interview question which probed for mystical experience: “This month, have you ever had a very unusual and very powerful spiritual experience which was so powerful that it seemed to completely change everything all at once?” but no to our follow up questions. Two subjects said yes to the follow up questions. Both were in the kataphatic condition. However, we are not confident that either had a true mystical experience. The first was reporting an experience between sleep and awareness:

I woke up lucid in the dream and Jesus was there, and I was talking one on one and I totally believe it was ... it totally moved me and I believe that it was totally real. ...It’s like something I can’t describe and that experience alone is something I’ll never forget. [Subject 3, 28, female, white, post-interview]

She attributed it to the intervention. “I do think it’s because of these exercises. I’ll go through the rest of my life and that stands out as like the best experience I’ve had.” She was quite clear about this. “It changed everything.” Because it was so remarkable, because she did clearly affirm ineffability, suspension in space and time, an overwhelming sense of love and light, and a powerful noetic understanding, we marked it as “present.”⁴

The second subject clearly had a powerful experience, but it seemed more like a powerful experience of forgiveness for her intense (and seemingly irrational) fear that she had caused the death of her dog.

I took my first walk on the beach since [my dog] died by myself. And watched my first sunset. At one point I literally felt like God’s arms were under my armpits, walking with me. Like physically carrying me. I got so overwhelmed. But in that period of awareness, I also just knew that I was forgiven and it was no longer my fault. I just—it just went away, and I released it. I’m sure there’s been a couple of other situations or incidents. But that one was so profound and so intense that everything in the last two or three weeks has been different because of that one moment. [Subject 70, 32, female, white, post-interview]

We coded this as “maybe.”

Many people also reported an experience of intense, overwhelming emotion that they associated with God during the month of the discipline. Intense emotion has

⁴ We recognize that James’ four characteristics are suspension of space and time, transitoriness, noetic understanding, and ineffability, but both his examples and subsequent work (e.g., *The Varieties of Anomalous Experience*, edited by Cardena, Lynn, and Krippner [2000]) suggest that the qualities listed here may be more useful.

social and cultural significance in evangelical churches. People are supposed to cry uncontrollably when people cry for them, and people often cry in church. These experiences of powerful weeping (or sometimes, uncontrollable laughing) are almost always described as good, and as experiences of feeling God's love. Here is a particularly vivid example that led to a decision to attend a particular church (it takes place during his first visit to the congregation). In this case, the intense emotion occurs simultaneously with sensory overrides.

I said [to myself], "Well, dude, you broke up with your girlfriend, you left all your guy friends. Your new friends have moved away or are busy. It's the way it is. Just suck it up." And so I refocused back on the words of the song and it is as if heaven opened up and I heard a voice of the Lord as clearly as you're hearing me, and he said, "But *I* love you." And I'm like, "What is that?" And he said it again, he said it: "But *I* love you" ... and he said it a third time, "But *I* love you." ... And I sort of gathered myself and I'm- you know, snot ran down my nose and my eyes are teary and I look out and the pastor playing guitar, and he just looked at me and winked like, "He [God] got you, didn't he?" And I was--that's it. I'm done. I'm sold. [Subject 60, 44, male, white, pre-interview]

Yet not everyone does cry. Only someone people do. In the post-interview, twelve people clearly reported an intense emotional experience they associated with God (and two maybes). Two of these participants (and one maybe) were in the lectures condition; ten of them (with one maybe) were in the kataphatic condition (see Table 5).

Summary of Spiritual Experiences

Overall, there is a clear pattern in which these intense spiritual experiences are associated with the kataphatic prayer practices. If we add up all the answers to all our questions (the near tangible presence of God; noetic experience; mystical experience; speaking in tongues; rush of power; uncontrollable muscle weakness; holy terror; demonic experience; out of body experience; near death experience; dissociated agency; and sleep paralysis) there is a significant relationship between participating in the kataphatic intervention, and reporting these experiences in the post-interviews (see Table 5).

Meanwhile there were three reported experiences whose post-interview rates were highly correlated with their pre-interview rates: the adrenaline surge, in which people report that they feel a jolt of electricity or power ($r(97)=.245, p=.016$); demonic experiences ($r(97)=.233, p=.023$); and most strikingly, speaking in tongues ($r(97)=.853, p=.000$). If someone spoke in tongues before the month-long intervention, they spoke in tongues during that month, and the same is also true (though less powerfully) for the adrenaline rush and for demonic experience.

If tangible presence (highly correlated with the kataphatic discipline) and the three experiences that were significantly correlated with prior reports (speaking in tongues, the rush of power, and demonic presence) are removed the pattern of association of classic spiritual experiences with the kataphatic discipline is still significant (see Table 5).

The Month's Experience

The answers were coded straightforwardly 0=no, 1=maybe, 2=yes. Subjects typically said yes or no. Subjects in the kataphatic condition were more likely to say yes to these questions (see Table 6):

Do you feel that it changed your faith or spirituality?

Did you ever have moments where you slipped into a different state of awareness?

Did you find yourself starting to think differently?

Did you find that your mental images seemed sharper or different in some way?

Did you find yourself having different emotions, or more intense emotions?

Did your sense of God change this month?

Did you feel that you had a more playful relationship with God in any way?

Did you experience God more like a person?

At the follow up interview, one month after the subject had returned the iPod, those in the kataphatic condition were also more likely to say “yes” to these questions:

Do you feel that this practice changed your faith or spirituality?

Did your sense of God change this month?

They were also more likely to say that the practice changed them overall.

Discussion

Prayer changes the mind. These results suggest that attention to what the mind imagines during prayer makes the world of the mind more vivid. People experience mental images as sharper. They have clear, meaningful images and thoughts that stand out and grab them. They report significant unusual sensory experiences. They say that they have more intense emotions that they associate with God, the object of their prayer. Their very awareness feels different. And they say that God becomes more real to them, even when they believe in Him already. As one subject put it when describing her month: “Things in the Bible are – I believe they’re real, but sometimes they become realer. They become more real” [Subject 86, 50, female]. Or as another put it, describing what she had learned: “That He was there. That He was real” [Subject 114, 72, female, white].

Why should attention to the inner senses—to mental imagery, visual mental imagery above all—have this effect? Cognitive psychologists have argued that mental imagery and perception (seeing with the mind’s eye and seeing in the world) share many of the same mechanisms (Kosslyn 1980; Kosslyn et al. 1993; Farah et al. 1988). They have also argued that interpretation affects perception (Gregory 1997). Indeed, Marcia Johnson and her colleagues have presented a “reality monitoring” theory which suggests that the human ability to distinguish between what one has imagined and what one has perceived is to some extent learned (Johnson and Raye 1981). They argue on the basis of experimental data that people learn to attend to the sensory richness of a remembered event to determine whether it took place in the world or in their imagination. If you can remember the quality of light or the ambient temperature

in your memory of a conversation with a colleague, they suggest, you are more likely to interpret that memory of the conversation as a memory of a real event, rather than of an imagined one. Richard Bentall and his colleagues have further developed the reality monitoring model to argue that hallucinations—perceptual experiences of something not materially present--can be explained as thoughts that are experienced as perceptions (Bentall 1990, 2003; Jones and Fernyhough 2007). He lays out other factors that may contribute to the misinterpretation of those thoughts—emotional arousal (like fear), the ambiguity of the actual environment (darkness), and expectation. His main point is that unusual sensory experiences are the result of perceptual bias, not perceptual deficit.

This work allows us to argue that attention to the inner senses should increase the rate of unusual sensory experience by making inner sensory experience—images, imagined conversations—more sensorially compelling and thus, more liable to be experienced as real. Imagination-rich prayer invests scriptural passages and conversations with God with sensory I-was-there detail. Someone who has vividly imagined the nativity remembers the shadow cast when the light of the angel fell upon the listening shepherds. Someone who imagined talking to God over coffee remembers the bitter scent lingering in the air. And someone who is praying in this imagination-rich way around the scriptures for thirty minutes each day will be someone to whom scriptural stories come effortlessly, the way scenes of Hogwarts spring easily into the mind of an avid Harry Potter fan. Motivated attention to the inner senses should heighten the reality of imagined experience.

That combination of cognitive availability and sensory vividness probably explains why people who use their inner senses to experience scripture are more

likely to report unusual sensory experience. The most parsimonious way to explain unusual sensory phenomena is that perceptual mistakes are common, and corrected by the brain to represent the world—except when, occasionally, they are corrected to represent something else. The corrections reflect what one is biased to infer about the world, rather than what is in the world before them. Most biases are mundane—you see something odd in the place where you know there is a sofa, and you correct that blob into a sofa--and probably most perceptual breaks are corrections that go unnoticed in everyday lives. But if one’s cognitive bias leads to making corrections that are meaningful to larger life issues, like hearing God, those experiences could be corrected differently. A reality monitoring perspective suggests that daydreams that are sensorially detailed are more likely to produce thoughts whose vividness makes them more liable to be interpreted as perceptions when someone is perceptually interpreting an ambiguous stimulus. Our results suggest that a habit of kataphatic prayer leads people to report more sensory experiences about God than people listening to lectures on the Gospels, suggesting that both the practice of attending to images and the content of images makes a difference.

And that is why inner sense cultivation is important to religion. The great goal of daily practice in an evangelical church where God speaks back is to teach people to blur the line that the human mind draws between the internal and the external, the line between “me” and “other”--when it comes to God. Inner sense cultivation softens the distinction between inner and outer, self and other, the same line that our reality monitoring system uses to distinguish the source of experience. This is not quite the language a pastor might use, but the challenge of prayer for those who pray is to experience the words they say in their minds as more than “mere” imagination. This challenge has grown more acute in a secular society. Charismatic evangelical

congregants go to great effort to interpret, or reinterpret, some thought-like mental events as the experience of an external presence; they work hard to experience the God with whom they have been having imagined conversations as hearing and responding in the world. Those who pray regularly practice these strategies again and again. Imagination-rich prayer helps them to achieve that end. This may explain the importance of inner sense cultivation not only in Christianity and shamanism (see also Reichel-Dolmatoff 1975; Crocker 1985) but in Judaism (Garb 2011), Tibetan Buddhism (Beyer 1878), Sufism (Corbin 1969), and other faiths.

Inner sense cultivation also seems to contribute to intense spiritual experience of God: the near-tangible sense of God's presence, an awareness of profound spiritual knowing, an overwhelming emotional experience of God, and other unusual spiritual experiences. Why should that be? There is much still to be explained about this relationship, but our work implies that using the imagination to know God at least allows people to attend to their minds in a way that makes these experiences more likely. These experiences may be made possible in the manner we think that unusual sensory experiences are made possible: that potential breaks in psychological experience are common, and corrected below the level of awareness in most daily experience, but that when people attend to their mind with more care and more interest in the divine, the partial perceptions and fleeting thoughts, the often unnoticed shifts in awareness, that get ignored in most daily life are allowed to flower into meaning.

Meditation and contemplative practices are also associated with unusual sensory experiences and unusual spiritual experiences, although such experiences are often far less theologically significant. (There is an adage, "if you see the Buddha on

the road, shoot him!” which illustrates that unusual experience is sometimes seen as a distraction rather than a reward.) Yet meditation uses a practice almost directly opposed to inner sense cultivation. It is apophatic, not kataphatic. Those who follow this spiritual road seek to disattend to inner experience, not to use inner imagery to enhance the representation of the divine. Indeed, the goal of contemplative practice is often to avoid any internal representation at all, as the 14th century *Cloud of Unknowing* attests. Yet meditation too is associated with powerful spiritual experience (Goleman 1977).

Why? We suspect that it is because both alter the basic relationship between a person and that person’s thought. Both methods change the way a subject pays attention to his or her mind. Both demand of the subject that he or she treats what is in the mind as more important than the surrounding environment. We suggest that it is this paradoxical shift that makes the powerful phenomena of the classic spiritual experiences more likely, although they can of course also occur for those who neither meditate nor pray (Cardena et al.2000). (It may also be true that apophatic practice is so hard that the intense inner attention becomes a de facto kataphatic practice—that in the attempt to disattend to thoughts, one instead attends intently to specific thoughts, like the daydreams associated with the name of God.) A more detailed account is clearly needed, but we suggest that while phenomena like mystical experiences are major physiological events, they are made more likely by cultural invitation and spiritual practice.

Individual differences also make a difference to a subject’s response to inner sense cultivation, but this does not explain away the training effects we found. In an earlier study (Luhmann et al. 2010) we demonstrated that evangelicals who scored

highly in “absorption” were more likely to report unusual sensory experiences and more likely to report that they were able to experience God vividly and like a person. We measured absorption with the Tellegen Absorption Scale, which has thirty-four statements that ask in effect whether you can “see” the image of something when you are no longer looking at it; whether you sometimes experience things as a child; whether you sometimes find that you have finished a task when your thoughts are elsewhere; whether different smells call up different colors; whether you often sense the presence of a person before seeing him or her; whether you can become oblivious to everything else when listening to music (Tellegen and Atkinson 1974; see also Snodgrass et al. 2011).

In that study, a person’s absorption score was not related to the length of time he or she prayed on a daily basis. That is, the scale did not measure prayer practice per se. But the way a person answered the absorption questions was significantly related to the way he or she experienced prayer. The more absorption statements people marked as true, the more they said they experienced God with their senses (for example, that they commonly got images and sensations in prayer, or that they had felt God touch them). Most remarkably, the way people answered the absorption scale predicted whether they were able to experience God as a person. One might think that the questions (do you speak to God freely throughout the day? Would you describe God as your best friend, or as like an imaginary friend, except real? and so forth) would lead people just to parrot back what the pastor and the books and the conferences say about God so often. Yet those who had high absorption scores were more likely to report that they experienced God as if God really were a person—someone they could talk to easily, who talked back, with whom one could laugh, at whom one could get angry. Those who had low absorption scores were more likely to

say—often despondently shaking their heads—that they did not experience God that way. Controlling for absorption, prayer practice did make a difference—those who prayed for longer were more likely to experience God as person-like.

In the Spiritual Disciplines Project, those in the kataphatic prayer condition and the lectures condition were no different in their initial assessments of their absorption. But those in the kataphatic condition were significantly more likely to say “yes” when we asked them whether they experienced God more as a person at the end of the month’s practice. Only 17 of the 48 subjects in the study condition replied “yes” to this question, while 39 of the 53 kataphatic subjects said yes ($p=.000$). Absorption did not account for this difference. The response to this question was particularly striking because the lectures had emphasized the ways in which two of the gospel authors, Mark and John, draw out Jesus’ humanity and, in different ways, his experience of pain, anguish, and real human friendship. It seems that the time spent in inner sense cultivation was responsible for the growing sense that God was person-like. It may be helpful to recall that two-thirds of the subjects prayed for fifteen minutes a day or less when they entered the project. It is true that in this study, those who prayed for longer were more likely to be higher in absorption. But for these subjects who on average prayed little before the study, it appears to be inner sense cultivation practice, rather than proclivity for absorption that developed the sense of God’s greater personness. Absorption seems to facilitate the inner sense cultivation of prayer practice.

However, proclivity and practice by themselves are still not sufficient to explain the spiritual experience of God. The invitation to interpret experience in a particular manner—what we might call “the cultural invitation”—also makes a

difference. Thirteen Catholics and thirty-four Vineyard congregants participated in the Spiritual Disciplines Project. All of them felt that they heard from God; all experienced God as interacting with them at least to some extent in their lives. But the Catholics reported a much less active relationship. At the initial interview, all Catholics and Vineyard congregants said that they experienced God through feelings and sensations. But only three of the Catholics said that this happened a few times a week, and none of them said it happened daily. Eleven Vineyard members said that they experienced God through feelings and sensations at least a few times a week, and four said that it happened daily. Almost all Catholics and Vineyard congregants heard from God through scripture, but about 75 percent of the Vineyard members said that they did so a few times a month or more often; only half the Catholics had this experience. Only two of the Catholics said that they heard from God daily, and none of them said that they had thoughts placed in their mind by God every day. Half of the Vineyard congregants said that they heard from God daily; 13 of the 34 said that God placed his thoughts in their minds every day. Twenty-five of the Vineyard congregants (75 percent) reported that they had experienced the near tangible presence of God; only 6 (45 percent) of the Catholics did.

In sum, what we found was that when people are trained in inner sense cultivation by the practice of prayer, these people will report sharper mental imagery and more sensory overrides. They will also report more unusual experience, and they will report more sensory inner communication from God. They experience God more as a person. A proclivity for absorption enhances some of these effects. An expectation that God will speak through the senses also enhances the chance that God will be experienced as doing so. Note the combination: an interest in interpreting a supernatural presence (an expectation taught by the social world of the church); a

willingness to get caught up in one's imagination (an individual difference); and actual practice (they do something again and again, which has consequences). None is an absolute. We had low-absorption subjects who experienced God vividly; we had subjects who reported intense spiritual experiences they had not expected and for which they had not prayed. But in general, it is the interaction between inner sense cultivation, a comfort with being caught up in the imagination, and a willingness to treat inner experience as evidence of the divine that contributed to the experience of God.

Our argument builds upon and provides more support for recent anthropological work that emphasizes the importance of the senses in religious experience. Bradd Shore (2008) describes a faith community that builds its identity through stories of old camp memories: the smell of camp cooking, recipes carefully collected; the heat of the day and the quiet of the woods; the act of being on the front porch, and remembering when your dad was alive and sat there too. This observation that the senses are central is one more and more anthropologists are coming to share (e.g., Geurts 2002; Hirschkind 2006; Majid and Levinson 2011). We argue that the senses are as important within the mind as they are within the church service, and that they make the God experiences in the mind more real.

In our brain-focused society, there is sometimes a temptation to treat spirituality as a simple psychological experience: a product of the "God-spot" and its ilk. This work shows that prayer gains its power from socially taught practices and culturally shaped interpretations. Relatively few anthropologists have written about prayer since Mauss (2003[1909]) suggested that prayer had a history, and that it has shifted from exact liturgy to inward intention over time. Recent anthropological

scholarship has begun to draw our attention to the way prayer is marked by specific linguistic strategies: that it is a special kind of language (in addition to others mentioned, Hanks 2010; Baquedano-Lopez 2008). Other scholars have begun to emphasize the way in which religious practice changes the body: that it involves learning (in addition to those mentioned, Cook 2010; Gade 2004). This is the project to which our work contributes.

None of this implies that the experience of God is no more than the experience of the trained imagination. What it does teach is that the primary purpose of prayer technology is to manipulate the way the person praying attends to his or her own mind and that these changes have consequences. That makes sense whether you look at prayer from a spiritual or secular perspective. The point of religious conviction is that the everyday world is not all there is to reality; to see beyond, one must change the way one pays attention. To a believer, this account of inner sense training speaks to the problem of why, if God is always speaking, not all can hear or see. They have not learned to see or hear beyond. For someone who is skeptical of prayer or inner sense cultivation the account explains why the believer heard a thought in the mind as if it was external. But the emphasis on skill—on the way that we train our attention--- should change the way both Christians and non-believers think about what makes them different from each other. Religion is not just about propositional belief, though the way we talk about it now sometimes suggests that to believe is to hold an opinion (Cantwell Smith 1998). It is about minds that are trained to experience the world differently. People who pray actually have different sensory evidence with which to interpret the claims they make about reality.

Acknowledgments: Deeply grateful thanks to Hazel Markus, Richard Saller, and George Luhrmann for their comments on drafts; to Christina Drymon, our interviewer; to Howard Nusbaum and Ron Thisted, wise counselors and co-conspirators; to Julia Cassaniti and Jocelyn Marrow, our coders; to Stanford University and the National Science Foundation; and to John Cacioppo, the John Templeton Foundation, and the Chicago Templeton Group who encouraged the project and created the interdisciplinary space for it to occur.

References Cited

Atran, Scott

2002 *In Gods We Trust*. New York: Oxford.

Baquedano-Lopez, Patricia

2008 Prayer. *Journal of Linguistic Anthropology* 9(1-2): 197-200.

Barrett, Justin

2004 *Why Would Anyone Believe in God?* Walnut Creek: Alta Mira.

Bentall, Richard P.

1990 The Illusion of Reality: A Review and Integration of Psychological Research on Hallucinations *Psychological Bulletin* 107 (1): 82-95.

2003 *Madness Explained*. London: Penguin.

Beyer, Stephen

1978 *The Cult of Tara*. Berkeley; University of California.

Boyer, Pascal

2001 Religion Explained. New York: Basic.

2003 Religious Thought and Behaviour as By-products of Brain Function.
Trends in Cognitive Science 7(3):119-123.

Cantwell Smith, Wilfred

1998 [1977] Believing—an historical perspective. Oxford: Oneworld.

Capps, Lisa and Elinor Ochs

2002 “Cultivating prayer.” In E. Ford, B. Fox and S. Thompson, eds. The
Language of Turn and Sequences. New York: Oxford. Pp. 39-55.

Cardena, Etzel, Steven Lynn and Stanley Krippner

2000 Varieties of Anomalous Experiences. Washington: American
Psychological Association Press.

Carruthers, Mary

1998 The Craft of Thought. Cambridge: University of Cambridge.

Cook, Joanna

2010 Meditation in Modern Buddhism: Renunciation and Change in Thai
Monastic Life. Cambridge: Cambridge University Press.

Corbin, Henri

1969 Creative Imagination in the Sufism of Ibn 'Arabi. Princeton: Princeton
University Press.

Crocker, Jon Christopher

1985 Vital Souls. Tucson: University of Arizona.

Csordas, Thomas

1994 The Sacred Self. Berkeley: the University of California.

Desjarlais, Robert

1993 Body and Emotion. Philadelphia: University of Pennsylvania.

2003 Sensory biographies. Berkeley: University of California.

Farah, Martha, Franck Peronnet, Marie Anne Gonon, and Marie Helene Giard

1988 Electrophysiological Evidence for a Shared Representational Medium for Visual Images and Visual Percepts. *Journal of Experimental Psychology: General* 117 (3): 248-257.

Foster, Richard

1998 Celebration of Discipline: the Path to Spiritual Growth. New York: Harper San Francisco.

Garb, Jonathan

2011 Shamanic Trance in Modern Kabbalah. Chicago: University of Chicago.

Gade, Anna

2004 Perfection Makes Practice. Honolulu: University of Hawaii.

Geertz, Clifford

1973 Interpretation of Cultures. New York: Basic Books.

Geurts, Kathryn

2002 Culture and the senses. Berkeley: University of California.

Goleman, Daniel.

1977 Varieties of Meditative Experience. New York: Irvington.

Gregory, Richard

1997 "Knowledge in perception and illusion." *Philosophical Transactions of the Royal Society in London* 352: 1121-1128.

Guthrie, Stewart

1993 *Faces in the clouds*. Oxford: Oxford University.

Hanks, William

2010 *Converting words : Maya in the age of the cross*. Berkeley: University of California.

Hirschkind, Charles

2006 *The Ethical Soundscape*. New York: Columbia University Press.

Horwood, Jeremy, Giovanni Salvi, Kate Thomas, Larisa Duffy, David Gunnell, Chris

Hollis, Glyn Lewis, Paulo Menezes, Andrew Thompson, Dieter Wolke, Stanley

Zammit, and Glynn Harrison

2008 "IQ and non-clinical psychotic symptoms in 12-year-olds: results from the ALSPAC birth cohort." *The British Journal of Psychiatry* 193(3):185–191.

James, William

1935 [1902] *The varieties of religious experience*. New York: Longmans.

Johnson, Marcia and Carol Raye

1981 "Reality monitoring." *Psychological Review* 88(1): 67-85.

Johnston, William

1973 *The Cloud of Unknowing*. New York: Doubleday.

Jones, Simon and Charles Fernyhough

2007 "Neural correlates of inner speech and auditory verbal hallucinations: A critical review and theoretical integration." *Clinical Psychology Review* 27(2): 140-154.

Keane, Webb

1997 "Religious language". *Annual Review of Anthropology* 26: 47-71.

Kosslyn, Stephen

1980 *Image and Mind*. Cambridge, MA: Harvard University Press.

Kosslyn, S.M., Alpert, N. M., Thompson, W. L., Maljkovic, V., Weise, S. B., Chabris, C. F., Hamilton, S. E., Rauch, S. L., & Buonanno, F. S.

1993 "Visual mental imagery activates topographically organized visual cortex: PET investigations." *Journal of Cognitive Neuroscience* (5) 263-287.

Lambek, Michael

1981 *Human spirits*. Cambridge: Cambridge University.

Lester, Rebecca

2005 *Jesus in Our Wombs*. Berkeley: University of California.

Luhrmann, Tanya Marie

2010 "The problem of proclivity." In *Emotions in the Field*, eds. James Davies and Dimitrina Spencer. Stanford University Press.

2011 "Hallucinations and sensory overrides." *Annual Review of Anthropology*. Vol. 40.

2012 *When God Talks Back*. New York: Knopf.

Luhrmann, Tanya Marie, Howard Nusbaum, and Ronald Thisted

2010 "The absorption hypothesis." *American Anthropologist* 112(1): 66-78.

n.d. "Prayer has cognitive consequences."

Mahmood, Saba

2005[2001] *Politics of Piety*. Princeton: Princeton University.

Majid, Asifa and Stephen Levinson

2011 "The senses in language and culture." *Senses and Society* 6(1): 5-18.

Mauss, Marcel

2003 *On Prayer* (edited and with an introduction by W. S. F. Pickering).

Oxford: Berghahn books

Miller, Donald

1997 *Reinventing American Protestantism*. Berkeley: University of California.

Needham, Rodney

1973 *Belief, language and experience*. Chicago: University of Chicago Press.

Noll, Richard

1985 "Mental imagery cultivation as a cultural phenomenon, with commentary." *Current anthropology* 26(4): 443-461.

Otto, Rudolf

1958 [1917] *The idea of the holy*. Oxford: Oxford University Press.

Pennington, M. Basil

1980 *Centering prayer: renewing an ancient Christian prayer form*. New York: Doubleday.

Posey Thomas and Mary Losch

1983 Auditory hallucinations of hearing voices in 375 normal subjects. *Imagination, Cognition and Personality*. 3(2): 99-13.

Princeton Religion Research Report

2002 <http://www2.wheaton.edu/isae/Gallup-Bar-graph.htm> [accessed February 2012]

Reichel-Dolmatoff, Gerardo

1975 *The shaman and the jaguar*. Philadelphia: Temple University.

Robbins, Joel

2001 "God is nothing but talk." *American Anthropologist* 103(4): 901-912.

Shoaps, Robin

2002 "Pray earnestly." *Journal of Linguistic Anthropology*. 12(1): 34-71.

Shore, Bradd

2008 "Spiritual work, memory work: revival and recollection of Salem Camp Meeting." *Ethos* 36(1): 98-119.

Sidgwick Henry, Johnson A, Myers FWH, Podmore F, Sidgwick EM

1894 "Report on the census of hallucinations." *Proceedings of the Society for Psychical Research* 34: 25-394.

Smith, Christian

1998 *American Evangelicalism*. Chicago: University of Chicago.

Snodgrass, Jeffrey, Michael Lacy, H. J. Francois Dengah II, Jesse Fagan and David Most

2011 "Magical Flight and Monstrous Stress: Technologies of Absorption and Mental Wellness in Azeroth." *Culture, medicine and psychiatry*. 35(1): 26-62.

Sperber, Dan

1975 *Rethinking symbolism*. Cambridge: Cambridge University Press.

Tellegen, Auke and Gilbert Atkinson

1974 "Openness to absorption and self altering experiences ("absorption"), a trait related to hypnotic susceptibility." *Journal of Abnormal Psychology*. 83(3): 268-277.

Tien, A.

1991 "Distribution of hallucinations in the population." *Social Psychiatry and Psychiatric Epidemiology*. 26: 287-292.

Tomlinson, Matt

2004 "Ritual, risk and danger: Chain prayers in Fiji." *American Anthropologist* 106(1): 6-16.

Turner, Denys

1995 The darkness of God. Cambridge: Cambridge University.

Warren, Rick

2002 The Purpose Driven Life. Grand Rapids: Zondervan.

Wilson, Ken

2009 Mystically Wired. Nashville: Thomas Nelson.
