Anthony Rock

Many people the world over hold some sort of faith. What is happing to the brain when such a person is engaged in a core practice of many faiths: meditation or prayer? Is the religious sense hardwired into our bio-psychosocial environment, whether or not there is a “God?”

First, when someone starts their prayer or meditation, focused concentration will increase activity in the frontal lobes (Newburg, 2009). Interestingly, the frontal lobes are also very active when we speak and listen to others. This may be what some practitioners would call; “asking for God,” in the same way a person makes a phone call and asks for a specific person. Many prayers first begin with addressing the deity. Initially, prayer and meditation seem to mirror, in part, mundane communication. But this is not the end of the study.

Next, above and behind the frontal lobe, is the parietal lobe, and in a nut shell, the parietal lobe determines a person’s sense of being in time and space. As the supplicant spends time making the prayer, activity is reduced in this area of the brain. A person reaching into this state tends to lose some sense of the self. This may illustrate a supplicant’s goal to reach “oneness with God,” and the need for humility that many speak of when addressing “God.” So, as a person is speaking to their deity, they are drawing closer to that deity and further away from themselves. It would seem that this brain activity, or lack thereof, is the basis for the “religious oneness with God” idea, and being conscious of a sharply decreased sense of self.

After this heightened sense of communication and decreased sense of a specific time or place, there is also increased activity in the language area of the brain (Hallowell, 2012). This area of the brain is in the left hemisphere, the lower portion of the left frontal lobe, and is known as Broca’s area. Broca’s area is responsible for motor control which replicates physical sound (I am given to think here of a person perhaps whispering or moving their lips silently as the pray). Another area of the brain is known as Wernicke’s area is also stimulated (Newburg, 2009). This area of the brain is the part that understands the meaning of a language. Perhaps, at this stage of stimulation, people are referring to Wernicke’s area when they say, “God spoke to me in prayer.” From this evidence, it would suggest that at least some practitioners of meditation are in fact being sincere when he or she says, “I prayed, and God answered.”

Sometime after what is usually a type of peak experience of “talking to God,” the prayer or meditation will end, and the brain will return to normal, everyday functioning.

In what is known as loving kindness meditation, where the goal is basically to replace negative attitudes with positive ones, researches Lee, Leung, et al. found, “Compared to FAM [Focused Attention Meditation], relatively little is known about the neural basis of LKM [Loving Kindness Meditation]. Lutz and colleagues [11] played LKM experts emotional sounds during meditation and baseline and found that they had increased neural activity during meditation including the anterior insula, postcentral gyrus, inferior parietal lobule (IPL), amygdala, right temporal-parietal junction, and right posterior and superior temporal sulcus.” I am just going to touch on the amygdala in this essay.

As part of the limbic system, which processes our emotions and many basic survival type needs and desires, the amygdala is evidently affected by Buddhist loving kindness meditation. Again, here is the idea that positive thinking, meditation, prayer—or just sheer will power, can effect beneficial changes stands as an interesting counter-point to many models of a purely mechanical view of the universe (Or even a mechanical view of religion?). Perhaps another way to look at it is that a non-literal reading of a spiritual tradition is actually an older kind of language of psychology. Religious traditions often attempt to explain behavior, motives, sickness, riches, poverty, emotions, the meaning of life, and solve everyday problems, much like some areas of study in psychology.

Since religions and forms of prayer are very old, it would be interesting to study meditation/prayer from the perspective of neuropsychology and evolutionary linguistics—and how that may frame the search for a common language.

So far, neuropsychology’s study of various forms of prayer and meditation has led to some interesting results. The core effects on the brain during prayer have primarily to do with the communication areas of the brain, and the need for so many people to develop this area of brain functioning raises some interesting questions about the relationship of language to religion. To me this is a very interesting area of study especially from the bio-psychosocial perspective and it is evident that this field of research remains wide open.

Work Cited:

Hallowell, B. (October, 22 2012). This is how your brain reacts during intense prayer. Retrieved from <http://www.theblaze.com/stories/2012/10/22/this-is-how-your-brain-reacts-during-intense-prayer/>

Lee, T. M. C., Leung, M., Hou, W., Tang, J. C. Y., Yin, J., So, K., . . . Chan, C. C. H. (2012). Distinct neural activity associated with focused-attention meditation and loving-kindness meditation. PLoS One, 7(8) doi:http://dx.doi.org/10.1371/journal.pone.0040054

Newberg, A. (1993). The effect of meditation on the brain activity in tibetan meditators: frontal lobes. Retrieved from http://www.andrewnewberg.com/research.asp

Bibliography:

<http://www.andrewnewberg.com/research.asp>

<http://www.theblaze.com/stories/2012/10/22/this-is-how-your-brain-reacts-during-intense-prayer/>

<http://www.kaheel7.com/eng/index.php/secrets-of-quran-a-sunnah/282-american-researcher-has-discovered-that-while-praying-the-brain-re-programs-itself>

<http://www.npr.org/templates/story/story.php?storyId=104310443>