

“Story in the Memory of the Heart: The Neuroscience of How Stories Are Embedded on the Human Brain”

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(The following notes are the major points from three keynote addresses delivered to the 2018 Festival Gathering of NBSI. A list of sources consulted is included at the end of the third keynote.)

First Keynote: “God Orders”

I. General information about stories and their impact on our brains

* Certain stories are so important to a person that they “protect” the story by encasing it within another story. I realized this when, as a young psychotherapist, I “discovered” that my clients were lying to me. When I discussed this with my clinical supervisor, she told me that my job was to figure out what was so important in their real story that they were protecting it with the cover of a contrived story. In short, they were telling me the “truth” but telling it slant (Emily Dickinson). (Jason’s video of “White Jesus”)

* These important stories are about:

Mattering
Belonging
Being loved

* Important stories are:

“Tradents”; i.e., carrying devices. Their structure remains constant, but the details are able to be manipulated to suit a particular occasion

“Intentional”; i.e., to remind us who we are both positively and negatively (The video clip from the 2016 Presidential Campaign)

“Button Boxes”; i.e., they are available to help us “mend” other stories that come to us unresolved (our brains are wired to make sense of things and will rumble around until meaningful connections are made even if they are incorrect and not true; Lieberman 2013)

II. Dt. 6:1-9

- A. The “back story” begins with Dt. 4:20: “Remember that the LORD rescued you from the *iron-smelting furnace* of Egypt in order to make you his very own people and his special possession, which is what you are today.”
- B. By the time Deuteronomy was written, the iron ore smelting process was extant technology developed in the ancient world. But the process did not exist at the time in Egypt during which the Hebrew people were purportedly there.

The composer has therefore chosen a specific metaphor to describe the time in Egypt. Any number of metaphors would have worked. So, choosing the iron ore smelting process – which would have been recent technology to the people HEARING Deuteronomy makes a key point. It immediately evokes in the minds of the audience the idea of sucking the oxygen out of the space, because the key to iron-ore smelting is sucking the oxygen out of the room.

- C. Nothing focuses our attention like gasping for air:
 - 1. There are circumstances in which we do our best if we are ordered to do something while we are on the edge of panic.

2. In panicked situations, trying to access our reason is unhelpful. The number of times that we are able to act rationally in a crisis is none.

3. Ordering someone to do something in a crisis is an act of compassion.

4. The neural pathways that are triggered during a panic do not operate at other times. This is why it is NOT effective for someone to order us to do something during other times.

So, speaking earlier about the two stories that co-exist, I want to offer the second story from my own life that the Deuteronomy story evoked in me, and how processing the second story affects the way I hear the first story. (The personal story of moving to the new house, the disorientation, the marital problems with my parents, the ultimatum from my father to my mother — the “obscene” the critical action essential to the plot but too intimate and personal to happen on stage, but rather has to happen “off stage” i.e., “ob-scene” — and her resulting decision to remain with the family, and the way that those of us children sitting on the staircase listening to them discuss things caused us to “stop breathing” and that our breathing resumed only after the “all clear”.)

III. Write it on your heart, your mind, and your doorposts

A. Heart stories: These are the stories we hold that are bathed in emotion (sadness, anxiety, isolation, joy, success/winning, lust, greed, envy, contempt). If you are an actor, these are the stories you can quickly recall and immediately weep real tears. When we need a good hard cry, rehearsing these stories will get us there every time. In the universal field of stories common to all humanity, these are our tragedies.

- B. Mind stories — These mental, rational, intellectual stories are the stories that explain what happened before what happened happened, sense-making, allegories, symbols and rituals. They are our earliest computers that catalogue events, organizing them according to other events.

However, they are the most unreliable in terms of “truth” because they tend to be self-referencing “facts” that can easily trick us into making very wrong conclusions that over time can become dogma and get us into trouble.

- C. Doorpost stories — These practical travel-sized stories we carry with us to work or school are our Aesop fable stories that call us back home to “who we are”, reorienting us around our basic character and ethical compass; combining heart and mind stories into a known context (it may be “safe” or it may be “dangerous” but it is known, there remains no mystery). At the end of the day, these are the stories whose essential truths can be seen in our children, because their lives reflect our ethics – not our ideal selves, but our true selves.

IV. The Movie — Sully (the bird scene) We are going to watch a piece of a story that captures some of the feeling of urgency from the Deuteronomy passage and its back story of iron ore smelting. See if you don’t feel like you have stopped breathing...

- A. Love the Lord
Accessing our own stories of fierce and costly love gives us an idea of what God is ordering us to do. Stay or go, but if you stay you stay with everything you’ve got, whatever is in your heart for better or worse, whatever you imagine is that part of you that will live forever, and committing everything you’ve got to the choice to love.

- B. When the fourth wall is removed in biblical storytelling and we connect to our audiences while telling a story, the stories triggered inside the audience actually seek to synchronize and connect with stories inside of us. We may be unaware of how the stories within us that their stories are calling to our conscious awareness are connected to the biblical story we are telling. This connecting of humans to each other through compelling storytelling is neural science at its best.

Second Keynote: “God Offers” Jeremiah 31:31-34

I. The backstory

- A. For the back story, we will fast forward several generations from the time of the Deuteronomy passage. The Judahite exiles are returning to Israel from Babylon having completed the punishing suffering that they earned for themselves. They have consequently had the opportunity to reflect on who they are and how they are connected to God *and to each other*. They have learned that their religion did not end when the Temple was destroyed. They have formulated a narrative about what happened to them before what happened, happened. They have composed their “mental, rational, and intellectual mind” stories.
- B. As a result of the narrative they have composed, they have also established the ritual features of their common life together: circumcision, fasting, Sabbath keeping. That is, they can now say “We do these things because....” They have developed ritual acts that are as portable as the God they worship. The symbol of sacred space in the Temple has taken on a changed significance now that they have had to define themselves and their relationship to God apart from that space. The Temple now has both a “narrow” and a “wide” meaning (Steven Pinker, 2008, p. 290).

They have, in short, learned from their suffering and written a story about how and why it happened and how life will be forever different because of what they have learned. They have made sense of their suffering.

- c. Our brains are wired to make sense of suffering.

In ***Social: Why Our Brains Are Wired to Connect*** (*public library*), neuroscientist **Matthew D. Lieberman**, director of UCLA's Social Cognitive Neuroscience lab, sets out to "get clear about 'who we are' as social creatures and to reveal how a more accurate understanding of our social nature can improve our lives and our society. Lieberman, who has spent the past two decades using tools like fMRI to study how the human brain responds to its social context, has found over and over again that our brains aren't merely simplistic mechanisms that only respond to pain and pleasure, as philosopher Jeremy Bentham famously claimed, but are instead wired to connect.

At the heart of his inquiry is a simple question: Why do we feel such intense agony when we lose a loved one?

He argues that, far from being a design flaw in our neural architecture, our capacity for such overwhelming grief is a vital feature of our evolutionary constitution, and our emotional and psychic suffering is the result of breaking that vital connection.

The trick is how to tolerate this agony and also move on. And the key is story. Story is more than a pleasant addition to family life. It is essential to mental health. From birth until about age 6 in boys and age 8 in girls the prefrontal cortex (allowing us to connect actions with consequences) is very developed. This allows parents to toilet train children because it is easy to teach them "shame" connecting soiling themselves with disgust. But, then the prefrontal cortex goes dormant until around the mid to late twenties. This means that for virtually all

the time we are parenting our children it is safe to say they are “brainless.” So, how do we get around that impediment and help shape their characters and teach them skills and appropriate behaviors? The secret is storytelling.

Storytelling bypasses the prefrontal cortex and enters directly into the limbic system of the brain, the earliest and most primitive part of our brains. This is the part of the brain that warns us, protects us, and comforts us. The limbic brain cells also line the esophagus and the stomach, which is why we instinctively sense danger.

This is also why it is critically important that parents not override a small child’s sense of danger around strangers, even though the persons may be known to the parent. Because the child has learned to trust the parents, if the parent tells the child to basically ignore what they are feeling in terms of fear about someone, then later on when the child is on their own and away from home, when their limbic brain warns them that someplace or someone is not safe, they will ignore that warning.

II. An Empirical Study of 10 Transformational leaders of global social change looked at how they described what gave them the “edge” (Power point that brings up each of these in turn; i.e. A, then B, etc.)

- A. They learned to reframe personal suffering — especially failures — into a distilled “eternal truth” (Personal story about how I learned through the difficulty of a domestic situation that I could escape through whatever door wasn’t locked and that I could expect an adventure on the other side of the door.)
- B. They referenced the eternal truth they learned from their mistakes to a situation or a person who they perceived to have succeeded. (Personal story about connecting bravery and imagination to Queen Noor of Jordan, same age, spent time in Dallas where I grew up, was able to find her way and

her voice in a largely patriarchal society and continues to this day to be a voice for the voiceless)

- C. They consciously re-oriented their lessons learned through suffering into how they interacted with others, ascribing to others the same human needs and aspirations that they had learned about themselves through the examination of their suffering (The video clip of “The Darkness of the Womb, Not the Darkness of the Tomb”)

- D. In a Pulitzer prize winning play by Margaret Edson “Wit”, a John Donne scholar, Vivian Bearing, faces a fatal cancer diagnosis, which brings her to a place where she must make sense of the choices she has made with her life, choices which she imagined would honor her mentor by being a harsh and cruel professor with her students.
Remember in our first address how we talked about what can become dangerous dogma if we make erroneous conclusions based on insufficient data and imbed these in our narrative?

- E. The result of these choices is a reputation for alienating and shaming her students, imagining the whole time that this *persona* was in the image of her mentor. In a cruel irony, her treatment at the hands of her physicians -- one of whom is a former student -- rehearses regrettable scenes from her tenure as a professor.

In the scene we are about to see together, Vivian’s mentor visits her at the hospital, and in comforting her, helps to effect a final sense of peace for this woman whose capacity to parse Donne’s poetry finally allowed her to understand how deeply it had shaped her heart.

III. Movie: Wit (show the scene of The Runaway Bunny)

God's "offer" to find us wherever we go, and to meet us there in whatever circumstances we have devised, is the essence of the Jeremiah passage. Ironically, Horatio's farewell to Hamlet is the line that her professor offers as a farewell to Vivian. In one of their early discussions, the professor told her "If you're not going to pay attention to the punctuation in Donne's poetry, you might as well study Shakespeare." Vivian assumed her mentor hated Shakespeare. Again, wrong assumption leading to wrong narrative.

Third Keynote: "God Observes" 2 Corinthians 3:1b-6

I. The backstory

- A. In his own words, Paul had been "pressed out of measure and above strength to the point that [he] despaired even of life". Yet, later in the same letter he says "We are troubled on every side, yet not distressed; perplexed but not in despair; persecuted, but not forsaken, and cast down but not destroyed." In other words, Paul has made sense of his circumstances in a way that offers a future of hope.
- B. Think here of yesterday's discussion about the necessity to take ownership of the narrative about what is happening to us in a way that our primary aim is to develop the capacity to tolerate deep pain or ambiguity. By following the lessons we have learned we can handle what is happening to or around us through framing our story. We expect that this will be evident in one of these ways: calling us to account; guiding us toward certain choices; and, encouraging or comforting us.
- C. This does not mean that we get to think magically about our reality. Instead, we are compelled to adhere to a "true to being" memory of the essential reality of what is happening and to make reasonable inferences about how what is happening is connected

to what we already know, that is, the essential truths we have learned.

- D. St. Paul realized that his capacity to tolerate the suffering he endured in his ministry of the gospel was only bearable through the sustenance of God coming to him through the companionship of his fellow apostles who were filled with the Holy Spirit.

- E. Or, for our purposes, he learned that his story of personal suffering found its “meaning”, its “worth” in the context of how it connected to the stories of others. For example, when I use biblical story in a retreat setting, part of my preparation involves learning all that I can from someone or more than one someone about what has been going on in the life of that particular community in the months or years leading up to the retreat.

As long as their communal life involves human suffering or joy, we are going to be able to connect. Because we have learned to access our own experience with suffering and joy in a way that leads to compassion and not self-absorption.

- F. Many lovely Christians are truly afraid that accessing the pain of their lives will makes them self-centered. Quite the contrary: Managing all that pain is by necessity making you self-centered. Acknowledging that pain has the effect of containing it so it can be sorted out, which, in turn, allows you to be emotionally available to others.

- G. The challenge is that “plain speaking” about something personal and being worried about shame and guilt ends up conveying callousness. That is not the same thing as being authentic or transparent. I assure you that telling the story I did on day one does not mean that the story is inconsequential to me. On the contrary, the idea is that only stories of great consequence are worth tending to.

II. The capacity to be emotionally vulnerable is enhanced by being in the midst of an authentic community; not a perfect community but an authentic one (like NBS). Paul talks to the Corinthians about how they are the law of God “written” on their hearts. This form of “written” occurs 251 times throughout the Hebrew Scriptures. Knowing what we do about the low rate of public literacy during this period, it appears that the concept of “writing” was popular ahead of the concept of “reading”, and seems to be connected with the idea of carving, rather like tattooing the body.

III. We have this in the first creation story in Genesis 1 when God creates beings in the image of God: “zakar” and “niqvah” — a thing that is able to remember and a thing that is able to pierce or cut through stone, that can distinguish, i.e., a being that cuts through something otherwise impenetrable. We are commanded to multiply and cover the earth with these skills: memory and discernment.

1. This Genesis story of creating humanity is a story very likely composed during the Babylonia Exile, rehearsed on the journey home, and organized in such a way as to be easily internalized, with a cautionary warning about the holy, sacred, birthmark that makes us recognizable as God’s issue.
2. We are able to “remember”. This is not animal instinct but rather the capacity to “recollect”; literally, to gather earlier stories and make meaningful connections.
3. We are able to “discern”, to cut through otherwise impenetrable events and tangled stories.
4. To recollect without discernment is to become a caricature of “I remember when” repeating an endless loop of old anecdotes.

5. To discern without recollection is impossible for it has nothing in which to dig, to engrave. Discernment requires historical data for its purchase.
6. To recollect and to discern is to become an icon to heaven. This is why the Russian and Greek Orthodox refer to the painting of an icon as “writing” an icon.

A. Paul recognized that we are not sufficient in ourselves to carry the gospel, the love of God. We carry it in community.

Our capacity to do this comes from God who alone is able to help us connect to each other and become a gospel story in community, not soloists.

A team of scientists at Princeton, led by Uri Hasson, had a woman tell a story while in an MRI scanner. Functional MRI scans detect brain activity by monitoring blood flow; when a brain region is active it needs more blood to provide oxygen and nutrients. The active regions light up on a computer screen. They recorded her story on a computer and monitored her brain activity as she spoke. She did this twice, once in English and once in Russian; she was fluent in both languages. They then had a group of volunteers listen to the stories through headphones while they had their brains scanned. All of the volunteers spoke English, but none understood Russian. After the volunteers heard the story, Hasson asked them some questions to see how much of each story they understood.

When the woman spoke English, the volunteers understood her story, and their brains synchronized. When she had activity in her insula, an emotional brain region, the listeners did too. When her frontal cortex lit up, so did theirs. By simply telling a story, the woman could plant ideas, thoughts and emotions into the listeners' brains.

Hasson also looked at listening comprehension. He found that the more the listeners understood the story, the more their brain activity

dovetailed with the speaker's. When you listen to stories and understand them, you experience the exact same brain pattern as the person telling the story.

When the woman spoke Russian, the speaker-listener brain coupling disappeared. The woman tried to communicate something that had happened to her, but the listeners could not understand. Her voice had inflection and emotion, but without comprehensible words to clue them into the action, the listeners could not make sense of her story. Except in the early auditory regions involved in processing sounds, their brains did not have corresponding activity.

When you tell a story to a friend, you can transfer experiences directly to their brain. They feel what you feel. They empathize. What's more, when communicating most effectively, you can get a group of people's brains to synchronize their activity. As you relate someone's desires through a story, they become the desires of the audience. When trouble develops, they gasp in unison, and when desires are fulfilled they smile together.

For as long as you've got your audience's attention, they are in your mind. When you hear a good story, you develop empathy with the teller because you experience the events for yourself. This makes sense. Stories should be powerful. They helped us share information long ago, before we had a written language and Wikipedia.

The study may also explain another phenomenon of storytelling: "Story-stealing." I have a good friend who tells the story of sitting by her sister's bedside in the last days of a battle with cancer that she eventually lost. Her sister talked about seeing their dad in heaven soon and went on to talk about how much it always meant to her to hear the story of the day she was born; how, during a snowstorm in New York their father had told the cabbie, "If you can get me that hospital in ten minutes I'll name this baby after you." My friend sat

there for several moments, not quite sure what to say. Finally she could stand it no longer:

“You were born in May. I was born in January. That’s MY birth story.”

Yes and no. It had become a shared story — a “tradent” that carried information about a father’s great love for his child that was authentic enough to be borrowed by any of his four children, apparently.

In this next clip, we will hear Raimon Panikkar describing how our perspective on life is affected by our neighbor’s perspective and why that matters to us as biblical storytellers.

V. Video clip: Panikkar’s “The Window”

- A. Healthy communities are communities where each person’s story helps another person make sense of their own stories. We can only see what we can see from our window.
- B. Remember back to the story from the first lecture about my mentor talking to me about my client lying. As my client began to trust me, he let me in to his real story, but I had no choice but to pass through the story he was offering me as a carrying device to take me to the real story.

Over our time together, he polished his window as I did mine and we cleaned out stories together.

- C. Personal story about finding a letter written to me from one of my children that described their personal pain in hearing stories from someone and being unable to get rid of the negative effects of those stories on their life. And, consequently, realizing that they had begun to form stories about the experience in order to try to feel better about themselves.

1. Like a page from the Talmud, I taped the letter in the center of a large white board and started drawing lines out from it connecting to boxes inside of which I wrote notes about other family stories, including that night as a child when along with my siblings, we all “stopped breathing.”
2. I drew lines that led only to boxes where I wrote a question mark because these boxes represented pieces that I knew were missing but I didn’t know yet what they might be.
3. From these lines I drew lines for each of my children with boxes that mentioned key events from their stories and then from their boxes six lines for each of the grandchildren and something about their lives.
4. Then when there was no more room on the board, I stepped back to look at it, to see what if anything, emerged.
5. I just kept staring: It looked kind of messy and I thought that if I could “clean” it up, Jason could make it into a slide for the presentation. And then I smiled when I finally saw that every story connected all of us and not linearly but in a dazzlingly series of loops and jags. I could no longer see how I could pull out one story block without ruining the whole thing.
6. Surely, there are many boxes on this board that I would love to erase! But, if I did that then I’d have to erase the other stories that connected to them. Which of those stories would I be willing to lose?
7. None, actually.

Summary: Through every event, whether in times of panic and crisis, or through long periods of suffering, God's *torah* is being embedded, engraved, onto our hearts.

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