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1

Teaching the Bible: How We Learn

It was the first night of a workshop on teaching the Bible in the church that we were leading for a local congregation. The participants were church school teachers of children and adults and several interested church members. In order to illustrate some of the material we were presenting, we asked the participants to read and think about Psalm 23. After some discussion of early memories regarding this psalm, we invited participants to sit back, close their eyes, and listen to a musical representation of this text. The room became quiet, and slowly the sounds of a beautiful Gregorian-like chant filled the air and the familiar words began: “The Lord is my Shepherd, I have all I need, She makes me lie down in green meadows, Beside the still waters, She will lead.”¹ We could feel the mood in the room shift. “She restores my soul, She rights my wrongs, She leads me in a path of good things, And fills my heart with songs.” It was almost as though the participants were holding their collective breath. What was this?

Even though I walk, through a dark and dreary land,
There is nothing that can shake me,
She has said she won't forsake me,
I'm in her hand.

She sets a table before me, in the presence of my foes
She anoints my head with oil,
And my cup overflows.

Surely, surely goodness and kindness will follow me,
All the days of my life,
And I will live in her house,
Forever, forever and ever.

As the music came to an end, the quiet was absolute. We paused for a moment, then asked for people's responses. Slowly they came. Some were angry—"I don't like that interpretation. The language doesn't speak to me!" "God isn't a She!" "I had a hard time listening." Others were deeply moved, but for different reasons. One person said that the beauty of the music held her attention. Another woman said that it was a deeply emotional experience for her, that she felt a real connection with the psalm because of the feminine language. When we commented that Bobby McFerrin wrote this version of Psalm 23 for his mother and dedicated it to her, we saw faces light up with recognition and understanding. This information seemed to help make a connection with this representation of the text, especially for those who were angry or feeling some discomfort.

In witnessing this encounter, we became aware that we were watching learning take place, watching the process by which people struggle to know, understand, and make meaning of a biblical text, with all its accompanying complexities and ambiguities. Understanding something about this process we call learning is foundational to our work as teachers of the Bible in the church. In this chapter we want to discuss some of the primary factors that we have discovered are key to how people learn. We believe this information is vital if we are to teach the Bible in ways that enable people to learn, make meaning, and hopefully be transformed. Although we cannot engage in an exhaustive look at learning, which would take volumes, we do want to consider some of the basics about learning that have proven helpful to our own work in teaching the Bible. These basics include (1) the brain and how it works, (2) memory and how it is formed, and (3) the role of learning styles and multiple intelligences in the learning process.

The Brain and How It Works

As we observed the participants in our workshop on teaching the Bible that evening, we were observing the human brain at work.

In fact, it is simply impossible to talk about learning without beginning with the brain. However, we need to hear a word of caution. Although neuroscientists are making amazing discoveries regarding how the brain works, there is still so much we do not know. Therefore, we need to approach the following discussion with a certain sense of humility, open to the new discoveries that are yet to come. That does not mean, however, that we don't have several important insights already at hand. As Eric Jensen says, although we do not yet have an "inclusive, coherent model of how the brain works," we do know enough to rethink and reshape how we teach and learn.² What are some important "facts" about the brain that we need to know?

First, the human brain is "the best organized, most functional three pounds of matter in the known universe."³ As human beings, we have more than enough brain matter for the work of learning! Our brains have more than 100 billion neurons, or nerve cells, and these neurons are key to learning. In fact, neuroscientists define learning as "two neurons communicating with each other."⁴ Neurons have "learned" when one neuron sends a message and another neuron receives that message. In other words, learning occurs when two neurons communicate. They make a connection. But it is more than just two single neurons. Several neurons become involved in the communication, and what is called a "neural network" is formed. It is the engagement of these neural networks that is central to learning.

The key here is to continually engage these connections. As Marilee Sprenger points out, "The more frequently a neural network is accessed, the stronger it becomes."⁵ The more we use the connections that have been made in a neural network, the more firmly set that learning becomes. Let's use an example. A child sees a cat for the first time. Her mother points to the cat and says "cat." The child attempts to repeat the word. At that moment her brain makes a connection. A few neurons are talking about "cats." If the cat meows, the child makes a connection that this object called a cat makes a sound like this. The next time she sees a cat and hears it meow, her brain will make these same connections—cat and meow. Each time the child encounters a cat and hears it meow, the neurons become more efficient at connecting, and the message that this is a

cat and it meows travels more swiftly through the neural network. As time goes on, the child will add more connections to the neural network regarding cats; the more this network is used (in other words, the more the child encounters cats), the stronger the connections will be.

Let's return to our participants in the workshop. When we first asked these folks to talk about their early memories and experiences with Psalm 23, we were inviting them to access their neural networks regarding this psalm. Many of them had had several encounters with this very familiar psalm, and therefore some strong connections were already in place. That's how neural networks work. The more we return to a familiar text and read it, hear it in sermons, sing it in songs, encounter it in a variety of settings (funerals are a favorite setting for Psalm 23), the stronger the learning with regard to that text.

Scientists call this strengthening of the neural networks "neural branching." The more we engage an object, experience, or idea, the more connections or "branches" are formed between neurons and the easier it is for that network to be accessed and used. The opposite is also true. When a neural connection is not used, when we no longer have some experiences or encounter certain objects or read about certain subjects or exhibit certain behaviors, the connection is lost. As Sprenger says, "Each day the brain prunes some neuronal connections because of lack of use."⁶

This knowledge that the brain engages in both neural pruning and branching as it makes connections carries an important implication for our work as teachers of the Bible. We can either teach for branching or teach for pruning. We teach for neural branching by helping our students make connections with the material and doing this over and over again. The first time a child hears a Bible story, a connection is formed. A neural network begins to take shape. Whether that network stays in place and the knowledge becomes a part of long-term memory depends a great deal on whether the network is accessed again and again. This is why it is important to focus on a single story and to tell that story over and over again in a variety of ways. Jumping from story to story too quickly, as sometimes happens in some church school curricula, does not aid in the development of neural branching and generally leads to little of that story being retained. By not using the connections again and

again, we engage in neural pruning. If our participants in the workshop had only heard Psalm 23 a few times in their lives, their memories of this psalm would be weak. But because of its frequent use in a variety of settings, many of those participants had strong memories, strong neural networks with regard to this particular text.

The knowledge that the brain engages in neural branching and pruning as a part of the learning process leads to another fact we need to know about the brain. Scientists are now talking about the “plasticity” of the brain,⁷ referring to the brain’s ability to grow and change. We used to think that the brain was pretty well “fixed” by a young age, usually around the age of five, but research is now indicating that this is simply not true. The brain continues to adapt and change throughout our lifetime. We actually change the physical structure of the brain through the experiences we have, meaning that we engage the brain’s neural branching and pruning capabilities through our experiences. The old adage “You can’t teach an old dog new tricks” is just not true from a brain perspective. We are capable of continuing to learn, of shaping our neural networks, throughout our lives.

We were offering an opportunity for new learning when we played the McFerrin interpretation of Psalm 23 for our workshop participants. Trusting in the brain’s plasticity and that new branching could occur, we sought to expand our participants’ understandings of Psalm 23 and its meanings for their lives by offering a new experience that held the possibility that a new branch would be formed in their neural network regarding this psalm. We sought to help this connection in a couple of ways. First, by asking participants to share their memories of this psalm, we were activating the networks already in place. Second, in placing this new interpretation in a context by sharing the origins of McFerrin’s work as a tribute to his mother, we were providing a way to connect to this different translation with which participants might identify. Our own experiences of mothers as those who shepherd us, love us, and steadfastly stand by us open a neural branching between Psalm 23 and mothers that might deepen our insight regarding the nature of the Lord, or God, and strengthen our neural network for this text.

A third fact about the brain that is important for teachers of the Bible to know is in regard to certain structures of the brain that play

a significant role in learning. Our purpose here is not to go into great detail regarding these structures and their specific biology but to help us understand how the brain engages in the work of learning and creating memory. We will say more about memory itself in a later section of this chapter.

Located in a central part of the brain, called by some the limbic brain,⁸ are two structures that are crucial to learning and memory. These are the hippocampus and the amygdala (see figure 1). The hippocampus sorts and files the factual information that the brain learns. The amygdala sorts and files emotional information. To understand the importance of these two brain structures, we need to look briefly at how the brain processes information.

Information comes into our brain through our five senses and is first filtered through the brain stem. It is then sent to the thalamus, the brain structure that first sorts information. If the information is visual, the thalamus sends it to the visual part of the cortex, where it is initially processed; if it is auditory, it sends it to the auditory cortex, and so on. The cerebral cortex also sorts through the information, relaying it to the hippocampus for cataloging and filing. The hippocampus does not actually house the information itself. It sends it on for permanent placement in other storage places in the brain and the body.

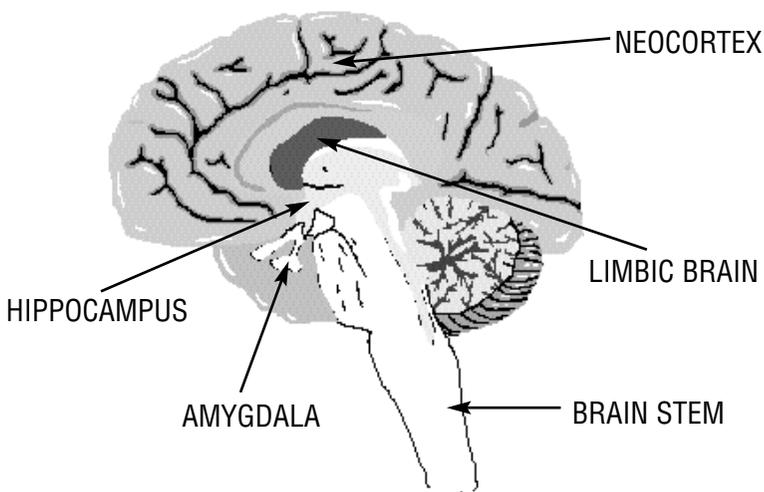


Figure 1

The hippocampus plays an important role in determining what is retained and what is forgotten. The senses continually flood the brain with information, some of it vital but much of it unimportant. You don't need to remember the face of everyone you pass on the street, but you do want to recognize the faces of your spouse and children! To prevent an information overload that would accompany having to remember too much, the hippocampus sifts through the barrage of incoming information from the cortex and picks out what to store and what to discard. In other words, the hippocampus serves as a central clearinghouse, deciding what information will be placed in long-term memory and helping to retrieve it when called upon.

The question that comes to the fore, then, is how the hippocampus decides what is worth storing—in other words, what is worth learning and remembering. There is growing evidence that two primary factors shape the hippocampus's decision to store information for future access. The first is whether the information has emotional significance. The amygdala is the key player in this decision. The second factor is whether the new information relates to something we already know. Put another way, "If information is not meaningful or allowed to form patterns in the brain, it will be lost."⁹

Two important implications for teaching the Bible emerge from this information about how the brain works. The first of these is that emotion plays a significant role in learning. We ignore it at our peril! As Robert Sylwester says, "The best teachers know that kids learn more readily when they are emotionally involved in the lesson because emotion drives attention, which drives learning and memory. It's biologically impossible to learn anything that you're not paying attention to."¹⁰ The relationship between attention and emotion is critical. Our choice to play McFerrin's interpretation of Psalm 23 for our workshop participants was a deliberate one because we knew it would evoke an emotional response from listeners. Not everyone felt the same emotion, but they all had a felt response and were attentive to what was going on. But it wasn't enough just to evoke an emotional connection and have their attention. We also needed to do something with that attention, to engage that emotional response in a positive and helpful way. This leads to the second implication for teaching the Bible that emerges from our

understanding of the work of the hippocampus. This is the importance of teaching for connections. As mentioned earlier, the brain is naturally a connecting organism. It engages in neural branching as it processes information. We can help it in this process, and help the hippocampus do its work of sorting information, if we provide some connections between new information and that which is already in place. It is like knowing what file folders are already in the files before we start to put new material in them. We sought to get a feel for the connections that were already in place for our participants by asking them to reflect on early memories they had of Psalm 23: where they had first heard it, some of the important images it evoked for them, and what associations they had with it. In addition, this helped the participants bring these connections into conscious memory.

But we also wanted to help make connections with this new expression of the psalm. To do so, we drew on the context out of which McFerrin's interpretation came—a tribute to his mother. Participants were invited to think about why McFerrin would identify this psalm with his mother, and we found ourselves in the midst of a rich discussion about the similarities between the qualities of a good mother and the qualities of the shepherd in the psalm. It was a short step to begin to think of our images of God and how God might be like a mother. To our mostly city-dwelling participants, who had never seen a sheep or shepherd in their lives except in the movies and therefore had few brain connections in place regarding shepherds, a connection between God and mother held as much promise, if not more, for neural branching as did a connection between God and shepherd. Such connections opened up the possibility for new and richer meaning with regard to this familiar text.

Of course, connections cannot be made at all if we do not have the brain's attention, so we would be remiss in this discussion about how the brain learns if we did not talk briefly about the role that attention plays in all this. One of the important tasks in teaching for learning is getting the brain's attention. It is said that a normal person makes the decision of where to turn his or her attention about 100,000 times a day.¹¹ So what influences the brain's attention?

We've already talked about the role that emotions play in learning and how emotions drive attention. Making decisions based on emotions is not the exception with the brain, it is the rule. Good teaching does not avoid emotions, but instead embraces them. But there are other influences on attention in learning. The brain is attentive to relevancy, so we need to engage information and present it in ways that are relevant for people. As Renate Caine says, "The best learning happens when necessary facts and skills are embedded in experiences that relate to real life, when there's a big picture somehow."¹² An important question a teacher needs to ask regularly is, How is this pertinent to my students' personal, everyday lives? In asking it we need to be aware that what is relevant to us as teachers may not be relevant to our students, especially if we come from different generations. It is vital that the question is asked from the perspective of the students and what is relevant to their lives.

The brain also becomes attentive when faced with contrast. "If you want attention, provide a strong contrast from what you were just doing."¹³ The brain is stimulated by novelty and change. The presentation of material also needs to be engaging rather than passive. Getting people physically involved in the learning process, through conversation, movement, and engagement of various kinds, is key to holding the brain's attention.

A word of caution, however, is needed here. Calling for the brain's constant attention is counterproductive. Research shows that the brain does poorly at continuous, high-level attention. In fact, such attention can be sustained for only a short period, generally ten minutes or less. Information taken in has to be processed, and this requires reflective time on the part of the brain, when the brain's attention is internal and is not focused on acquiring new information. As Eric Jensen says, "You can either have your learners' attention or they can be making meaning, but never both at the same time."¹⁴ Along with stimulating the brain's attention, we also need to provide regular time within our teaching sessions for the brain to reflect, for the learning to "imprint." In a typical teaching setting, this means alternating among input of information, group work, personal reflection time, and individual work. Time for reflection and processing can occur in a variety of ways, including having learners

talk for a few minutes in small groups about what they have just heard or read, inviting them to write for a few minutes in a journal or log about what they learned, or providing opportunities for learners to respond through music, art, or movement.

The final fact with regard to the brain that we want to address in this section is the relationship of challenge and the brain's learning processes. The brain is attentive to challenge. As Eric Jensen says, "What the human brain does best is learn,"¹⁵ and challenge is a critical ingredient in this learning. Boredom is more than annoying to the brain. It actually can lead to "thinning," or to that neural pruning about which we talked. When bored, the human brain stops attending, and learning is minimal. Challenge and stimulation are important brain "nutrients." As teachers of the Bible, we need to give thought to ways in which we are challenging our students' brains. We challenge by providing a variety of experiences, by introducing novelty and new ways of thinking and doing, by offering a range of sensory stimulation that engages all five of the senses, by offering choices so the brain engages in decision making, and by providing as enriched an environment as possible for learning.

In addition to understanding how important challenge is to the brain's learning processes, we also need to reflect on the relationship between challenge and threat. In reality there is a fine line between the two, and crossing this line can have significant impact on whether learning occurs. If intellectual challenge is experienced as emotional stress, the brain has a problem learning. When we chose to introduce the McFerrin rendition of Psalm 23 to our workshop participants, we knew that we would need to be sensitive to this issue of challenge and threat. Our invitation to hear and experience the psalm in a new way could easily have become threatening to some. If that happened, the ability to learn would be diminished.

When the brain perceives a threat, it has a range of responses available to it. One of these responses is what is called "downshifting,"¹⁶ in which the "reptilian" brain,¹⁷ that part of the brain concerned with survival, takes over in order to ensure the individual's safety. This part of the brain is not a thinking brain, and access to the brain's higher order thinking and critical reflection skills is diminished when it is in charge. We often comment to each other that we can see downshifting taking place in an individual. It's almost

as if the lights go out—their eyes glaze over; the expressions on their faces become rigid and fixed—and we know that the child, youth, or adult is simply working to “survive” the threat they feel to their worldview and well-being. Until we can invite them back into the learning process and out of their downshifted state, not much learning will occur.

One of the important factors in avoiding downshifting is to provide a sense of safety for our learners. When it comes to establishing an optimal environment for learning, the place to begin is by removing threats and fear from the learning setting. Seldom does threat take the form of physical violence in the settings where we teach the Bible, but there are other threats that can impact learning. These include a threat to a long-established worldview and the threat of embarrassment, humiliation, sarcasm, unrealistic demands, failure, and so on.

Safe space is critical to helping people feel challenged rather than threatened. We tried to provide safe space for our workshop participants by giving them the freedom to respond to the McFerrin piece in whatever way they chose. We sought to communicate that it was okay not to like it or to find it meaningful. By introducing the context out of which the piece was written, we hoped to offer a “safe” way to hear the psalm and understand why it might have been expressed that way. The language was less threatening when it was seen as a tribute to a mother. Guarding against threat while challenging our students’ brains is an important task for those of us who teach the Bible.

To summarize, knowledge about the brain and how it works is vital for teachers of the Bible. Understanding that brains are naturally learning organs designed to make connections provides us with helpful insight as we design our teaching experiences. Knowing that the brain can change, learn new ways and new ideas, offers hope that our teaching efforts are not in vain. Realizing the important role that emotion plays in all of learning and knowing how emotion drives attention gives us vital information for engaging our students’ attention and helping the brain make meaning and form lasting memories. Appreciating the relationship of challenge and threat to the brain’s processing of information enables us to make decisions about our learning environments that will significantly impact the learning process. From this brief overview of some basic facts about

how the brain works, let us turn our attention now to the issue of memory—how it is formed—and its role in learning.

Memory and How It Is Formed

“Learning and memory are two sides of a coin to neuroscientists. You can’t talk about one without the other. After all, if you have learned something, the only evidence of the learning is memory.”¹⁸ We believe that it goes without saying that those of us who teach the Bible want our students to remember what they have been taught! So what do we know about memory and how it is formed that can be helpful to our work as teachers of the Bible?

First, another word of caution. As with other discoveries regarding the brain and how it works, science has made tremendous strides in recent years in the exploration of memory, what it is, and how it functions. But this is still “frontier” work, and there is much yet to be discovered. That does not mean, however, that there are not important insights from the research on memory that are very useful to those of us called to be teachers in the church.

Let’s begin with a definition of what memory is. Jerry Larsen, in his book *Religious Education and the Brain*, defines memory in this way: It is “the totality of experiences, information, skills, meanings, and models we and our culture have designed together and have deposited in the neural pathways of the cortex.”¹⁹ The important point Larsen seeks to make is that memory is more than information or a collection of data. It is a complex web of experiences, information, feelings, and behaviors that enables us to connect new data and experience, make choices and decisions, and fashion meaning for our lives.

Biologically, memory is a persistent change in the brain created by a transient stimulus.²⁰ Basically, memory is a process rather than a fixed thing. It is a process by which persistent connections—those neural networks—are formed. So how does this process work?²¹

As seen in figure 2, the process begins with stimuli being received in the sensory register. These stimuli are both conscious and unconscious, and there are literally millions of them per second. If we were structured to remember them all, we would be so overwhelmed that it would be impossible to function. But only a small portion of these millions of stimuli—mainly those to which we pay some

attention—are placed in *short-term memory*, a temporary storage buffer lasting anywhere from five to twenty seconds. If we engage in some form of active processing of the stimuli—such as repeating it, thinking about it, discussing it, and so on—it moves to *working memory*. Working memory is of limited capacity and can last up to several hours. It is possible through repetition and concentration to hold stimuli in working memory long enough to pass a test, which is why cramming for exams does work but leads to only temporary retention of the information. To move the stimuli to *long-term memory* requires active processing that goes beyond just repetition and a few moments of reflection. Continual elaboration, repetition, practice, reflection, and connection are key to creating long-term memory. We will say more about this later in this section.

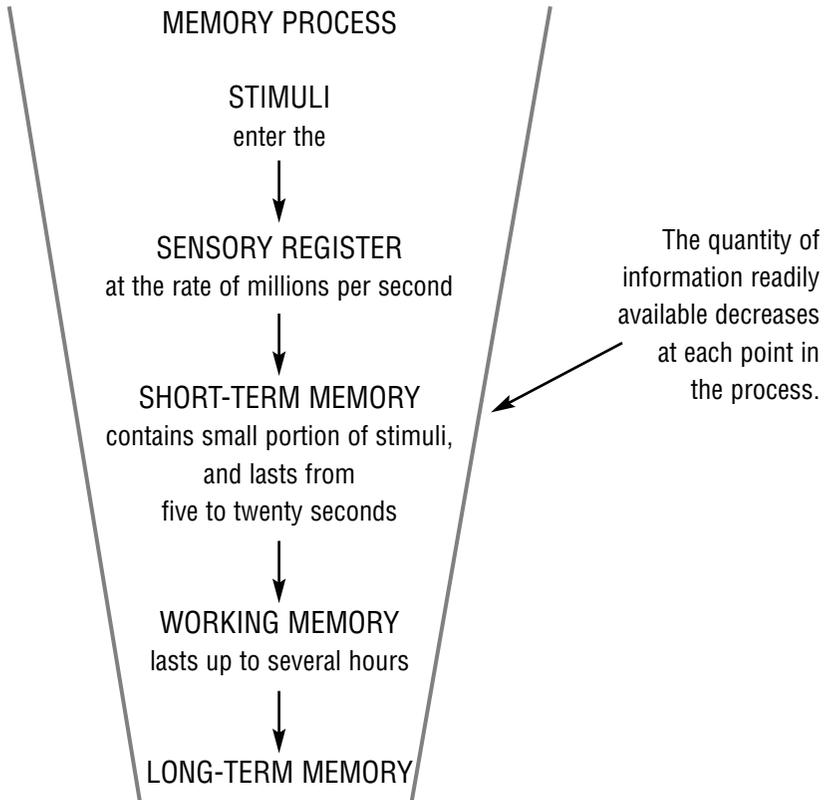


Figure 2

To summarize, the process of creating memory goes something like this: A stimulus is received in the sensory register and moves to short-term memory, from there to working memory, and finally to long-term memory, where information is kept for an indefinite period. It is important to note that the quantity of information available to the learner decreases as it moves through this process. In other words, we receive much more information than we ever keep for long-term access. One of the hopes for teaching is that we can learn to provide information, or stimuli, in ways that will assist in more of it being remembered and accessible throughout our students' lives.

If our goal is to teach for long-term memory, it is helpful to have some understanding of the long-term memory system. This understanding begins with the realization that "long-term memory" does not refer to a collection of data stored in a single location in the brain. Rather, when we talk about long-term memory, we are talking about an interconnected web of neural networks. In fact, memories are not only kept in the brain, they are also kept throughout the body.

The use of the phrase "long-term memory *system*" is helpful here because it reminds us that we are indeed dealing with a *system*, an interconnecting web of neural networks. Within these networks are different types of memory, and, as Jerry Larsen points out, "most things that become lasting memories are a combination of several (sometimes *all*) of these kinds of memory."²² If we want to teach for long-term memory, then we want to teach in ways that engage these different memory types.

Various authors who write about the brain and memory name these types of memory in slightly different ways. We have found the typology developed by Marilee Sprenger²³ to be particularly helpful in our thinking about memory and the work of teaching the Bible. Sprenger names five memory types: semantic, episodic, procedural, automatic, and emotional.

Semantic memory holds information learned from words. It is sometimes called linguistic memory. This memory type includes names, facts, and information from textbooks and lectures. Although we may not call what we do in church a lecture, we still talk "at" people a lot in sermons and Bible studies. Most church schools rely heavily on semantic memory with the use of printed curriculum

resources such as booklets and pamphlets we have our students read. We are often awash in words in our teaching contexts. The problem with semantic memory is that it requires several repetitions of the information in order for it to become established in this memory bank. And even then, this particular memory can fail us unless we are able to draw on connections, associations, contrasts, and what Larsen calls “hooks”²⁴ into the other memory types available to us.

MEMORY PROCESS

Semantic memory	Also called linguistic memory. Holds information learned from words. Requires several repetitions to be retained.
Episodic memory	Also called contextual or spatial memory. Retains location, context, and circumstance. Requires no practice, forms quickly, seldom fails us.
Procedural memory	Also called muscle memory. Retains actions and behaviors. Easily stored and recalled.
Automatic memory	Also called conditioned response or reflexive memory. Relies on instant associations. Requires constant repetition and memorization.
Emotional memory	The most powerful memory, taking precedence over other memory types. Relies on emotional associations related to information and experience. Providing emotional “hooks” is key.

Figure 3

Episodic memory relies on location, context, and circumstance. Also called contextual or spatial memory, it draws on the reality that we are always somewhere when we learn something. The context becomes a part of the memory and helps us to remember. Unlike semantic memory, episodic memory does not easily fail us. “Our episodic memory process has unlimited capacity, forms quickly, is easily updated, requires no practice, is effortless, and is used naturally by everyone.”²⁵ Have you ever tried to recall something you read? Oftentimes, you can remember the location of the material on the page of the book but cannot bring the actual words to mind. This is episodic memory at work even as semantic memory fails us.

Taking seriously episodic memory in our teaching calls us to pay attention to the contexts within which we teach. The content of a teaching space is often what is called “invisible information” and becomes a part of the memory, providing another hook to aid in remembering. Designing bulletin boards with pictures related to a particular passage being studied, paying attention to the room arrangement and how students move and work in it, engaging as many senses as possible when teaching (i.e., having things to taste, touch, smell, and see)—all this becomes a part of episodic memory and provides pathways to recalling important information and learning.

Procedural memory is often called muscle memory. “Procedural memory stores memories of the processes that the body does.”²⁶ Also called body learning, this memory type draws on actions and behaviors. Because the brain recognizes both the body and brain as part of the same connected organism, it is obvious from the brain’s perspective that what happens to the body happens to the brain. This means that procedural memory is easily stored and easily recalled.

The presence of this type of memory offers important insight into how we approach teaching the Bible. As students will often tell you, their most memorable learning experiences were those based on “hands-on” or “whole body” learning. Karen recalls a teaching moment with the story of the bent-over woman in Luke 13:10–17. While working with this passage with a group of adults, she asked them to spend a few minutes in pairs, walking around the room. One member of the pair was to walk bent over while attempting to carry on a conversation. At a point, they were to switch roles and continue the conversation. For many weeks after that experience, those adults continued to talk about that lesson and the insights they gained from the experience of being bent over. Their procedural memory had been engaged, and their ability to remember and to deepen the meaning of the text for their lives was enhanced. Role-playing and dramatizing a biblical story are important techniques for engaging procedural memory.

Automatic memory is also referred to as conditioned response memory or reflexive memory. A great deal of what we recall is automatic. This is information that has instant associations for us and is recalled by just a word, a musical note, or a gesture. Multiplication

tables and the alphabet are stored in automatic memory. Sets of words such as hot and cold, up and down, in and out, and stop and go, words where the naming of one automatically evokes the other, are stored here. Gestures such as shaking hands, where one person reaches out a hand and the other automatically reaches in return, are kept in automatic memory.

Information is placed in automatic memory by constant repetition and memorization. As a child, we learn to say the Lord's Prayer by hearing it prayed regularly in worship and repeating it over and over again. As adults, when we hear the words "Our Father," we hardly have to think before knowing what to say next. For many of our participants in the workshop described earlier, Psalm 23 was stored in automatic memory. All we had to do was say "The Lord is my shepherd" and voices joined in, knowing exactly what came next.

Although repetition and memorization are often criticized as boring techniques, there is clearly a role for such methods in our teaching. The key here is that they do not have to be boring. It wasn't boring to say the Lord's Prayer each Sunday as a part of worship, yet we were forming memory by its regular repetition. Songs are easily stored in automatic memory, so music is a natural way to rehearse and store information. The youth we know often have an amazing repertoire of songs by their favorite artists that they know by heart. Using that same passion for music as a teaching resource in the church in order to create automatic memory is important.

Certainly there is more to learning than storing information in automatic memory, but having some of the biblical stories and material readily at hand through this memory type enhances our efforts as teachers to help students build deeper and more meaningful connections with these stories and materials. Automatic memory also often activates the other memory types. As Sprenger says, "Your automatic memory may cause other memory lanes to open."²⁷ We saw this happening with our workshop participants. As they begin to repeat the words of Psalm 23, other memories and meanings related to the psalm emerged. Participants were able to recall where they first heard it, feelings connected with it, and meanings they had formed regarding it. Automatic memory is neither formed in isolation from other memory types nor accessed separately from them. Helping

people increase their automatic memory becomes an important resource for accessing the multiple memories that make up meaningful learning.

The final memory type we want to discuss is *emotional memory*. This memory type is significant because it is the most powerful kind of memory. Sprenger describes this well:

Emotional memory takes precedence over any other kind of memory.

The brain always gives priority to emotions. When information enters the brain and reaches the thalamus, the amygdala will grab that information if it is emotional and go straight to work on it. If the information calls for strong emotion, especially fear, the amygdala takes over to prepare the body. Daniel Goleman...calls this response a “neural hijacking.” At this point, no other memory lanes have a chance.²⁸

Because emotions are so central to the brain’s processing of information, this memory type plays a significant role in all that we learn. All information and experience has an emotional tone to it, whether it is pain or pleasure, challenge or threat, calm or passionate. Attending to the importance of emotion is key for those of us who teach in the church. As we said earlier, good teaching does not avoid emotions; it embraces them.

It is the strength of the emotional charge that is central to the brain’s processing and determining what is stored in long-term memory. As teachers, we need to pay attention to this. A key question to ask is, What is emotionally significant about this information or experience for my students? Another way to ask the question is, What stake do the students have in this that they will want to remember it? We need to provide emotional hooks for the material we teach.

We were providing an emotional hook in our use of the McFerrin song with our workshop participants. We knew from experience that hearing the song would evoke some strong emotional responses. We also knew that sharing the context out of which the song came—a tribute to his mother—would provide additional emotional significance regarding why this might matter for our students. Through it all, we were certain that brains would be

attentive and seeking to make connections and deepen meanings with regard to this psalm. From our perspective, such is our hope as teachers of the Bible!

To summarize, understanding memory and how it is formed is critical to our work as teachers. It enables us to realize that memory is more a process than a place, and we can teach in ways that assist the process of making memories and remembering. A key factor here is knowing something about the different types of memory and the role they play in our learning. Equally important is the knowledge that the more memory types we engage in our teaching, the richer the learning and the greater the chance that our students will be able to recall and remember. It is much easier to find information that has several pathways leading to it!

These insights shaped how we worked with Psalm 23 with our workshop participants. We drew on semantic and automatic memory when inviting them to recall the words of the psalm. We expanded the memory base by asking them to recall where they first heard it, where they had encountered this text, any images and feelings the text evoked, and so on, thus engaging episodic and emotional memory. We were aware of the possible emotional charge that the McFerrin rendition carried and trusted that this would grab and hold our participants' attention. Our hope was for the formation of new memories and the deepening of old memories, thereby expanding our participants' knowledge of Psalm 23 and the ability to access this knowledge in meaningful ways.

Learning Styles and Multiple Intelligences

Our discussion of how we learn would be incomplete without a brief consideration of learning styles and multiple intelligences. The importance of attending to these issues of learning is illustrated by the following. In her novel *A Woman's Place*, Marita Golden tells the story of three women and their efforts to claim their own identities. At one point, one of the women, Faith, talks about her struggles in college. She voices her frustration this way: "I just wish there was more than one way to learn what it is they want us to know. But it's all got to come out of a book and it's all got to be given back on a piece of paper."²⁹ Faith was confronting the pervasive misconception that we all learn the same way. The truth is that there are multiple

ways in which we engage in the process of learning. As teachers of the Bible, we need to be sensitive to this and have some understanding of the various ways our students approach learning.

Learning Styles

The learning process is shaped by two basic factors: (1) how we *perceive*, become aware of, and receive data, information, and experience from the world around us; and (2) how we *process* that data and information, work with it, and integrate it into meaningful knowledge. The significant issue for those of us who teach is that different people have different ways in which they work at perceiving and processing. Each of us has our own unique *learning style*, that consistent pattern of behaviors by which we perceive and process data and experience from the world around us and make meaning of it. Several factors influence our learning style; among them our particular biological heritage, our personality, our unique life experiences, and the demands that a given learning situation places on us. However they are formed, we each have a preferred approach or style of learning.

There are various ways to talk about learning styles.³⁰ One of the things we have sought to avoid, however, is the creation of a fixed approach to styles that becomes a box into which we place people. There is no single right way to describe and categorize learning styles. The approach we have found helpful in working with our students and with teachers in the church is to reflect both on ways data can be perceived and also on options for processing our experience, knowing that each of us will have our own unique ways of doing and combining each of these.

Any discussion of how we perceive takes us to our five senses, the loading docks for our brains. Our senses are primary channels through which we take in information and experience the world around us. Research has shown that, as individuals, we have preferred sensory channels that we use. One of the helpful ways of framing these sensory channels comes from the work of Wayne James and Michael Galbraith.³¹ They researched groups of students to see how they approached learning and what sensory channels they preferred to use. They discovered that the students they studied tended to group themselves into certain categories, which James and

Galbraith named “perceptual learning styles.” They named seven such styles:

1. **Visual:** People who prefer sight or visual sense tend to learn through observation. They need visual stimuli such as pictures, charts, graphs, tables, and demonstrations they can watch. As Bible students they need to see maps and pictures instead of hearing descriptions of a given place.
2. **Print:** James and Galbraith discovered a distinction in those who preferred their visual channel. Some people seem to learn best through seeing the visual symbols we call words printed on a page. These folks are very word oriented and learn best through reading and writing, working with printed words. They easily retain information that they read, and as Bible students they need to see and read the text themselves.
3. **Aural:** People who prefer hearing, or engaging the aural channel, learn best through listening. They easily retain that which is presented verbally. Some people actually like listening to lectures and find it is easier to remember something they hear than something they read. As Bible students these folks need to hear the text read aloud.
4. **Interactive:** Similar to the visual and print distinction in the first two categories, James and Galbraith’s research discovered a perceptual learning style category in which the person needs to verbalize out loud and to do so in the company of others. These people need to talk things out and discuss them. More than just a listening experience, something in the interaction helps them to learn. These Bible students find small-group discussions to be very beneficial.
5. **Haptic:** Some individuals perceive their world best through their sense of touch. A haptic learner is someone who has to feel, touch, and handle objects. They can’t just listen and watch; they have to touch. Often these people need to be touching others as they are talking with them. As Bible students they need as much hands-on experience as possible. Being able to touch and anoint with oil when hearing Psalm

23:5, “You anoint my head with oil,” can be important to a haptic learner.

6. **Olfactory:** One of the interesting perceptual channels that James and Galbraith name is the olfactory channel. Some people seem to learn best through their senses of smell and taste. They can often vividly associate data and information with particular smells and tastes. When teaching these students the Bible, we want to pay close attention to the place of taste and smell in the text. Making use of actual frankincense and myrrh when teaching the story of the wise men (Matthew 2) can be significant for olfactory learners.
7. **Kinesthetic:** Among our students are those who learn best through movement, with their whole body engaged in the experience. Even if they have to sit and listen, kinesthetic learners often have some part of the body moving, whether it is a swinging foot or a hand doodling on paper. The exercise used with the story of the bent-over woman in Luke, described earlier in this chapter, is an example of engaging the kinesthetic learning style.

A significant point to remember is that people generally are not limited to just one of these as their preferred perceptual learning style, but tend to integrate two or more into their particular approach. The important issue is that people perceive data and information from the world around them in a variety of ways. As teachers of the Bible, it is vital that we be sensitive to this and find ways to help people learn that are engaging and helpful to their preferred styles.

Just as there are different ways people perceive the world around them, there are also different ways in which people process the information and experiences they have. To return briefly to the human brain, research has discovered at least two different and complementary ways in which the brain processes information. The first approach is associated with the left hemisphere of the brain. The left hemisphere tends to work with data and information in parts, recognizing the parts that make up a whole. It likes to take the data apart and lay things out in a linear and sequential pattern, working

with it in a step-by-step fashion. It relies primarily on language as a processing tool and works with verbal information with great efficiency. Words such as “analytical” and “logical” are used to describe this way of processing. In Bible study a student with a preference for this processing approach will be drawn to working through a passage verse by verse, seeking to make sense of the parts before looking at the bigger picture.

The second approach is associated with the right hemisphere of the brain. This hemisphere likes to work with wholes and prefers synthesis. It is good at constructing patterns and relationships out of the data and experience perceived. It does not move linearly, but processes simultaneously, almost like the snap of a finger. It works most efficiently with visual and spatial information. Its language capacity is extremely limited, and words seem to play little or no part in its processing of information. Words such as “intuitive” and “spontaneous” are used to describe this way of processing. In Bible study a student with a preference for this processing approach will be interested in looking for patterns in a biblical text and exploring what those might mean. For example, a student with this preference would more likely notice the repetitions in a given text, such as “And God said...God saw that it was good...And there was evening and there was morning” in Genesis 1, and wonder about them. These students also will often intuit a meaning for a text, but have to struggle to put that into words. The use of artistic expression can be helpful to such students.

Although these different and complementary ways are associated with the different hemispheres of the brain, we need to remember it is the *whole* brain that learns! The human brain is a “parallel processor,” meaning that it processes a lot of data simultaneously, even if it is doing this in different ways. The brain is always seeking to relate the data and connect things. At its core the brain seeks connection.

Even while the whole brain is learning, however, we tend to have a preference for one of the ways of processing just described. Some of us work better when things are presented in a logical, analytical, sequential manner. Others absorb simultaneous images, making sense out of them quickly. They see patterns and intuit meanings even when they cannot verbalize them. What is important to remember

here is that the brain engages both forms of processing, and we risk inhibiting learning when we overlook either process in our teaching of the Bible.

In addition to the ways in which the brain processes information are different behaviors we engage when we are working to make sense and meaning out of information we receive. David Kolb, in his research on learning styles,³² identifies two primary behaviors. The first of these is *reflection*. Some people process information and experience through reflection and observation. These are the students who tend to sit back and observe, reflect, think about what is going on. They are often initially quiet in discussions and can appear on the surface to be unengaged. But their inner dialogue is usually quite active. They are busy processing through inner reflection and observation.

Others, however, immediately engage in action with regard to the information they perceive. Kolb calls this behavior “active experimentation.” These are the people who have their hands up to answer a question before any one else, who quickly begin to talk in a discussion, who are the first out of their chairs to take part in an activity, who will begin taking a test before reading all the directions or instructions. These people process their learning through *action* and *doing*.

As teachers of the Bible, we need to pay attention to these different ways with our students. Some people will be logical and linear in their approach, drawing easily on words to express their thoughts. Others will be more intuitive and spontaneous, not as quick to find verbal expression for what they are thinking. We will also see both reflection and action used as behaviors for processing experiences. Our challenge as teachers is to teach in ways that engage the whole person, that draw on all these ways of processing. We will then be assisting our students to learn in ways that are appropriate and useful to them.

In our desire to teach in ways that help others to learn, there is one important fact we must keep in mind. *Our tendency as teachers is to teach to our own learning style*. For example, a visual learner will want to use lots of pictures, diagrams, and other visual stimuli in her teaching. It is as natural as breathing air. After all, this is the way we learn, and we assume that others learn the same way. The challenge

we face as teachers is to expand our own approaches to learning, to explore other ways of perceiving and processing, and to develop a greater sensitivity to the different ways our students learn and the ability to assist that learning in helpful ways.

*Multiple Intelligences*³³

Not to be confused with learning styles, the theory of multiple intelligences also provides helpful insights for those of us called to teach in the church. In fact, this theory is the conceptual framework behind a new approach to education and teaching the Bible that is gaining wide acceptance in the church today: the workshop rotation model.³⁴

In the early 1980s, Dr. Howard Gardner, professor of education at Harvard, challenged the view that intelligence is a singular property, something we each possess that is fixed and unchangeable and that we each have in different “amounts.” This old view measured intelligence via an “intelligence quotient,” IQ, and a higher IQ supposedly meant we possessed more of this thing called intelligence and therefore were “smarter.” Gardner developed a theory that looked at intelligence in a totally different way; it became known as the multiple intelligences theory.

In the simplest terms, Gardner defines intelligence as *the human potential or capacity to know and to solve problems*. Rather than being a quantity of something, intelligence is the *capacity to process information*. The concept of multiple intelligences grew out of Gardner’s belief and observations that there are various ways in which we as human beings come to know something and that learning involves the engagement of a variety of these capacities we possess. It is our belief that we need to learn to value and to draw on these multiple intelligences in our work as teachers of the Bible in the church.

Before briefly discussing each of the intelligences and how they might shape our work as teachers of the Bible, we want to make some general observations. First, Gardner calls these intelligences “bio-psychological potentials.” In other words, intelligences are shaped by both nature and nurture. Each of us has these potentials, even though certain factors may limit their development (e.g., biology, injury, culture, experiences, etc.). Second, all people are alike

in that they have these intelligences. We may differ in the strengths of these capacities, but we all have them. Third, most people can develop each intelligence to an adequate level of competency. A nurturing environment is key here, because an intelligence needs to be used in order to develop. Fourth, intelligences usually work together in rich and complex ways. For example, a pianist not only uses musical intelligence to perform in concert, she also employs interpersonal intelligence to communicate with the other musicians, intrapersonal intelligence to interpret the music, and kinesthetic intelligence to manipulate the piano keys. Our goal, therefore, is not to teach to a particular intelligence, but to teach in ways that engage them all. In doing so, our students' potential for learning is enhanced. Finally, there are many ways to "be intelligent" within each of the seven intelligences³⁵ described next. Our challenge as teachers is to value all of them in all their diversity.

The seven intelligences are:

1. *Linguistic Intelligence*

This is our capacity as humans to speak, understand, read, and use words effectively, whether orally or in writing. Among the skills this intelligence uses are talking, writing, reading, and comprehending words. Sensitivity to the sounds, structure, meanings, and functions of words reflect a strength in this intelligence. People who are strongly linguistic think in words and love reading, writing, telling stories, playing word games, and so on. They are what we call "word smart."

To help our students engage and develop this intelligence, we need to read about, write about, talk about, and listen to. This means that verbal presentations, books, writing activities, storytelling, journal writing, choral reading, and so on are important teaching methods for linguistic intelligence.

2. *Logical-Mathematical Intelligence*

This intelligence draws attention to our capacity to know and figure out patterns of cause and effect and to reason well. It includes a sensitivity to logical patterns and relationships and the ability to handle long chains of reasoning. Among the skills used in this intelligence are categorization, classification,

inference, generalization, and hypothesis testing. People who are strongly logical-mathematical think by reasoning and love to experiment, question, calculate, figure out logical puzzles, and so on. They are what we might call “pattern smart.” They easily see the pattern in something. Making sense of biblical material can call for skill in logic, integration, and inquiry, all strengths of this intelligence.

To teach to this intelligence, we need to quantify, conceptualize, and invite our students to think critically. Among the helpful teaching methods we can employ are classifying or categorizing subject matter, logical puzzles or games, experiments and demonstrations, Socratic questioning (the use of questions to help students explore their own thinking), and problem solving.

3. *Spatial Intelligence*

Spatial intelligence has to do with the capacity to see and know visual and spatial patterns, shades, colors, and connections. It includes the ability to perceive the visual-spatial world accurately and then to act on that world to transform it. This intelligence involves sensitivity to color, line, shape, form, and space and the relationships that exist between these elements. It can be seen in our ability to make and read a map, know where something is located, understand and identify shapes, recognize faces, and so on. People who are strongly spatial think in images and pictures and love to design, draw, visualize, sculpt, paint, build, and doodle. They are said to be “picture smart.”

To teach to this intelligence, we need to provide opportunities for our students to see, draw, build, visualize, color, symbolize, and create mind maps. Charts, graphs, maps, diagrams, photography, painting, drawing, collages, art prints, illustrations, graphic symbols, and video become important teaching methods for working with this intelligence.

4. *Bodily-Kinesthetic Intelligence*

The capacity to understand and perform meaningful and functional movements with our bodies is the mark of the

bodily-kinesthetic intelligence. This intelligence includes the ability to use one's whole body to express ideas and feelings and the facility to use one's hands to produce or transform things. It is marked by skill in coordination, balance, dexterity, strength, flexibility, and speed and includes the ability to control one's body movements and handle objects skillfully. People who are strongly bodily-kinesthetic think via bodily sensations and love to dance, run, jump, build, touch, gesture, and so on.

To teach to this intelligence, we need to provide opportunities to act out, dance, build, and touch. Among the helpful teaching methods we can use are drama, mime, dance, creative movement, signing, crafts, role play, hands-on activities of all kinds, physical expression, and sculpting with clay. Teachers of the Bible who draw on gestures, postures, and dramatic re-creations of biblical stories are engaging this intelligence.

5. *Musical Intelligence*

This intelligence reveals our capacity to perceive, discriminate, transform, and express musical forms. It includes sensitivity to the rhythm, pitch or melody, and timbre or tone color of a musical piece. It is seen in the ability to appreciate various forms of musical expression. It involves skills in singing, playing a musical instrument, writing music, voice inflection, and enjoying and understanding music. People who are strongly musical are good at reflecting via rhythms and melodies and love to sing, hum, whistle, tap feet and hands, and listen to music. It can be said that they are "music smart."

To teach to this intelligence, we need to include singing, signing, rapping, and playing and listening to music in our Bible studies. Methods we can use include singing hymns, playing musical instruments, creating songs, listening to recordings, providing background music, and choral reading.

6. *Interpersonal Intelligence*

This intelligence draws attention to our capacity to perceive and respond appropriately to the moods, temperaments,

intentions, motivations, feelings, and desires of other people. It includes a sensitivity to facial expressions, voice, and gestures; the capacity for discriminating among many different kinds of interpersonal cues; and the ability to respond effectively to those cues in some pragmatic way. Interpersonal intelligence provides us with the ability to “read” other people and helps us to live in relationship and community with others. People who are strong in this intelligence reflect best by bouncing ideas off other people and love to relate, organize, mediate, and work with others. They can be called “people smart.”

To teach to this intelligence, we need to discuss, collaborate, and interact. Appropriate teaching methods include cooperative group activities, simulations, group brainstorming, group planning, conversation, and role play. This intelligence invites those of us who teach the Bible to take seriously the communal nature of such work.

7. *Intrapersonal Intelligence*

According to Gardner, we each have an intelligence about what is going on in our own psyche and spirit, and this is called intrapersonal intelligence. This capacity includes the ability to know ourselves and to act and adapt on the basis of that knowledge. It involves having an accurate picture of oneself, including one’s strengths and limitations; an awareness of inner moods, intentions, motivations, temperaments, and desires; and the capacity for self-discipline, self-understanding, and self-esteem. People who are strong in this intelligence reflect from deep inside themselves and are good at meditating, dreaming, spending time in silence, and setting personal goals. They are known as “self smart.”

To teach to this intelligence, we need to offer opportunities for individual reflection in order for people to think about and to connect the biblical text to one’s personal life. Useful teaching methods include guided meditation, silence, journal keeping, exercises that bring feelings into the study, and experiences that invite students to consider how to apply insights to their personal lives.

Awareness of multiple intelligences, like awareness of learning styles, enables us as teachers to be sensitive to the variety of ways in which our students learn. Such knowledge makes it possible for us to teach in a manner that will engage these various styles and intelligences and thereby help our students to learn in ways that work best for them. Research has shown that students learn best when they are excited and engaged. They are more likely to be both excited and engaged when they are learning in ways that best fit their particular abilities and skills. If we want our students to develop a passion for and draw meaning from the Bible, then teaching in ways that address the various learning styles and multiple intelligences present in our students, in ways that excite and engage them, seems a worthy challenge and goal!

Summary and Implications for Teaching the Bible

How people learn is vital information for teachers of the Bible. Understanding how our brain works and how memory is formed, knowing the different ways in which we each perceive and process information and experience and therefore the different styles of learning present in our students, and recognizing the different intelligences at work in our educational settings—all this can help us teach in ways that captivate and stimulate our students. It seems important, then, in closing, to consider the implications of all this for teaching the Bible. What significant insights might we name? Although certainly not exhaustive of the possible insights, we want to name six key principles that have emerged out of this knowledge for our own teaching and challenge our readers to consider these principles in the shaping of their own teaching.

1. *Teach to and for connection.* Remember that the brain is a natural connecting organ and searches for the connections between the various data and information it receives. We can teach for connection by exploring what our students already know about a subject, by organizing our material and creating brain “maps” that help students see connections in what we are teaching, and by drawing on our students’ own life experiences for illustrations, thus helping them see the connection between the Bible and their everyday living.

2. *Remember that emotions are critical to learning.* Emotion drives attention, and attention is critical to learning and remembering.

Information needs to have an “emotional charge” in order for the brain to select it for long-term memory. When teaching, we must pay attention to our students’ feelings about a subject, regularly asking the question, In what way can I help this topic really matter to them? It is important to look for and help to create emotional significance for the texts we teach.

3. *Teach to challenge, not to threaten.* In our teaching it is important to take seriously the brain’s natural impulse to protect us from threat. Remember that the brain’s movement in moments of threat is toward survival, a kind of reflexive, downshifting into automatic responses designed to take care of us. However, the brain is also drawn to challenge and is stimulated by it. Therefore, we need to be sensitive to the line between challenge and threat in our students. We teach to challenge by providing new and novel ways of thinking and doing, by offering a range of sensory stimulation that engages all five of the senses, by offering choices so the brain must decide, and by providing as enriched an environment for learning as possible. We teach to avoid threat by creating safe space where students feel free to be themselves, to question, to explore, and by providing freedom for students to express doubts and struggles, to share their stories, knowing they will be treated with respect and care.

4. *Remember that all learning begins with sensory experiences.* Our five senses are the primary “loading docks” through which the brain receives data and information. The more senses involved, the richer the possible connections with a given experience. Therefore, we need to teach through seeing, hearing, touching, tasting, and smelling, engaging all five senses in the learning experience.

5. *Teach to a variety of learning styles and intelligences.* A learning style is the particular pattern of behaviors by which a person perceives and processes data and experience from the world around him or her. People do this perceiving and processing in different ways and therefore have different learning styles. In order to honor these different styles, our teaching needs to include visual, aural, kinesthetic, haptic, olfactory, and interactive experiences. Encouraging analysis and intuition, logic and spontaneity, and linear and simultaneous thinking is important. Providing time for reflection *and* active experimentation is vital. Engaging the multiple intelligences present in any given teaching context is critical.

6. *Remember these key words: Rehearse, Reflect, and Connect.* The brain learns best when it can *rehearse* information and data over and over again. We need to repeat the Bible stories we teach, to visit them several different times in different ways. The brain needs to *reflect* on the information and data it receives. It needs time to think about what it is learning, so guarding against trying to cover too much at a time is important. Allow time for students to reflect and think, and they will be more apt to remember what they have learned. Finally, as our first principle already stated, the brain needs to *connect* the new information with what students already know and what they have learned before. Always teach for connection!