

The Dynamic Human Brain and Its Role in Participant-centered Learning

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In the past thirty years, I have experienced many training environments from a learner and a practitioner perspective. Along the way, I have studied and used a variety of techniques in my search for more effective learning strategies and ways in which I can best add value to a learner's training experience. What I consistently recognize is that the best learning occurs when trainers guide and facilitate learning rather than lecture or apply rote learning strategies. When a learner comes to an "ah ha" on their own as a result of something they hear, see, or otherwise experience, they are more likely to believe it, respond positively and ultimately use what was learned. Like many other trainers, I have come to realize that the key to any successful learning initiative lies in the human brain (the trainer's and the learner's) – how it obtains, processes, stores and acts on information received.

Recent decades have brought forth an exciting era of neuroscientific (life science that deals with anatomy, physiology and biology of nerves related to behavior and learning) and cognitive research (related to factual data and knowledge) into how the brain is composed and how it functions. As part of studies, researchers regularly explore the role of such things as gender, age, body rhythms, emotions, and environment in shaping our reactions to stimuli and thinking.

This brain-based or brain-compatible learning research has uncovered a wealth of information into how the human brain develops, thinks, learns, and retains information. From the research, we have learned much about the physiological structure of the brain, what impacts brain development, how memory works, and how learner motivation is influenced. All of this knowledge provides a treasure trove of information that trainers can access when designing, developing, delivering, and evaluating training programs and creating learning environments.

What is Learning Anyhow?

While learning is a complex process, and one not completely understood by scientists, we do know a lot about what happens when people learn. Basically, learners extract some type of meaning from all stimuli that they encounter. Simply put, a stimulus is anything with which the brain comes into contact through the five senses (sight, hearing, touch, taste and smell). The input might be information, a smell, a feeling, an emotional exchange, or an image that causes the brain to "turn on" in order to process what was experienced. If the stimulus is something related to an earlier learning experience (e.g. a review of concepts covered in a training session on the previous day), the brain accepts the input into its neural pathways via nerve cells called neurons. It then compares the new material to memorized concepts and reinforces the image imprinted

there. If stimulus is encountered for the first time, electrical energy is produced which converts the input to nerve impulses. These signals travel to various areas of the brain where it is sorted, processed and/or stored. These concepts are important for trainers to understand because what they do, or fail to do, will definitely impact learner success.

Multiple Intelligences

Up until the last part of the 20th Century, most people believed that the brain processed information in a linear fashion and that it was important to deliver information in that manner for learning to occur. It was also believed that tests such as the Intelligence Quotient (IQ) were the best way to measure intelligence. We now know that there are other possibilities.

According to research conducted and published in 1983 by Harvard Professor of Education, Howard Gardner, there human brain houses a broad scope of eight equal intelligences:

- **Linguistic intelligence** is the ability to read, write and communicate effectively in a variety of ways.
- **Logical-Mathematical Intelligence** involves the ability to reason, calculate, and think in a logical manner and process information.
- **Spatial Intelligence** provides the ability to think in pictures and to visualize a conclusion or result.
- Bodily-Kinesthetic Intelligence **gives the ability to solve problems or manipulate items using one's own body or parts of the body.**
- **Musical-Rhythmic Intelligence** allows someone to create or compose music and to understand, interpret and appreciate it.
- **Interpersonal Intelligence** is crucial for understanding others, their emotions, traits and abilities and how best to interact with people.
- **Intrapersonal Intelligence** provides the ability to form accurate perceptions about oneself and use the knowledge to effectively function throughout life.
- **Naturalist Intelligence** gives the ability to observe, understand and classify patterns in nature.

Gardner's discoveries open a whole new range of possibilities for trainers and educators when creating learning experiences and environments. When designing training programs, it is important to address as many of these intelligences as possible in order to ensure that maximum learning takes place. By creating activities and using materials and training aids that tap into various levels of intelligence, you can stimulate the brain and ultimately better ensure transfer of learning from the classroom to the real world.

Guiding Participant Learning

To take advantage of all the research findings available you first need to read literature available on topics such as brain-based learning, creative training, active or experiential

learning. Once you have the tools to do the job, set about designing the best learning experiences possible.

Neuroscientists have found that proper development of a child's brain depends on continuous interaction with elements of the external environment. Similarly, adult attention, learning, knowledge, skill development, and memory are impacted significantly by the learning environment. This is why so much attention is necessary when creating a learning environment.

To capitalize on what has been discovered, you should strive to create positive training environments that incorporate such elements as music, color, aromas, light, vegetation, functional furniture arrangement, appropriate temperature (68-72 degrees Fahrenheit), nutrition, and fun.

Once your environment is set up, start all training experiences with an overview of session objectives that describe what participants will be able to know or do differently at the end of the program (the big picture). Make the learning interactive and as the program content is presented, ensure that you link each piece together with transition phrases to help learners mentally follow the flow from one area to the next. Also, ensure that time to review what has been covered is built in at points throughout the session (interim reviews) and not held only at the end with a summary that includes "Are there any questions?" The bottom line is that if you have done a good job throughout the session, made it interactive, built in opportunities for review and really encouraged learning, there will be few questions remaining. If you do all those things, all that will remain is to display the program objectives one more time and ask participants what they experienced related to each, as well as, how they intend to apply what was learned. Then, to reinforce and encourage that learning is applied, you may want to have each person complete a written action plan with specific dates for accomplishment of next steps in applying what was learned.

Adding Pizzazz to the Learning Environment

To further create a stimulating learning environment that helps involve and interest participants, try the following:

- Use lively, upbeat music as participants enter and during breaks;
- Use creative openers, including such things as exciting stories, jokes, startling statements or fact, and use props (e.g. clown noses, whistles, or toys);
- Get participants immediately involved with an icebreaker activity tied to the program content;
- Have a notable quest introduce you and/or the session. For example, CEO, famous author, local celebrity from radio or television or recognized business professional.
- Have participants stand and do something like a ***cross-lateral activity***;
- Challenge participant knowledge by posing a question relevant to session content, and then have participants develop group answers as they network; and

- Preposition colorful posters throughout the room with quotes, questions, facts, and other content related-material.

By applying some of these basics concepts for learning, you can easily gain the reputation as a more effective and creative trainer who continually creates learning experiences that add value for your participants and the organization(s) for which you train.

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