

The Power of the Playing Brain

Kristina Sargent

“There, I’m safe now!” exclaims the toy shark as he dives into a small box, barricaded with miniature fences and trees. “You are safe now, shark!” I exclaim reflecting the same level of energy the child expressed, a swirling mixture of excitement, accomplishment, and relief. The child stands with his hands on his hips, surveying his work. The child, despite his significant trauma history, has found a way to gain a sense of control in his life, a semblance of safety through his imaginary story. Play therapy is serious healing business.

Many of us who practice play therapy have been honored to witness the beautiful resiliency and capacity for change and growth children exhibit in the playroom. Now, the study of brain science is helping us determine on a scientific level why play therapy works to create change and growth. To gain an understanding of the impact of play on the brain, we will explore three aspects of play and their impact on engagement and the capacity for healing. These aspects include play as a language of metaphor, play as an opportunity for varied sensory-based stimulation, and play-based interaction as a form of novelty.

Play as a Language of Metaphor

The first aspect we will examine is play as a language of metaphor. For those who practice play therapy, we know that a puppet, for example, can represent many things. It can represent aggression or bravery, the perpetrator in one’s trauma history, a nurturing, safe guarding parent, it can be used to act out one’s anxiety, or it can express one’s new-found confidence and autonomy. Play uses metaphor, allowing children to make what is in the play room whatever they need it to be (Kottman, 2011).

Imagine that your 12-year-old client comes to session agitated about another argument with his adoptive mother. When you inquire about what happened, he shrugs and says, “My family is just so annoying sometimes,” and will not process any further. Now, imagine instead of trying to elicit a verbal response about his family, you ask him to show you his family using figurines to represent each person. This time, the client carefully chooses six different types of animals and places them together. He proceeds to tell a story about animals who are different but have to live together. He creates boundaries so everyone can get along safely and peacefully (the lion cannot eat the gazelle as he would in the past in his lion home, the owl has to stay up during the day now, etc.). As the therapist, you are thrilled at the insight, expression, and processing happening through the intervention. However, why was this intervention more successful than seeking a verbal response?

Eviatar and Just (2006) explored brain scans of participants reading statements. The scans found increased activation levels in multiple areas of the brain when exposed to metaphoric or ironic statements as compared to exposure to literal language alone (Eviatar & Just, 2006). Brain imaging and scans also suggest that multiple areas of the brain, including sensory based areas known for increased memory retention, are used when engaging in metaphorical thinking or

activities (Lacey, Stilla, & Sathian, 2012). This research indicates that metaphor helps engage more of our brain, while also enabling the engagement of somatosensory cortex which is less responsive when a literal verbal response is elicited from the client (Lacey et al., 2012). These sensory storage and experiencing centers of the brain are also theorized to be responsible for the storage of trauma memories, and this may be the reason for the deeper, more meaningful response and processing ability from the client in the case example (Van der Kolk, 2000). Similar to the client's toy animal family standing together in safety and peace at the conclusion of his story as the family members learned to work together to survive in the new family dynamic, we are reminded of the importance of metaphor.

Play as an Opportunity for Sensory Engagement

Whether hiding and searching for plastic feeling faces in a tray of cool, soft sand or playing a social skills game using paper and smelly markers, play engages multiple senses. Brain science reveals that learning information while involving multiple senses results in information being stored in multiple areas of the brain and allows for easier activation of circuits in memory storage areas, thus making the information more readily accessible (Willis, 2007). For example, imagine you practice deep breathing as a coping skill with a client by having her blow on a pinwheel. The child now has visual stimulation (the swirling colors of the pinwheel as it moves), tactile stimulation (the weight of pinwheel and the feel of the smooth wooden stick on which the wheel is mounted), and auditory stimulation (the slow rattling sound of the pinwheel as it spins). By engaging multiple senses such as in this example using a pinwheel, the coping skill can be stored in multiple areas of the brain, allowing it to be more readily accessible when needed (Willis, 2007).

Play as a Form of Novelty

Children often react in surprise and excitement when things like puppets, games, and creative outlets are offered in therapy. I have often heard the statement, "I thought therapy was just talking about stuff." Novelty is the term for something new or different (Novelty, n.d.), and brain science shows us that novel experiences, when compared to a mundane or expected experience, are stored more easily in long term memory (Shaomin, Cullen, Anwyl, & Rowan, 2003). For example, Shaomin, et al. (2003) found that rats introduced to unexpected material experienced a release of dopamine which activated synapses along nerve cells that led to the longer-term memory storage. This could explain why we may not recall details from routine and mediocre experiences, such as a typical commute home from the office; the experience is expected, therefore there is no release of dopamine, as our brain does not see this as important to our survival. The brain, wired for efficiency, prunes itself of mundane and expected material, considering it unnecessary (Paolicelli et al., 2011).

Related memory research has been conducted on humans, and the results indicate that when material is introduced in unexpected ways, there is longer memory storage and increased activity through the feedback loop created from the hippocampus and the midbrain (Fenker & Schutze, 2008). The statement, "Cool! We get to do a puppet show! I thought we were just going to talk about stuff," may have more relevance to brain science than we previously considered.

Conclusion

The playing brain is a powerful tool, and we are at the cusp of discovery and research to further understand this concept. At the end of the day, as I sit in my empty play therapy office and the toys are still pulsating with the presence of the tiny souls who have come to process, express, learn, and grow, I know a little bit more about the science behind *why* play therapy works.

References

- Eviatar, Z., & Just, M. A. (2006). Brain correlates of discourse processing: An fMRI investigation of irony and conventional metaphor comprehension. *Neuropsychologia*, *44*(12), 2348–2359. doi:<http://dx.doi.org/10.1016/j.neuropsychologia.2006.05.007>
- Fenker, D., & Schutze, H. (2008). Learning by surprise: Novelty enhances memory. That fact has practical implications for educators. *Scientific American*, *19*(6), 47.
- Kottman, T. (2011). *Play therapy: basics and beyond*. Alexandria, VA: American Counseling Association.
- Lacey, S., Stilla, R., & Sathian, K. (2012). Metaphorically feeling: Comprehending textural metaphors activates somatosensory cortex. *Brain and Language*, *120*(3), 416–421. doi:10.1016/j.bandl.2011.12.016
- Novelty. (n.d.). In *Merriam-Webster's online dictionary* (11th ed.). Retrieved from <https://www.merriam-webster.com/dictionary/novelty>
- Paolicelli, R. C., Bolasco, G., Pagani, F., Maggi, L., Scianni, M., Panzanelli, P., ... Gross, C. T. (2011). Synaptic pruning by Microglia is necessary for normal brain development. *Science*, *333*(6048), 1456–1458. doi:10.1126/science.1202529

Author Biography:

Kristina Sargent has experience working with children, families, and adults in outpatient and community based settings. She recently moved to Colorado where she hopes to continue to practice play therapy with individuals and families across the life span. Kristina is the author of the social and emotional children's books *Ursula Unwinds her Anger* and *Buttons the Brave Blue Kitten*. She also writes a blog for clinicians to provide creative social and emotional activities. For further info go to: www.Artofsocialwork.com