Can Neuroscience Empower Teachers?

Thought Paper #2

October 4, 2015

Shafali Hamir

ETEC 512 64A

Dr. Jennifer Shapka

When taking a closer look at neuroscience and how it applies to education, it proves to have its benefits; however, I believe that neuroscience alone cannot empower a teacher in his or her practice.  Coch and Ansari (2009) argue, “that training teachers in neuroscience basics will be useful in developing teachers who can be informed and critical consumers of so-called “brain based” strategies and programs and the neuroscience research on which they are purportedly based”.  Research about the brain’s neuroplasticity and how experiences reorganize neural pathways, can inform educators about the correlation between this change and intelligence.  Students whose neural pathways are changing clearly show that learning is occurring.  With neuroimaging scans such as fMRI (functional magnetic resonance imaging), scientists can examine closely how the brain is handling critical functions such as thought.  Other tools can help detect states of stress, boredom and frustration, which can strongly support educators to better personalize or differentiate learning for students (Willis, J., 2012).

Although neuroscience can help enhance our understanding of the learning brain, it is not enough to empower teachers to develop programs for successful learning or create learning environments for students (Zamarian, L., Ischebeck, A., & Delazer, M., 2009).  Zamarian et al., (2009) discuss some of the limitations to fMRI, one of which is that it does not take into account language and culture and how this may influence involvement of the brain areas underlying number processing.  At this point in time, this information is not sufficient enough to provide teachers with strategies or conditions within which learning occurs.

As with any learning theory, neuroscience is another tool to support teachers in their teaching practice.  It provides some information about how a student learns, but there are many pieces to the puzzle to help better equip teachers in providing the best learning conditions and strategies conducive for effective learning to take place.

References:

Coch, D. & Ansari, D. (2009). Thinking about mechanisms is crucial to connecting neuroscience and education. *Cortex, 45*(4), 546-7.

Willis, Judy. (2012). A Neurologist Makes the Case for Teaching Teachers About The Brain. Retrieved from Edutopia: <http://www.edutopia.org/blog/neuroscience-higher-ed-judy-willis>

Zamarian, L., Ischebeck, A., & Delazer, M. (2009). Neuroscience of learning arithmetic: Evidence from brain imaging studies. *Neuroscience and Biobehavioral Reviews, 33*, 909-925.