

Thought Paper #2

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Neuroscience, when combined with other research methods, defined through expert interpretation and refined through professional learning, can confirm, inform and occasionally transform teacher practice.

While experts disagree on neuroscience’s role in educational research and reform (Szucs & Goswami 2007), most express concern with current classroom applications. Whether viewed as a panacea, over-promoted by commercial interests (Coch and Ansari 2009) or misinterpreted through persistent “neuro-myths” (Christodoulou & Gaab 2009, Rachul & Zarzeczny 2012), the negative implications for teaching and learning are many. However, these concerns are nothing new to educators. Oversimplification, over-application and “edu-myths” abound outside of neuroscience. Educators wholeheartedly adopt “Multiple Intelligences” with little evidence to prove the theory. (Waterhouse 2006) All three domains that make up Bloom’s Taxonomy are rarely referenced or used as intended. (Krathwohl 2002, Heer 2009, Bloom 1994, as cited in Wikipedia)

To decrease “myth-conceptions”, research findings require filtering through two sets of professional lenses. It is important to note in this model that neuroscience is not a “stand-alone” field, separate from other research. Qualitative and quantitative research continues to have an important role; one could argue a lead role, acting as a defining and refining agent, informing new neuroscientific research. (Mason 2009,



Figure 1: Research, Interpretation & Practice - Kendra Grant 2014

Coch and Ansari 2009)

This data then needs to be interpreted by experts to help bridge the gap between research and knowledge (Carew & Magsamen 2010, Mason 2008, Schrag 2011), creating “usable knowledge” (Christodoulou, Daley & Katzir 2009) in the form of new or revised learning theories, conceptual frameworks and pedagogical strategies.

The educator then filters the interpreted findings within a professional learning cycle.

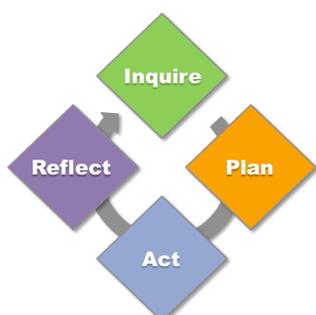


Figure 2: Professional Learning Cycle - Grant, Hamilton & Hamilton 2012

(Grant, Hamilton & Hamilton, 2012) As teachers inquire, plan, act and reflect, preferably with other educators, they discover what works for their students as they challenge themselves to change their teaching practice and avoid “neuro-myths”. In a complete cycle this classroom application would filter back to the top impacting both the research and theories.

Educational decisions based solely on the latest “neuro-findings” should be avoided. However, when combined and compared with research from other fields, then filtered through expert opinion and structured professional learning, neuroscience can support and empower teacher practice.

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