

Neuroscience and Positive Psychology – Implications for School Counselors

Sue A. Stickel

Yvonne L. Callaway

Eastern Michigan University, Department of Leadership and Counseling

The Michigan Academy of Science, Arts & Letters

Ferris State University Big Rapids, Michigan

March 9, 2007

## Neuroscience and Positive Psychology – Implications for School Counselors

21<sup>st</sup> century schools must retain students through the 12<sup>th</sup> grade, and effectively prepare them for post-secondary training. A realistic 21<sup>st</sup> century agenda must include an aggressive plan to reach and retain a broad base of the student population. An additional mandate for such an agenda is that it have a clear focus on social justice in order to demonstrate success for the next generation of racially, ethnically, and socially diverse students. Contemporary data about educational outcomes indicates that students of color, most notably males, are neither engaged nor impressed by education. In addition, school counselors and teachers are being called upon to effectively collaborate with multiple stakeholders to advocate for the success of all students, and to change the system in order to produce better outcomes (Zamani-Gallagher & Callaway, 2006).

New professional standards indicate that school counselors are expected to be multi-culturally competent and to be proactive leaders in promoting access and equity for all students (ASCA, 2003; Holcomb-McCoy, 2004). Ethical and professional standards necessitate going beyond business as usual in demonstrating our core belief that change can be achieved, as well as cultivating an active helping style that includes attention to environmental barriers. Counselors may be able to add the use of cognitive neuroscience principles and the emerging theoretical work in positive psychology to effect change and reduce barriers to success in educational environments.

Counselors occupy a unique position in schools with potential to use data to change the myths and practices that may under gird prevailing stereotypes and discriminatory educational outcomes. Counselors have the potential to be the “drum majors for social justice” prescribed in the ASCA program model (ASCA, 2003). The literature suggests parallels between brain research and strategies and structures counselors may use to develop intervention methodologies to facilitate their work in schools. We must, however, “move the rock slowly” to provide for the most robust testing of related constructivist paradigms and counseling and teaching interventions.

A paradigm for understanding the importance of positive emotions, character traits, and enabling institutions comes from the emerging science of positive psychology. This field was first named in 1998 by Martin Seligman as one of the initiatives in his role as president of the American Psychological Association (APA). Positive psychology is the scientific study of what goes right in life through the developmental and situational stops between birth and death (Peterson, 2006). Based on a wellness model, this approach emphasizes the study of human goodness and excellence. Increasing research findings are pointing out that using positive psychology and wellness strategies in counseling and therapy are helpful in fostering healthy human development (Snyder & Lopez, 2001). Positive psychology is also addressing itself to features of enabling institutions such as the 'good school' (Peterson, 2006), and appears to offer strategies for institutional change capable of impacting both systems and individuals. This is of importance to school counselors who are charged with addressing the needs of all students through intentional and culturally appropriate environmental interventions.

Brain science is rapidly enhancing our understanding of how the brain manages learning and processes emotions both positive and negative. "Every psychological phenomenon is ambiguous with respect to its historical origins, and adding biological information often illuminates the meaning of a behavior, thought, or emotion. The evidence from brain activity can provide a more profound appreciation of the behavior (Kagan (2006) p. 224-225)." Greenleaf (2003) notes that we underestimate the brain, which is always working, just as the lungs are always breathing, even without our intentional instruction. He explains that all of the senses work simultaneously and separately to communicate what is perceived to the amygdala and the hippocampus, in the rear of the brain. These sections of the brain construct interpretative messages and produce energy to facilitate or impede access to executive processes housed in the cortex. Chemical triggers signal, (positive or negative) then regulate engagement or disengagement (based on the direction of the emotion) related to cognitive processes. Positive emotional signals most effectively pave the way for productive cognitive engagement. Conversely, negative signals disrupt focus and concentration. These signals have the ability to invoke instinctual behavior and override objective

reality. Many heroic, spontaneous actions exemplify this. Greenleaf (2003) and Willis (2007) propose that relevance, usefulness, and interconnectedness also strongly influence the number of repetitions for any given message generated in the amygdala and the hippocampus. Both of these authors identify the frontal cortex as the site where information and knowledge are integrated, stored, and retrieved in uniquely meaningful patterns.

Willis (2007) discusses the impact of emotion on the executive, cognitive functions of the brain that are housed in the frontal cortex. Willis demonstrates that, metaphorically, we must enter through the back door of the brain to gain real entry to the front; the part depended upon for both successful teaching and learning. Willis uses PET scan data to support the power of intrinsically rewarding activities, or the anticipation of such activities, to generate electrical activity in the affected areas of the brain. This activity allows new information access to executive processing in the cortex. However, stress and threat act to deny entry of new information to the cortex. The electrical activity generated initially by the amygdala and the hippocampus can either magnify or lock out cognitive engagement.

Karpinski and Hilton (2001) provide additional arguments about the importance of the environment to optimal brain functioning. They point to the emerging associations people make in their environments as key variables in resulting attitudes and receptivity to cognitive processing of information. Using the Implicit Association Test (IAT) the authors have developed a tentative hypothesis concerning the influence of embedded environmental associations on stereotypes and explicit attitudes such as racism. For example, it is not surprising that most Americans, White and Black, show a White IAT bias, given that that we live in a racially biased society. In other words, our brains may become 'hard-wired' to attend to things that are most familiar and confirmatory of prevailing social bias.

Ridley (2005) reminds us that multiculturally competent counseling requires the creation of non-pathological paradigms to facilitate the design of more culturally appropriate interventions. An ambitious project undertaken by the fledgling positive psychology movement involves developing the *Character Strengths and Virtues: A Handbook and Classification (CVS)* (Seligman, Steen, Park & Peterson, 2005).

The intent of the CVS is to describe and classify strengths and virtues that enable human thriving. The general theme revolves on six virtues that are endorsed by most world cultures: wisdom, courage, humanity, justice, temperance and transcendence. Each virtue is described by the particular character strengths. Peterson's (2006) discussion of empirical findings so far indicates a similarity in the endorsements of character strengths of adults around the world and in the United States that may reveal more about the strengths that contribute to a viable society. The author also suggests strategies for change such as every day considering how some strongly held opinion might be wrong; as a methodology for developing open-mindedness. He further argues that, "As our attention turns to certain character strengths we should be as concerned with how to keep certain strengths from eroding on the journey to adulthood as with how to build others from scratch" (p. 154). Such work could be theoretically foundational for school based programming that can connect positive emotions to learning. Table One targets key points in the relationship of the emotional environment to learning that is implied from these emerging theoretical approaches.

### Implied Relationships between Emotional Environments and Learning

Inputs		Through Put	Output
Environmental Inputs		Brain Activity	Optimal Use of attention, processing, integration, storage, and retrieval systems
Emotionally Enriched Environment	School and Classroom climate negotiated through collaboration and respect to support institutional level virtue.		
All senses & systems	Positive: engages creativity and spirit	Propelling new information forward	Effective: Superior learning outcomes
Hearing Sight Smell Sound Taste Touch	Being read to Laughing Playing Movement Recognizing achievements Peer engagement	Reinforcing or enabling new information/connections	Teaching staff and students, e.g. attribution theory, locus of control, efficacy Collaborating with Students on career portfolios, projects, and service learning activities to ensure relevance and constructive usefulness
Cognitive Emotional Physical	Safe Emotionally Positive Anticipation Excitement		Teachers and staff to design classroom/environment and school culture focused interventions Developing practica and apprenticeships
Emotionally Impoverished Environment	School and Classroom climate negotiated through relationships based on control, power, and force.		
All senses & systems	Negative: disengages creativity and spirit	Competing with new information reception	Ineffective: Poor learning outcomes
Hearing Sight Smell Sound Taste Touch	Alienation Anxiety Lack of understanding Stress Threat	Preventing or disabling new information/connections	Inability to identify relevancy of content/information or process/approach
Cognitive Emotional Physical	Unsafe Emotionally Negative Anticipation		

Table 1

Three key indicators stand out. Research documents the plasticity of the human brain and the importance of the environment on learning initiatives. Every time we learn something new, something in our brains changes. Our brains become fine-tuned through experience. Secondly, emotion, based on key environmental elements, is a critical factor in learning and acts as a pathway to transform data into meaningful information. The third indicator involves using past experience, real world experience and metaphors as instructional strategies.

To most effectively address our current challenge of more broadly engaging students and the community, we are challenged to articulate the relevance, usefulness, and attractiveness of educational experiences. Slavkin (2003) advocates from a cognitive neuroscience perspective, that we must alter learning formats by intentionally removing barriers between schools, parents, and community members. He proposes hands-on learning experiences and points to brain science experimental results to support his propositions. Innovative educational partnerships and collaborations with multiple stakeholders as well as service learning modalities are tools for improving school learning environments. Community service learning provides curricular support for real-world student-centered experiences that increase ownership and active participation among parents and community members. He describes service learning experiences as intriguing, multisensory avenues for integrating prior knowledge and complex stimuli, and personalizing learning. Community partnerships may also be particularly critical in assisting schools with limited resources and/or schools that primarily service multiethnic, marginalized, and nontraditional populations. These are the schools most likely to need support in meeting government mandates (such as No Child Left Behind), and to grapple with resource demands for dollars and staff diversity. From positive psychology, Peterson (2006) points to some conclusions about good schools supported by research:

1. Students perceive courses to be relevant.

2. Students perceive that they have control over what happens to them at school.
3. Students perceive school discipline policies to be firm, fair, consistently enforced, with a focus on correction and skills building rather than on punishment.
4. Students see the school reward system as rational: The school recognizes students for their achievement and rewards their positive behavior.
5. There exists strong and effective school governance.
6. The school principal displays strong leadership.
7. Practices are in place which decrease the impersonality of the school, and increase contact between students and teachers, which increase students' feeling of belonging and connectedness (p. 286).

A few summary arguments seem to emerge. Blackmore and Frith (2005) note that “education is to the brain what gardening is to the landscape. It’s not just education, but culture, in a broader sense that changes brains” (p. 187). Abbot and Ryan (1999) argue that it is more important to practice the process of learning than to learn a particular skill set. Kagan states that “humans want to remain in close contact with definitions of good that their culture taught them” (p. 261). Positive psychology provides an etiology for discussing this process in the context of human strength, as opposed to deficiency. The professional school counselor, armed with such understandings can more effectively meet current mandates for occupational relevancy and advocacy for all students. Counselors can assist teachers in understanding the emotional connections that spur intrinsic motivation and challenge that are embedded in complex, real-world experiences (Caine, 1999). They can provide leadership in helping to establish a school culture that values and promotes professional collegiality and collaboration so that educational personnel model and support nonthreatening and intellectually engaging and stimulating learning environments (Biller, 2002).

There are important precautions concerning the implementation of related strategies too soon. Seligman et al (2005) noted that the measurement of positive states needs more research. Brant (1999) noted that information from brain research cannot yet provide definitive answers to practical educational queries. Jorgenson (2003) points to an untested cognitive-neuroscience movement that may be tempted to embellish findings and make interpretive leaps concerning thematic teaching, integration of curriculum, and life-relevant approaches; which are yet to be clearly defined. The need is to clearly articulate the different factors leading to the successes emanating from “brain-based” interventions related to positive psychology. Such an interdisciplinary platform will help to guard against misinterpreting and decontextualizing the findings of brain research.

## References

- Abbott, J. & Ryan, T. (1999). Constructing knowledge, reconstructing school. *Educational Leadership*. 57(3). 66-69.
- American School Counselor Association (2003). The national model for school counseling programs. Alexandria, VA: Author.
- Blakemore, S, & Frith, U. (2005). The learning brain: Lessons for education. Malden, MA: Blackwell Publishing.
- Biller, L.W. (2002). Integrating brain research into schools. *Principal Leadership*. 2(5).
- Caine, C. & Caine R. (1999). Bringing the brain into assessment. *High School Magazine*. 6(5). 8-12.
- D’Arcangelo, M. (1998). Brains behind the brain. *Education Leadership*. 56(3). 20-25.
- Gould, E., Tanapat, P., Hastings, N.B., & Shors, T.J. (1999). Neurogenesis in adulthood: a possible role in learning. *Trends in Cognitive Sciences* 3(5). 186-191.
- Greenleaf, R.K. (2003). Motion and emotion. *Principal Leadership*. 3(9). 14-19.
- Holcomb-McCoy, C. (2004). Assessing the multicultural competence of school counselors: a checklist. *Professional School Counseling*. 7(3).
- Jorgenson, O. (2003). Brain scam? Why educators should be careful about embracing ‘brain research’. *Educational Forum*. 67(4).
- Kagan, J. (2006). *An argument for mind*. Harrisonburg, VA: R.R. Donnelley.
- Karpinski, A. & Hilton, J.L. (2001). *Attitudes and the implicit association test*, *Journal of Personality and Social Psychology* 81(5) 774-788.
- Peterson, C. (2006). *A primer in positive psychology*. Oxford University Press, New York.
- Rhodes. M. (2003). Brain-based, heart felt. *Principal Leadership*. 3(9). 38-40.
- Ridley, C.R. (2005) *Overcoming unintentional racism in counseling and therapy: A practitioner’s guide to intentional intervention* 2<sup>nd</sup> Ed. Thousand Oaks, CA: Sage Publications.
- Seligman, M.E.P., Steen T.A. Park, N. & Peterson, C. (2005). Positive psychology progress: Empirical validation of interventions, *American Psychologist* 60(5), 410-421.
- Slavkin, M. (2002). Brain science in the classroom. *Principal Leadership*. 2(8).
- Slavkin, M. (2003). Engaging the heart, hand, brain. *Principal Leadership*. 3(9). 20-25.
- Snyder, C., & Lopez, S. (2001). *Handbook of positive psychology*. Oxford: Oxford University Press.
- Willis. J. (2007). Gully in the “brain glitch” theory. *Educational Leadership* 64(5).

Zamani-Gallager, E. & Callaway Y. (2006). *the challenge and call for cultural adjustments in educating African American males: Implications for school counselors and leaders*. Manuscript submitted for publication.