

NEURO-HOLISTIC LEARNING[®]: AN INTEGRATED KINESTHETIC APPROACH TO COGNITIVE LEARNING[®] USING COLLABORATIVE INTERACTIVE THOUGHT EXCHANGE[®] IN A BLENDED ENVIRONMENT TO ENHANCE THE LEARNING OF YOUNG AFRICAN AMERICAN MALES

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ABSTRACT

This paper is part two of the article entitled, "Dynamic Neuroscientific Systemology: Using Tri-Squared Meta-Analysis and Innovative Instructional Design to Develop a Novel Distance Education Model for the Systemic Creation of Engaging Online Learning Environments." published in the July-September 2015 issue of i-manager's Journal of Educational Technology. The aim of this paper is to introduce three novel problems-solving conceptual solutions which are: (1) Neuro-Holistic Learning[®] as an; (2) "Integrated Kinesthetic Approach to Cognitive Learning[®]" using a (3) "Collaborative Interactive Thought Exchange[®]" as a dialogue and discussion procedure. The purpose of this original and novel instructional methodology is to conceptually address the four main challenges faced by 21st century African American high school and college students, particularly African American males, who are attempting to succeed in life and in their future professional careers. As an instructional methodology, Neuro-Holistic Learning[®] provides an active solution that addresses the needs of Historically Black Colleges and Universities (HBCUs) who are actively seeking novel methods to aid in the achievement of their respective academic goals, increase student retention, meet their institutional graduation objectives. The results of this dynamic and engaging approach to learning determinedly responds to HBCU high standards of academic excellence and collaborative goals to produce dynamic global citizens and actively responsive alumni.

Keywords: African American Students, Blended Learning, Collaborative Interactive Thought Exchange[®], Kinesthetic Learning, Neuro-Holistic Learning[®], Neuroeducation, Neuroscience, Biocognitive Theory, Creativity.

INTRODUCTION

This paper is a brief overview of the teaching methodology and course design that incorporates tools, technologies and exercises from an organization of kinesthetic systems of health and wellness (in particular Educational Kinesiology and Psychological Kinesiology) and the inter-related principles of the mind, brain and body connection that is used to enhance student learning through a "Collaborative Interactive Thought Exchange[®] Blended Learning Environment". The teaching methodology and course design in this narrative is referred to as Neuro-Holistic Learning[®] or N-HL[®]. Neuro-Holistic Learning is an operational

practice and implementation of engaging online learning environments. The use of the Neuro-Holistic Learning as an instructional model is explained in the research article entitled, "Dynamic Neuroscientific Systemology: Using Tri-Squared Meta-Analysis and Innovative Instructional Design to Develop a Novel Distance Education Model for the Systemic Creation of Engaging Online Learning Environments" was published in the July-September 2015 issue of i-manager's Journal of Educational Technology.

Neuro-Holistic Learning as a "Dynamic Neuroscientific Systemology" introduces two dynamic tools into online learning to empower learners: (1) "Integrated Kinesthetic

Approach to Cognitive Learning[®] “that uses a (2) “Collaborative Interactive Thought Exchange”[®] for the specific purposes of interactive dialog and dynamic discussion. N-HL particularly effective as a holistic approach to life and career choices for African-American college students via a Neuro-Holistic Learning[®] paradigm that addresses the academic needs and cultural contexts necessary for effective learning. The authors are Instructional Systems Designers with a background in Cognitive Science and Neuroscience, as they have developed a novel concept of learning entitled, “Neuro-Holistic Learning[®]” (or N-HL[®]). “Neuro-Holistic Learning[®]” is the application of the knowledge of the relationship between the “mind, brain, and body” connection for use in teaching and learning. As an engaging program, N-HL uses a multiplicity of kinesthetic systems within the realms of health and wellness to explore the holistic mind, brain, and body connectivity and its impact on learning within a blended/hybrid (traditional and online) learning environment. N-HL teaching methodologies address the four primary domains of learning which are identified as: (1) The Cognitive Domain; (2) The Affective Domain (3) The Psycho-Motor Domain; and (4) The Social Domain (Dettmer, 2006). N-HL also transmits knowledge in the identified four learning domains relating directly to the Mind, the Will, and the Emotions, identified as the Soul (in the physical construct of “Life-Force” or life sustaining “energy”). Within this new framework/paradigm of learning, the authors use a novel process of neuro-holistic knowledge dissemination and acquisition called, “Collaborative Interactive Thought Exchange”[®] (CITE).

The authors also use “An Integrated Kinesthetic Approach to Cognitive Learning[®]” as their innovative teaching methodology, with Neuro-Holistic Learning[®] as the conceptual framework (used to deliver content knowledge through active cognitive and neuroscience concepts and principles), and the “Collaborative Interactive Thought Exchange”[®] process as the creative construct within the blended (consecutive traditional and online) learning environment. “An Integrated Kinesthetic Approach to Cognitive Learning[®]” is the use of a combination of specific tools, techniques, technologies and exercises that contain parallel principles across a number of kinesthetic systems

of health and wellness used within the Neuro-Holistic Learning[®] paradigm. This teaching methodology integrates and combines various disciplines across all domains of learning by incorporating both traditional and non-traditional cross-pollination of course content and cultural contexts which allows for the creation and cultivation of student-centered learning environments. “The Collaborative Interactive Thought Exchange”[®] (CITE) is a dialogue, that focuses on finding the underlying principles of a subject or topic in relation to the mind, brain and body. In the author's online and (blended/hybrid) face-to-face neuro-holistic learning course entitled, “An Introduction to Genius & Creativity”[®], the online discussion forum and the face to face group dialogue and demonstrations provide an arena for the collaboration and exchange of ideas that form the basis of creativity. “Creativity” is the spark that actually has an impact on the world, as explained by the researcher Dr. R. Keith Sawyer, who stated, “Creativity that makes a difference in our lives is almost never the result of one person having a brilliant idea” (Sawyer, 2011). The Collaborative Interactive Thought Exchange[®] is a creative collaborative process that creates an environment conducive to the exchange of ideas that often leads to new perspectives. Although this thought exchange process is just one component or piece of the learning puzzle, it is a very important piece or component from the Neuro-Holistic Learning[®] perspective.

Addressing the Problem of Stressors in the Academic Learning Environment

“Neuro-Holistic Learning[®]” using the Integrated Kinesthetic Approach to Cognitive Learning[®] with the Collaborative Interactive Thought Exchange[®] (or CITE) conceptually addresses four major concerns and/or challenges that face most 21st century students in general, but African-American students in particular. The four major challenges are:

1. The challenge of preventable health-related issues affecting learning (Obesity, Diabetes, ADD/ADHD, High Blood Pressure, etc.) that are a direct result of poor diets and lack of exercise;
2. Stress and emotional challenges that stem from environmental circumstances, parent

and/or peer pressure and low self-esteem that affect the student's ability to approach both school and life in a successful and holistic manner;

3. The challenge of students acquiring reasoning, constructive problem-solving & decision-making skills, and other higher order thinking abilities that can be used to navigate through the real-world settings and not just corporate and academic environments.
4. Indecision and a clear cut goal towards a career path that utilizes their gifts, talents and natural abilities for the practical application of a rewarding and successful business and career.

Much of the research were done in these areas show that African American students suffer in three of the four areas at disproportionate levels and have the least amount of resources to address these four challenges. The pressures of maintaining a balance between interpersonal relationships, academic demands, one's own expectations and maintaining personal relationships can be an extremely daunting task (Lindsey, Reed, Lyons, Hendricks, Mead & Butler, 2011). For example, a study about the sources of stress among African American college students found that, the top five reported sources of stress were: (1) Death of a family member (intrapersonal stress); (2) Low grades (academic stress); (3) Time management (academic stress); (4) Boyfriend/Girlfriend problems (interpersonal stress) and (5) Missed classes (academic stress) (Negga, Applewhite & Livingston, 2007). These research studies show that, a strong relationship exists between stress and cognitive abilities and a weakened immune system (Cohen & Herbert, 1996).

Toxic stress impacts the physical architecture of the brain. It leads to quantifiable changes in areas of the brain that are centrally involved in learning, such as the hippocampus, which can result in learning problems. Toxic stress refers to strong, frequent, or prolonged activation of the body stress management system in the absence of support. Toxic stressors include chronic poverty, abuse, bullying, and trauma without support. Additionally, at four-year colleges, only 33.2% of African American males earn a bachelor's degree within six years—rates that are strikingly lower than those of their Caucasian (57.1%) and Asian (64.2%) peers

(Digest of Education Statistics, 2012). At two-year colleges, only 32.1% of African American males earn a certificate, degree, or transfer to a four-year institution within six years, compared to 39.8% for Caucasian males and 43.4% for Asian males (BPS, 2009).

The mission and goals of many institutions of higher learning, especially Historically Black Colleges and Universities (HBCUs) are to level the playing field in the areas of:

- Academic Performance;
- Student Retention;
- S.T.E.A.M. (Science, Technology, Engineering, Arts, and Mathematics);
- Student Graduation and Matriculation (four years or less); and
- Global Citizens that contribute to society in a positive, productive and innovative manner through leadership, service and successful business creation and professional careers.

The majority of research and studies show the benefits gained by African American students when afforded the opportunities and resources within the right learning environment to achieve and excel at the highest level of education. The educational environment plays a crucial role in shaping the brain's abilities and determining students' academic achievement. As students learn in both formal and informal contexts, these experiences shape the architecture of their brains. The introduction of the Neuro-Holistic Learning[®] program using the Integrated Kinesthetic Approach to Cognitive Learning[®] with the Collaborative Interactive Thought Exchange[®] process for teaching and learning was developed to supplement the standard traditional curriculum and to address the above missions and goals as it relates to the targeted demographic student population at the Post-Secondary Education levels.

The Rationale that Establishes the Need for N-HL

Educational Psychologists have subdivided the area of educational objectives into three domains, viz. the cognitive, affective and psychomotor. The three domains identify and represent the knowledge, beliefs and skills, respectively, of a human performer. Learning can be

thought of as occurring in these three domains (Adkins, 2004; Beane, Toepfer, & Alessi, 1986; Gage & Berliner, 1988). A fourth domain, the social domain is introduced to accentuate socio-cultural processes that accompany thinking, feeling, and sensing/movement (Dettmer, 2006). These four domains are the foundation for holistic learning in any educational learning environment or institution. However, a holistic approach to teaching and learning is not always integrated into the instructional design of an Educational Curriculum or program.

The authors' analysis of the adverse condition of African American college students at various institutions, led to the development of N-HL as a holistic course and program specifically designed to address the problems affecting this particular sector of the collegiate learning community. Minority students tend to encounter common experiences that are different from those of nonminority status (Nora & Cabrera, 1996).

Major differences were found in stress levels between African American and Caucasian students. A study conducted by the American College Health Association (ACHA) found that, the highest impact on academic performance among college students was stress (American College Health Association, 2012). Another study showed that, approximately 40% of African American college students were obese (Osugwu, 2011). Obesity, in most cases leads to other preventable diseases such as high blood pressure, high cholesterol, diabetes, etc. (Centers for Disease Control and Prevention, 2009). Biocognitive Theory research suggests that, cognition and biology are inseparable and they co-emerge within a cultural history (Martinez, 2003 & 2015).

The authors suggest that, all of these seemingly unrelated issues can be attributed to the lack of an approach that considers all of the factors that affect cognition. When addressing the concerns of African American students, especially African American males, the social and cultural contexts must be also considered in the design and development of a learning environment. The significance of the blended learning environment is that, it allows for the face to face demonstration of the techniques, technologies and exercises from the five kinesthetic

systems of health and wellbeing taught to enhance student's cognitive abilities. Kenney and Newcombe, (2011) found that, in an introductory undergraduate psychology class, 64 percent of the students felt more actively engaged with the material using the blended format. This same study reported that, 59 percent of the students perceiving an increased interest in the content and 75 percent indicating that, the approach helped them to go more in depth on the topics (Graham & Burke, 2014). Lastly, 65 percent felt that the blended activities promoted a learning community, allowing them to interact more easily with other class members (Kenney and Newcombe, 2011, as cited in Graham & Burke, 2014). Therefore, this paper's purpose is to introduce an alternative approach to teaching and learning and provide the research to support how a Neuro-Holistic Learning[®] program presented as a supplemental blended/hybrid learning course can address all of the aforementioned concerns as it relates in particular to African-Americans students, and more specifically African American males at the Post-Secondary Educational level.

Review of Literature Concerning the Mind, Brain, and Body Connection

Gessner Geyer, president of Brainergy, says, "In essence, we are kinesthetic learners. Our minds and bodies work together to help us pay attention, solve problems, and remember solutions. Our physiological states support our mental efforts. Movement and exercise can enhance optimal learning states. Dr. John Ratey, Professor of Psychiatry at Harvard Medical School and author of "A User's Guide to the Brain", notes that, neurons that fire together wire together. This basically means that, the more we learn or do a particular task, the stronger the neuronal connections get in the area of the brain linked to the learning task. The brain is connected to every part of the human body, and to the outside world, by a communications network dominated by two major components, nerves and messenger chemicals, primarily neurotransmitters and hormones (Lamberg, 2007). A protein in the brain called "brain-Derived Neurotrophic factor" ("BDNF") plays a key role in creating and connecting new neurons, which is vital for thinking, learning and higher

levels of brain function. Studies show that, exercise enhances brain performance and increases the production of BDNF (Perlmutter, 2001). Dr. Carl Cotman, Director of the Institute for Brain Aging and Dementia at the University of California, Irvine showed in his research that, exercise sparks the master molecule of the learning process. His research provided a look at the direct biological connection between movement and cognitive function.

According to Ratey, "Exercise improves learning on three levels: first, it optimizes your mind-set to improve alertness, attention, and motivation; second, it prepares and encourages nerve cells to bind to one another, which is the cellular basis for logging in new information; and third, it spurs the development of new nerve cells from stem cells in the hippocampus" (Ratey, 2008, p. 53). Physical health, exercise, sleep and nutrition are crucial to physical and mental wellbeing and their effects on cognitive functions are mediated by the brain (Royal Society, 2011). Educational Kinesiology, sometimes referred to as, Brain Gym[®] is a physical movement that stimulates both hemispheres of the brain. "The goal is to access the whole brain in any activity that we do." "Brain health is a very significant and societally important benefit of exercise," said by Sandra Aamodt, Editor in Chief of "Nature Neuroscience" (Shaver, 2008). Lynn Lamberg (2007), in discussing the brain-body loop, mentions, "in addition to the five major senses (sight, hearing, touch, taste, and smell), the brain also works with the body to maintain a sense of balance (equilibrium), monitor body and limb positions (proprioception), and keep track of movement (kinesthesia)".

Psychological Kinesiology, sometimes referred to as, PSYCH-K[®] is a simple, yet powerful technique, that allows communication directly with the subconscious to test for limiting beliefs. Our beliefs have far-reaching consequences, both positive and negative, in your life. Beliefs affect our moods, relationships, job performance, self-esteem, physical health, even our religious or spiritual outlook (Fannin & Williams, 2012). In a study cited in Harvard Professor Emeritus Gerald Zaltman's book 'How Customers Think', neuroscience reveals that at least 95% of our

thoughts and decisions originate at the subconscious level of the mind (Zaltman, 2003). New research is showing that PSYCH-K[®], a popular system for subconscious change can be used as a tool by educators and parents, to significantly help students raise their level of academic achievement (Fannin & Williams, 2012). Cognitive therapy is built on the premise that thoughts and perceptions shape moods and emotions (Harvard Health Publications, 2011).

In summary, the new field of "Educational Neuroscience", also called "Neuroeducation", investigates some of the basic processes involved in learning to become literate and numerate; but beyond this it also explores advanced metacognitive "neuroprocesses" such as: "learning to learn", cognitive control and flexibility, motivation as well as social and emotional experience (Royal Society, 2011). The concept of Neuro-Holistic Learning[®] is based on how the mind, brain and education converge to inform the design of learner-empowering curricula. Teaching has always involved the creative appropriation of curricula within the situated practice of a given classroom. The curriculum is a cultural tool, and like all such tools, it carries constraints and affordances, that always allow creative improvisation in their application (Wertsch, 1998 as cited in Sawyer, 2003). The goal of a truly holistic curriculum or program is to maximize the use of the "whole brain" (conscious, sub-conscious, super-conscious, and left/right hemispheres) to achieve optimal learning and performance. Achieving what is called, a "Whole-Brain State" is what allows for maximum communication and data flow between the left and right hemispheres of the brain and the alignment of the conscious and sub-conscious beliefs (Fannin & Williams, 2012). The Neuro-Holistic Learning[®] program using the Integrated Kinesthetic Approach to Cognitive Learning[®] with the Collaborative Interactive Thought Exchange[®] helps to achieve the aforementioned "Whole-Brain State".

The N-HL Solution: Collaborative Interactive Thought Exchange[®] or "CITE"

The Collaborative Interactive Thought Exchange[®] (CITE) dynamic discussions and interactive dialogue can be described as what Dr. R. Keith Sawyer calls, "collaborative emergence" that is both empowering and improvisational.

The conversations that come out of this part of the N-HL are described as “emergent”; because, the outcome cannot be predicted in advance, and they are also engaging and “collaborative” because no single participant can control what emerges; the outcome is collectively determined by all participants (Sawyer, 2003). This process allows for active student engagement, and also aids in the development of critical thinking, active reasoning, and cultivates problem-solving as a skill. The N-HL as a neuroscientific operation encourages active critical reflection and consciously directed feedback. When N-HL as a methodology is properly implemented and openly facilitated, it creates an environment of learning that develops effective interpersonal communication and allows for the growth “soft” skill sets such as, much needed social skills that are in demand by the business and industry.

Students learn from the dynamics of a collaborative interactive discourse through CITE, because inherent in CITE, there are multiple perspectives and aspects that are actively engaged. It is through this method of interpersonal engagement that collect creativity is generated. This form of learning can only work if the group is allowed to be improvisational, “with no predetermined outcome and no preset script” (Sawyer, 2003). The skills gained from the Collaborative Interactive Thought Exchange[®] process prepares students for what researcher Daniel Pink (2005) calls the, “The Conceptual Age”. Pink notes that, in this age notions are of “high concept” and this in turn “requires the ability to detect patterns and opportunities and combine seemingly unrelated ideas into something new” (Pink, 2005). Sawyer further states that, “In collaborative classrooms, new knowledge and insights emerge from exploratory discussion among learners” (Sawyer, 2003). This is the hallmark of dynamic neuroscientific systems such as N-HL. Which is supported when he states, “Much of the brain is active when you're engaged in these sorts of creative mental processes and the entire brain works in concert to engage in what we call creativity” (Sawyer, 2011).

The Integrated Kinesthetic Approach to Cognitive Learning: An Introduction to Genius & Creativity[®] is a prime example of Neuro-Holistic Learning[®] programs that use a “holistic approach” to support diverse communities such as, African

American males and African American college students in their pursuits towards a successful life and career. Within the framework of the N-HL, the collaborative and systemically planned use of both traditional and non-tradition curricula, physical, mental, and emotional exercises, social-cultural learning environments, and the use of in-depth interpersonal interactions are a novel methodology in the realms of both teaching and learning. N-HL, therefore considers every domain and context for learning as a viable tool that is grounded in the creation of a nurturing learning environment (one that is most conducive for the growth and development of all African American collegiate students).

Recommendations

Although many of the programs in good faith, teach young African American men “knowledge of self” (from a cultural perspective), the authors would suggest that, a deeper knowledge of self begins with the understanding of how the mind, and has its foundations in the discovery of how the brain and the body truly works in a conjunctive relationship to discipline-based subject matter that broadly covers the full spectrum of life. The Neuro-Holistic Learning[®] method can be fully implemented as a program that can be incorporated into initiatives that focus on African American males. It is important to note that, current “African American Male Initiative Programs” that are existence have been entrusted with the responsibility of preparing, growing, developing and maturing young African American boys into well-developed and well-balanced men. Through the use of the tools, technologies, exercises, and techniques taught within the framework of the Neuro-Holistic Learning[®] environment, educators can tap into the natural gifts and talents of our youth and provide them with this viable learning methodology as an invaluable resource that is both a toolkit and a reserve of informative and empowering approaches that they can implement for the rest of their lives.

Conclusion

An Integrated Kinesthetic Approach to Cognitive Learning: An Introduction to Genius & Creativity[®] curriculum and program is a tool that is designed for African American male high school seniors as a method to increase the

pipeline of African American males into Higher Education. This program is also designed as a tool for Historically Black Colleges and University's (HBCU's) African American freshman and sophomore students as a way to reach their goals and mandates of increased academic performance and student retention, STEAM (Science, Technology, Engineering, Art, and Mathematics) scholars, graduation rates of four years or less, global citizens, and financially supportive successful professional alumni that can help keep the doors of our HBCUs open and producing the future leaders of the 21st century and beyond. Through the Neuro-Holistic Learning[®] paradigm, students can begin to learn how their mind, brain and body is connected to all learning and disciplines within the academic, social and cultural environment. Thus, by having an understanding of this knowledge and its relevance to their life goals and professional aspirations, the student can begin on the road to mastery of all subjects and disciplines, but more importantly the road to mastery of self.

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