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INTRODUCTION and OVERVIEW
Victoria Stevens, PhD

> "The best employers the world over will be looking for the most competent, most creative, and most innovative people on the face of the earth and will be willing to pay them top dollar for their service…. Beyond [strong skills in English, mathematics, technology, and science], candidates will have to be comfortable with ideas and abstractions, good at both analysis and synthesis, creative and innovative, self-disciplined and well organized, able to learn quickly and work well as a member of a team and have the flexibility to adapt quickly to frequent changes in the labor market as the shifts in the economy become ever faster and more dramatic.
>
> If we continue on our current course, and the number of nations outpacing us in the education race continues to grow at its current rate, the American standards of living will steadily fall relative to those other nations, rich and poor, that are doing a better job. The core problem is that our education and training systems were built for another era, an era in which most workers needed only a rudimentary education. It is not possible to get where we have to go by patching that system. We can get where we must go only by changing the system itself".
> *The New Commission on the Skills of the American Workforce, 2007, cited in Darling-Hammond, 2010.*

The new MCAET Millennial Charter School is a designed for 9th-12th grade students with the goal of training them in the kinds of skills, mastery of knowledge and ways of thinking that will enable them to emerge upon graduation as informed, educated citizens, leaders inside and outside of their community and prepared to succeed in the global economy of the 21st century.

This innovative curriculum developed by Victoria Stevens, PhD founder and director of the Stevens Creativity, Imagination and leadership Training, focuses on the development of skills and knowledge in the areas of the Core Academics, the Arts, Media and Technology, Physical Education, and Life Skills (See graphic for five areas). All five curricular areas intersect in terms of thematic content and interdisciplinary cross-connections.

In addition all five areas are linked by common larger goals and outcomes that are 21st Century Skills such as those listed in the above quotation. These skills include: creative thinking, imagination, mental play, critical thinking, learning how to learn, self-reflection, empathy, collaborative teamwork, analogical and metaphorical thinking, patience, emotional self-regulation and self-motivation (See middle of graphic).

It is clear now to all involved in education that the mastery of basic skills such as reading, writing and computing at grade level as assessed by standardized tests is necessary but not sufficient for a high school or college graduate to be prepared to succeed in. the job market as it is currently evolving. As Thomas Friedman says:
"So schools have a doubly hard task now – not just improving reading, writing and arithmetic but entrepreneurship, innovation and creativity" *New York Times October 2009*.

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The students who are most marginalized from this process are those who are minorities, those who have experienced early and repeated trauma or toxic stress, those who are in poverty or are homeless.

The MCAET Charter School is committed to equity and access of the highest quality education for all students and to identify, train, develop and nurture the creative talents of all students whether they are artists, craftspeople, scientists, medical workers, teachers, engineers, chefs, farmers or business owners.

Each incoming student will be assessed regarding their areas of strength, giftedness, needs and challenges. An individualized program will be developed for each child so that they can master necessary grade level skills in one or more subjects. This individualized program may include tutoring, academic mentors, special lessons and online "blended" instruction. This process will be continued and adjusted as long as necessary for each student's success. We will also identify issues with reading or processing deficiencies, learning disabilities and English Learner challenges. Additional time and materials during the school day will be available for intervention and enrichment.

The Media Center for Art, Education and Technology will also provide a state-of-the-art learning center that will feature a fully equipped modern electronic computing center. The learning center will assist the MCAET Charter with off-hour and weekend supplementary assistance for students needing intervention. The learning center will also be available for parents and caregivers in the evenings and weekends to provide technology, English learning, creative arts training and other courses such as parenting and job transition training.

Dr. Stevens will create curricula for Common Core academic subjects that will facilitate the development and master of the skills and knowledge represented by the appropriate Common Core and California State Standards in that content area. These curricula will be developmental, sequential and scaffold in terms of scope and sequence both within a subject area and BETWEEN subject areas. They will also develop literacy skills specific to each content area (e.g., aesthetic literacy, media literacy, scientific literacy).

The teachers at the school will teach all content areas in a way that emphasizes the development of 21st century skills as listed above, that will facilitate lifelong learning and successful career choices. The pedagogical methodology and "meta" overarching goals for each subject and the school in general together with the interdisciplinary links between classes and in the collaborative projects and the emphasis on global awareness are unique to this school.

Students will be assessed on both skill and content mastery for each subject, but also on the 21st century and "meta-skills" in all classes and as a rubric for their interdisciplinary projects.

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It is clear to all that well-prepared teachers working in a school with standards, curriculum and assessments geared toward 21st century learning goals that has equitable access to students, high parent involvement and individualized training and mentorship for each student is what is being called for all across this country and the world over. This is particularly true for those curricula that can balance mastery of basic academic skills with training the arts, social, emotional and group skills, and technology with fully developed capacities for creative thinking, invention, innovation and imagination.

IMAGINATION, CREATIVITY, EMPATHY AND METACOGNITION:
Aesthetic Literacy and 21st Century Skills

Victoria Stevens, Ph.D.
www.drvictoriastevens.com

Supplemental Information

SKILLS NECESSARY FOR SUCCESS IN THE 21ST CENTURY

Life-long learning skills (in addition to academic and technical expertise)
(Stevens, 2000)

1. **creative and critical thinking**
2. **adaptability to change; flexibility and contextual judgment**
3. **the ability to engage in questioning and debate: the ability to see and explore multiple perspectives and alternatives**
4. **the ability to recognize and question assumptions (one's own first and foremost)**
5. **the ability to tolerate, respect and understand different points of view**
6. **the ability to work as part of a group toward a common goal as a leader or a team member**
7. **empathy: the ability to see both similarities and differences in other people and ideas, and the ability to respect and tolerate those differences.**
8. **a sense of self-respect and respect of others**
9. **an internalized set of moral values,**
10. **the ability to learn from experience; criticism, mistakes, failures, as well as successes.**
11. **the acceptance and knowledge of one's own strengths and gifts as well as limitations and areas of weakness.**
12. **the ability to understand theoretical concepts in such a that they can be taken from one area of knowledge and**

applied to other areas.
13. **emotional self-regulation, self-reflection and intrinsic motivation**
14. **imagination, curiosity, wonder, the ability to "not-know"**
15. **patience, self-discipline, a sense of personal agency and purpose**
16. **thoughtful risk-taking and the ability to play imaginatively, cognitively, physically and creatively**
17. **a well-developed sense of humor and capacity for joy**

EMOTIONAL INTELLIGENCE (Goleman/Salovey - 1995)

1. **The ability to motivate oneself.**
2. **The ability to tolerate frustration and persist in the face of it.**
3. **The ability to control impulses. (This implies an ability to read the context of a situation appropriately.)**
4. **The ability to delay gratification and not need instant gratification.**
5. **The ability to regulate one's moods.**
6. **The ability to keep distress from swaying one's thinking.**
7. **The ability to empathize.**
8. **The ability to hope and have faith and see alternative possibilities.**

PURPOSES OF EMOTIONAL INTELLIGENCE (Stevens, 2000)

EMOTIONAL SELF-AWARENESS
- **Improvement in recognizing and naming emotions**
- **Better able to understand causes of feelings**
- **Recognizing the difference between feelings and actions**

MANAGING EMOTIONS
- **Better frustration tolerance and anger management**
- **Fewer verbal put-downs, fights and classroom disruptions**
- **Better able to express anger appropriately, without fighting**
- **Fewer suspensions and expulsions**
- **Less aggressive or self-destructive behavior**
- **More positive feelings about self, school and family**
- **Better at handling stress**
- **Less loneliness and social anxiety**

HARNESSING EMOTIONS PRODUCTIVELY
- **More responsible**
- **Better able to focus on the task at hand and pay attention**
- **Less impulsive; more self-control**
- **Improved scores on achievement tests**

- Improved attendance at class
- Improved long-term memory and attention

EMPATHY: READING EMOTIONS
- Better able to take another person's perspective
- Improved empathy and sensitivity to others' feelings
- Better at listening to others
- Decrease in black-white/us-them thinking
- Better able to see similarities and difference with others without labeling
- Decrease in racist or prejudicial thinking
HANDLING RELATIONSHIPS
- Increased ability to analyze and understand relationships
- Better at resolving conflicts and negotiating disagreements
- Better at solving problems in relationships
- More assertive and skilled at communicating
- More involved with and sought out by peers
- More concerned and considerate
- More sharing, cooperation and teamwork

CREATIVE THINKING can be defined as (Stevens): intelligent, goal-directed attempts at finding novel solutions to more or less well-defined problems within a specified domain that result in a novel product. This definition can be expanded to include the ability to: imagine how something could be different that the way it is (counterfactuals); discern similarities as well as differences between two or more different objects, people or ideas; the ability to question assumptions; the ability to make analogies and metaphors; and the capacity to tolerate ambiguity and uncertainty in order to learn or discover a new idea.
This definition applies to both "Big C" and "little c" creativity and to all domains of mental and physical actions and interactions.
Creative thinking and imaginative play are crucial components and underpinnings of metacognition, critical thinking, innovation and empathy.

HOW EMOTIONAL INTELLIGENCE IS RELATED TO CREATIVE THINKING (Stevens. 2000)

1. The discipline and motivation that it takes to learn and master the essentials of a given domain of inquiry or skill demands the ability to tolerate frustration and ambiguity, as well as the ability to delay gratification.

2. The ability to put a problem aside and let it incubate without having an immediate solution also demands tolerance of frustration, ambiguity and delayed gratification.

3. The ability to withstand the upheaval caused by questioning belief systems and assumptions, demand the emotional abilities listed above as well.

4. Creative thinking is an essentially amoral cognitive skill which can serve any purpose as determined by one's own sense of moral and ethical behavior, as well as one's emotional needs - whether conscious or unconscious. Therefore, emotional intelligence is crucial for the utilization of these skills in a healthy and productive way.

5.The ability to learn from and acknowledge mistakes, to accept failure and criticism without it affecting one's self-esteem or motivation and to continue to persevere and look for solutions demands the skills and capacities involved in emotional intelligence.

POINCARE'S FOUR STAGES OF CREATIVE THINKING

1. **Preparation - work, discipline, practice, learning one's field and the specifics of a given problem**
2. **Incubation - putting aside conscious "work" on a problem and doing something else - letting ideas "play" in one's own unconscious.**
3. **Illumination - The "aha" discovery - the synthesis of disparate elements in a new way to solve a problem.**
4. **Verification - testing the hypothesis or new idea and validating its accuracy.**

INCUBATION/CONTAINMENT: A synthesis of theories regarding what is happening in the incubation stage includes the following (Stevens, 2000):

1. **A mental space is allowed in which the mind can play with ideas - combining and recombining in the imagination. This space allows combinations that the conscious mind might not allow because they don't "make sense" - they are "absurd" or "impossible".**
2. **The mental play involves making analogies and associations. Guilford calls this "divergent thinking"; De Bono calls this "lateral thinking".**
3. **In this stage, different matrices of thought with their own internal logic which might appear to be incompatible are bisociated and a new and novel idea occurs, according to Koestler.**
4. **This stage demands a suspension of traditional modes of thought and reasoning, and a willingness to question ideas assumed to be "true".**

METACOGNITION AS IT RELATES TO EMOTIONAL SELF-REGULATION AND CREATIVE THINKING:

Metacognition is the self-awareness of mental processing strategies, also known as "executive control function". It involves the ability to think about

one's own thinking and to control, alter and flexibly adjust strategies based upon new information and changing contexts. It also involves the ability to understand core ideas or underlying meanings in concepts and to "transfer" that understanding to other situations or domains of knowledge in a fluid, creative way. The ability to see similarities and differences in the same objects, ideas, people or situations is the basis of creative play, discovery, invention, analogy, metaphor, simile and empathy. This cognitive ability demands the ability for emotional self-regulation as described above.

SOME RESULTS OF THE LACK OF EMOTIONAL INTELLIGENCE AND CREATIVE THINKING (Stevens, 2000):

1. Lack of adaptability to change can result in rigidity, lack of ability to learn from experience (i.e., repetition of the same problems), and the lack of ability to adjust one's skills and thinking to new developments.

2. Lack of empathy can lead to anything from insensitivity to cruelty, prejudice and racism. This results in a variety of problems from poor to bad parenting, interpersonal relationship problems at home and/or work and so forth.

3. Lack of tolerance for frustration and delayed gratification, as well as lack of impulse control can lead to anxiety, stress, addictions, difficulty mastering concepts and skills in school and at worst - violence.

4. Lack of connection with emotions or "emotional illiteracy" can lead to school drop-outs, delinquency, crime or violence on one extreme, and stagnation, mechanistic repetition and apathy on the other.

MULTIPLE INTELLIGENCES (Gardner, 1983)

1. **Visual-Spatial**
2. **Musical**
3. **Kinesthetic**
4. **Logical-Mathematical**
5. **Linguistic**
6. **Interpersonal**
7. **Intrapersonal**

***8. Scientific**
***9. Spiritual**
*** = recently posited - not part of original seven.**
I am claiming that "aesthetic intelligence" would involve all of these in various combinations, at different intensities at different times. This

combining and recombining can happen extremely rapidly and fluidly. The point is that these all interconnect.

MULTIPLE INTELLIGENCES defined: (Howard Gardner, 1983):

1. **Visual-spatial: the ability to see relationships between forms in space, visualization, the ability to imagine changes in forms and shapes, "big-picture" thinking, i.e., seeing how the part relates to the whole.**
2. **Musical: tonality, volume, pitch, emotional coloring, rhythm, harmony vs. disharmony (including with language).**
3. **Kinesthetic: physical/proprioception, a sense of where the different parts of the body are in space.**

4. **Logical-mathematical: sequential, analytical, deductive and inductive reasoning, puzzle-solving and use of abstract principles for specific problems.**
5. **Linguistic: metaphor, analogy, the use of words to express one's thoughts and feelings.**
6. **Interpersonal: sensitivity to social situations, empathy, reading other people, perspective-taking.**
7. **Intrapersonal: self-awareness, learning from one's own experience, emotional self-regulation (e.g. self- soothing, self-monitoring, self-criticism).**

GENERAL OUTCOMES OF CURRICULAE AND PEDAGOGY DIRECTED TOWARD THE DEVELOPMENT OF EMOTIONAL REGULATION, CREATIVE THINKING, IMAGINATION AND METACOGNITION:
(CAN BE ADDED TO STANDARDS IN ONE OR MORE CORE SUBJECTS, IN ADDITION TO BOTH VAPA AND CTE STANDARDS IN ANY UNIT FOR ANY SUBJECT AND ANY GRADE LEVEL AS "META-STANDARDS" AND UTILIZED AS PART OF BACKWARDS LESSON PLANNING):

These include:

- **sustaining attention, increasing memory**
- **the capacity for mental and emotional play**
- **the ability to make connections or links between ideas, feelings or events**
- **metaphoric and analogical thinking**
- **the ability to give form to feelings through symbolic representations**
- **a sense of personal creative agency**
- **the ability to create a narrative sense of self and world**
- **the ability to imaginatively put oneself in another's "world"**
- **the capacity for empathy**
- **the capacity for emotional attunement to other's emotional states**
- **emotional self-regulation**
- **the capacity for toleration of frustration and ambiguity**

- **the ability to put aside a problem and let it incubate without having an immediate solution**
- **impulse control**
- **the ability to take risks and learn from "mistakes"**
- **the ability to let go of an initial way of thinking or hypothesis in the service of exploring new possibilities**
- **the ability to see similarities and differences in the same object**
- **the ability to have a sense of a "whole" and the parts that make it up**
- **the ability to "transfer" understanding of basic concepts from one form/domain to another**
- **pattern finding, pattern-making, pattern recognition**

Aesthetic Outcomes

***These include*:**

- **creative thinking skills such as seeing multiple possible solutions to a particular artistic problem,**
- **the capacity for imaginative "play" with ideas,**
- **the ability to find and make meaning out of life experience,**
- **the development of confidence and a personal voice through the process of artistic expression and the exploration of new ideas,**
- **the development of an appreciation for, the experience of and the ability to express beauty and joy and**
- **the development of increasingly more complex symbol-making and reading capacities.**

Life-Long Learning Skills

These include:

- **patience,**
- **creative problem-finding and problem-solving,**
- **the ability to appreciate and accept that there may be multiple opinions and views about the same object, experience or person,**
- **empathy and perspective-taking.**
- **Other skills encompass the ability to tolerate frustration, view "mistakes" as an opportunity to learn and question, and the ability to work as a member of a team or group to create a product**.

Skills Transferable to Other Subjects

***In addition to the above, some include*:**

- **verbal and spatial imagination and creativity,**
- **the ability to think on many levels at the same time,**
- **analogical and metaphorical thinking,**
- **the ability to think about one's own assumptions**

- **the capacity for the development of new insights,**
- **recognition of a "whole" and therefore an ability to analyze the parts of a problem within a given context.**
- **abstraction and critical thinking skills**

SOME NOTES ON PEDAGOGY

1. **Effective teaching always builds knowledge through connections and links between something learned or experienced and something new. Thoughtful integration develops creative and critical thinking through comparisons and contrasts, and relationships between ideas, themes, events, behaviors, theories etc.**
2. **The important idea is that one curricular area is not thought of as simply a "tool" for understanding another, but as a way of deepening understanding in both areas being taught.**
3. **A sequential, developmental, scaffolded and spiraling arts education curriculum (in all arts forms) as core subjects is fundamental for the development of all of the above, but only if taught with the development of these skills in mind. Art in the sense of art "appreciation" or "enrichment" is not art education in its most thorough and full form and does not by itself "transfer" to these higher-order thinking and emotional skills.**
4. **Integrated arts instruction has great value both within arts disciplines and in conjunction with other curricular subjects – but integration without foundational information and training in the arts again ceases to be art education per se and becomes something like "integrated curricular pedagogy". This is especially important for "at-risk" youth.**

Definitions and Introductory Concepts Re: Arts Education
(Stevens, Carr, 2008)

- **Art Education: Sequential, developmental, standards-based learning units of study in each art form taught during the school day by the classroom teacher or single subject arts specialist.**

- **Arts Integration with arts professional partnering: Sequential, developmental, standards-based learning in each art form or multiple art forms taught during the school day in the classroom by the classroom teacher or single subject arts specialist that is supplemented by exampling, modeling, mentoring, demonstrating,**

and performing of artist-teachers, professional artists or arts venues on-site or off-site.

- **<u>Arts Integration/ Interdisciplinary across the curriculum</u>: Sequential, developmental, standards-based learning in each art form taught during the school day by the classroom teacher or single subject arts specialist that integrates learning and links meaningfully to more than one discipline/curriculum of study (e.g., dance and theatre; visual arts and science; music and social studies; visual arts and math; music and language arts; astronomy, music and poetry, etc).**

- **The integration across curricular/discipline areas within the arts and across the curriculum enhances learning in each and addresses standards specific to each curricular discipline/subject being instructed.**

<u>Appendix A</u>
<u>Neurobiology and Trauma/Toxic Stress</u>

Given advances in understanding developmental neurobiology, we now know that the "nature v. nurture" dichotomy is no longer clear. We know that genetics predispose us to develop in certain ways, but we also now know that our interactions with our environment have a significant effect upon how those predispositions will be expressed – even with regard to gene expression itself. These interactions with our environment organize our brain's development and therefore, shape our future behavior.

The growth of each region of the brain largely depends on receiving stimulation which then promotes growth in the region. Stimulation or the lack of it creates and strengthens or causes the lack of creation or discarding of connections among neuron – the nerve cells in the brain. We have more than 100 billion neurons at birth, which is almost all we will ever have. While the basic structure of the brain is intact at birth, much of the growth of the brain occurs in the first few years after birth. By age 3, a baby's brain has reached almost its adult size.

Synapses are the connections between neurons and they organize the brain by forming pathways that connect all parts of the brain. The synapses that govern basic body functions are present at birth, but almost all other functions are developed post-natally. The growth rate of synapses occurs at an astonishing rat and by the age of 3 children have about 1,000 trillion synapses. Those that are strengthened remain intact, but many are discarded and by the time a child has become an adolescent, about half of their synapses have been discarded.

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"Plasticity" is the term that describes the way the brain creates, strengthens or discards synapses and neuronal connections in response to the unique environment of each child. "Environment" refers to both the chemical, biological and sensory experience of the mother's womb and the interactions with caregivers after birth. All children need stimulation and nurturance for healthy brain development, but if the child's caregivers are indifferent or hostile, the child's brain development will be impaired. But, because the brain adapts to its environment – it will adapt to a negative environment just as easily as to a positive environment.

We know that all human infants are genetically predisposed to form attachments to their primary caregivers, but if those caregivers are absent, unresponsive or threatening – that attachment process can be disrupted. The essential task of the first years of human life is the development of a secure bond of attachment between infant and caregiver through attuned emotional communication which leads to the capacity for emotional regulation in the developing child. In situations of neglect or abuse, the infant will react with either hyperarousal or dissociation, which is a disengagement from the world or a kind of "spacing-out" in their attempt to somehow regulate, organize and protect themselves from both external and internal emotional stimuli.

Research shows that the first few years form the foundation for a child's future functioning at all levels. Secure attachment leads to increased resilience over the lifespan and insecure attachment leads to increased risk for psychological disorders, substance abuse or problems resulting from aggression. Maltreatment and disrupted attachment can lead to emotional, behavioral and learning problems that can persist throughout their lifetime – especially in the absence of thoughtful, informed and early interventions.

Children who have experienced parental neglect and/or abuse develop ways of adapting to the chaos or threat in the environment that are maladaptive in other environments, such as a new foster home or school. This means that even if the new environment is full of kindness, warmth and nurturing – a maltreated child may have great difficulty functioning in it as their brain has become hyper-alert to perceived danger and has not developed the pathways and memories that enable them to adapt to a new and different environment – even if it is positive. This presents understandable problems to foster parents, counselors, mentors and teachers – especially if they do not understand what leads to these kinds of defensive strategies.

A child exposed to chronic, traumatic stress develops an automatic fear response as her brain has adapted to an insecure, unpredictable and dangerous world. This state is called "hyper-arousal" and can result in

behaviors such as hyperactivity, anxiety, sleep disorders, incontinence, lack of impulse control, aggressivity and problems forming attachment to others. Not only may they react anxiously or aggressively to perceived threats as an attempt to protect themselves, they may also provoke aggression in an attempt to control it. If the more aggressive attempts to create a connection with caregivers fail, the child may resort to dissociation or "freezing" as a final resort: they cannot do anything about the situation and they cannot leave.

In cases of disrupted and insecure attachment, the lower brain-processes become dominant and higher-order cognitive skills and social skills can become impaired. These cognitive or higher-order skills include the ability to control their own impulses and emotions as well as the ability to read or understand the emotions of others – often leading to a lack of empathy and other social skills. Other effects can be a susceptibility to depression, anxiety disorders – including post-traumatic stress disorder, impairments of both attention and memory – including attention-deficit and attention-deficit-hyperactivity disorders.

This information is becoming widely known in the psychological community, but is not often part of the training or guidance that is necessary for foster parents or teachers to understand the kinds of behavior that may be exhibited by children who have been neglected or abused and removed from their homes by the child welfare system.

Understanding the neurobiological consequences of neglect, abuse and separation is crucial for caregivers at all levels. While primary prevention is ideal, the training of those who take on the care of these children at any age is equally crucial. Even though early experiences create a foundation based upon adaptation to the caregivers and the early environment – we know now that the brain has more plasticity over the lifetime than had been understood even in the recent past. That means that creating experiences of secure attachment and providing the tools for the development of emotional regulation can facilitate self-regulation, impulse control, resilience, higher-order cognitive and social skills can help to alter the course of a child's life at any age.

Appendix B
Some Notes on Developmental Neurobiology

Current interdisciplinary findings from the areas of neurobiological development and psychoanalytic research are finding important information about the development of the mind and self. Many of these findings are of critical importance to teachers as they facilitate the

cognitive, creative, emotional, social and moral development of children in terms of curricular content and pedagogy as well as the social/emotional relationship between students and teacher in the classroom.

These findings are emphasizing, among other things, the importance of the capacity for affective self-regulation as it relates to cognitive capacities such as abstraction, creative thinking and problem-solving, imagination, play, analogical reasoning, empathy and the transfer of knowledge from one domain to another.

There is compelling evidence showing that in infancy and beyond, the regulation of emotions is the central organizing principle of human development. This regulatory capacity primarily involves the right brain which is dominant in the first three years of life and continues to retain plasticity throughout life. The early right brain capacities of processing socioemotional information and bodily states are not only central to the origin of the self; they are required for the ongoing development of the self over the lifespan.

This right brain regulatory capacity is dependent on experience - particularly the experience of attunement and synchrony and develops primarily non-verbally through playful interactions involving gesture, rhythm, melody, tempo, facial expressions and movements that form patterns of interactions between the child and others. The right brain is centrally involved in processing social-emotional information and controls the functions enabling the human being to cope with stress. Not only are painful events stressors, but also novel events - therefore the ability to tolerate and incorporate novelty which is fundamental to the ability to learn new information and develop more complex cognitive skills.

Training in the arts throughout a child's education is the most direct way of developing right-brain capacities leading both to emotional self-regulatory abilities and higher-order thinking skills.

A summary of the known functions of the right brain include the following:

1. **the processing of socio-emotional information that is meaningful to the individual.**
2. **the ability to empathize with the emotional states of other beings.**
3. **the mediation of emotional-imagistic processes in moral development.**
4. **the appreciation of humor, a mechanism for coping with daily stress and play of ideas.**

5. **the cerebral representation of one's own past and the activation of autobiographical memory.**
6. **the establishment of a "personally relevant" universe.**
7. **the capacity to mentally represent and become aware of subjective experiences in the past, present and future**.

These right brain capacities correlate with the popular concept of "emotional intelligence" and Gardner's "interpersonal" and "intrapersonal" intelligences as well as the music, kinesthetic and visual-spatial intelligences explicated in his theory of multiple intelligences. In addition to the important functions listed above, right brain self-regulatory capacities affect the capacity for focus, attention, patience and memory - all of which are crucial for learning at all ages. Current research points to the importance of emotional self-regulation for higher-order thinking abilities as well as the idea that emotional dysregulation plays an important role in learning difficulties.

This cutting-edge information offers compelling and exciting possibilities for teachers regarding the education of the whole child in terms of both pedagogical styles and especially highlighting the importance and intrinsic value of arts education in all of its forms for pre-K – 12 education.

For example:

1. **The development of imaginative play as developing a sense of personal agency, the experience of joy in creatively interacting with others and the development of empathy and perspective-taking.**
2. **Mastery of concepts and the ability to transfer that understanding to other domains of study - making imaginative connections.**
3. **Motivation to learn and study**
4. **The development of creative thinking, problem-solving and problem-finding skills.**
5. **Alternative understanding of attunement, self-expression and affective/symbolic development and that work toward off-setting early negative experiences and techniques that support this understanding.**
6. **Classroom management issues regarding individual children and group dynamics.**

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VICTORIA STEVENS, Ph.D. www.drvictoriastevens.com

Victoria Stevens, Ph.D. is a clinical psychologist, psychoanalyst, seminar leader, professor and researcher. She holds a BA in philosophy, cello and theatre from the University of Kansas, an MA and Ph.D. in clinical psychology from California Graduate Institute and her psychoanalytic certification is from the Psychoanalytic Center of California. Her research specialty is the study of the development and inhibition of creativity in children and adults, with an emphasis on the relationship between creative thinking, the brain and cognitive processes. She has integrated her experience as a professional cellist, singer, actress and dancer with her expertise in psychology and pedagogical theory to develop innovative art education curricula and teacher training programs.

She was on the faculty at California Institute of the Arts in the School of Critical Studies in Valencia, California for 13 years and is now a consultant to the CAP artist-teacher outreach program at CalArts. She is currently an adjunct professor and training analyst in the masters and Ph.D. programs at the Newport Psychoanalytic Institute, Pacifica Graduate Institute in Santa Barbara and Santa Barbara Graduate Institute for Infant and Child development. She is part of an interdisciplinary team of instructors for the Anni Bergman Infant and Parent Training Program in New York. She delivers seminars, lectures and in-services in both private and public schools across the country and in Europe – including work at the Tavistock Clinic in London and at Cambridge University.

She has been a featured speaker at the World Congress of the Czechoslovak Society of Arts and Sciences in Prague, the Independent Schools Association of the Central States Annual Conference in Chicago and the California Association of Private Schools Annual Conference in Long Beach. She delivered the Pat King Memorial Lecture at the National Cathedral School in Washington D.C. and has delivered papers at UCLA for the Symposium on the Intersection of the Arts and

Sciences, co-sponsored by the Jonas Salk Institute, and the James Grotstein Conference on New Directions in Attachment and Child Development.

She has conducted seminars as part of the Los Angeles Unified School District Intern Program for K-12 teachers titled: The Arts, Imagination and Higher-Order Thinking, as well as delivering keynote addresses and professional development seminars for teachers, administrators, arts specialists and parents in every region in the state of California. She is a teacher and curriculum consultant for the International Center for Education Youth Development, creating and teaching programs focused on the development of creative thinking, empathy, leadership skills and character for Nigerian teenagers.

She is also a consultant to Children Uniting Nations creating trainings for academic mentors to foster children, as well as teachers, administrators, school counselors and foster parents regarding the effects of trauma on behavior, learning and thinking skills in at-risk youth. The results of the pilot program conducted in South Los Angeles with middle school foster youth is posted on her website.

She has published several articles, including, “Nothingness, No-Thing, and Nothing in the Work of Wilfred Bion and in Samuel Beckett’s *Murphy*" in the Psychoanalytic Review, and “Reading the Language of the Right Brain” and “The Cognitive Unconscious and the Embodied Mind” – both in the Psychologist/Psychoanalyst newsletter of Division 39 of the American Psychological Association.

Her recent publications include a chapter on “The Importance of Prosodic Elements in the Dyadic Relationship between Infant and Caregiver for the Development of Attachment and Affect Regulation” in a book entitled *The Voice and Emotions* and upcoming include Allan Schore’s *A Reader’s Guide to Affect Regulation and Neurobiology* on which she was a contributing editor.

She is the principal investigator on a recently completed study for Children Uniting Nations on the effects of Academic Mentors on the development of executive function and self-regulation skills in middle-school foster youth. The results of the study will be published in the spring of 2012. She also is the principal investigator on a recently completed study for the Museum of Contemporary Art in Los Angeles on the relationship between exposure and training in contemporary visual art and creative thinking and metacognition in elementary school students. The results of the study are forthcoming.

She was the arts specialist and consultant on curriculum and assessment at The Accelerated Charter School in South Central Los Angeles, working as part of a team to develop an innovative multi-disciplinary core arts curriculum pre-K through 12th grade. The school was chosen as Time Magazine's Elementary

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School of the Year 2001 and the Creative Arts Program was recently honored by the Music Center's Bravo Awards for excellence in art education. She is a mentor training and assessment consultant to the Young Musician's Foundation in Los Angeles, a music outreach assessment consultant to the San Luis Obispo Symphony, the Martha's Vineyard Chamber Music Society and Chamber Music Palisades.

Her book *The Creative Classroom, Education, Neurobiology and the Developing Imagination* will be published by W.W. Norton in 2012.

She is in private practice in West Los Angeles with children, adolescents and adults. She can be reached at vickis@earthlink.net or 310-395-8515.

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