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The Effects of the Arts Curriculum on the At-Risk Student Population: An Examination of Music and Drama with Regard to Specific Risk Factors

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The Effects of the Arts Curriculum on the At-Risk Student Population: An Examination of Music and Drama with Regard to Specific Risk Factors

by

Christy D’Ambrosio

FINAL PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF:

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ABSTRACT

Development of musical and dramatic arts skills strengthens psychological wellness within the at-risk population. The ability of the arts curriculum to promote psychological wellness is documented repeatedly in the premier research surveyed by two overarching compendia, *Champions of Change* and *Critical Links*. It is postulated that music and drama, specifically, promote positive behavioral change by enhancing or altering neurological pathways. Twelve developmental issues are examined in two broad categories: concepts of self and socialization. Each developmental issue is analyzed according to the aforementioned premier research. Musical and dramatic therapeutic responses, reflecting the conclusions reached by numerous researchers, are suggested for each targeted issue. A summary of the neurological support for these therapeutic responses concludes both the "concepts of self" and "socialization" sections.

Contemporary research supports the assertion that arts education makes a difference. Future research focused on these neurological hypotheses is recommended, in addition to the suggestions from the sources cited.
The Effect of the Arts Curriculum on the At-Risk Student Population: An Examination of Music and Drama with Regard to Specific Risk Factors

INTRODUCTION

The current state of American arts education is in crisis. In a March 26, 2006 New York Times article, Sam Dillon writes, “Thousands of schools across the nation are responding to the reading and math testing requirements laid out in No Child Left Behind, President Bush's signature education law, by reducing class time spent on other subjects and, for some low-proficiency students, eliminating it.”

The “low-proficiency [at-risk] student” targeted by the NCLB law is already compromised by psychological, socio-economic, or academic factors, and has fewer, if any, opportunities to participate in arts programs. Howard Gardner, Professor in Cognition and Education at the Harvard Graduate School of Education, believes the arts, specifically music, “help structure people’s thinking . . . Legislators and school boards that ‘lop off’ music in elementary education . . . are ‘arrogant’ and unaware of how the human mind and brain have evolved” (qtd. in Campbell 179).

The inadequacy of the current education policy—especially as it relates to arts education—is sabotaging the achievement potential for all children nationwide. The necessity for a strong arts curriculum is confirmed by current research that documents the arts’ impact on psychological wellness as well as intellectual development. Additionally, an arts curriculum can provide a means for at-risk students to overcome debilitating issues. This paper will: (1) evaluate contemporary research on music and drama in relation to psychological issues; and (2) identify “how” and “why” these disciplines positively impact the psychological health of at-risk students in particular.
Who is at risk and why?

A risk factor is any variable that increases the likelihood of negative developmental outcomes. Examples of negative developmental outcomes include lack of initiative or inability to self-regulate, or, in the worst-case scenario, drug use and criminal activity. Risk factors may result from genetic, familial, socioeconomic, cultural, or developmental influences (DeHart 526-7). All children are exposed to risk factors during development. Specific risk factors do not necessarily generate particular disorders. In fact, the presence of a single risk factor in itself has limited predictive power. However, when several factors are combined or associated with certain circumstances, negative outcomes become more likely and predictable (DeHart 528-9). The at-risk population, through a combination of factors and circumstances, experiences complications in the development of a multitude of skills. The diminishment or absence of skill development during critical stages of childhood contributes to the probability of negative outcomes as the at-risk population matures. A sampling of the developmental skills impacted and the resultant negative outcomes are summarized in the paragraphs that follow beginning with early childhood and progressing through adolescence.

Developmental psychologists report that, during the critical early childhood period, an appropriate amount of nurture is required to develop “secure infancy attachment.” Many at-risk children may not receive enough parental nurturing to develop skills involving self-control and self-regulation (DeHart 336). Lack of nurturing often results in deprivation of “secure infancy attachment.” John Bowlby, British developmental psychologist, suggests development of empathy and pro-social behavior in preschool is predicated upon “secure infancy attachment” (DeHart 353). The evolution of the personality is consequently based upon this relationship, or lack thereof. Furthermore, the quality of that relationship predicts
preschool behavior, which forms a basis for resilience to adversity later in life. Developing resilience to adversity and making fundamental changes later are possible, but this becomes increasingly difficult as personalities stabilize (DeHart 363).

The absence of “secure infancy attachment” impacts socialization. In fact, a cascade of negative outcomes flows from the absence of the threshold condition determined from the state of “secure infancy attachment.” Some of the negative effects include lost or diminished development of initiative and self-efficacy (DeHart 338-9). According to psychiatrist Erik Erikson, development of initiative, a term for the sense of independent purposefulness, and self-efficacy, the ability to do things effectively on one’s own, occur during socialization. The inability to take initiative can lay the groundwork for low self-esteem, peer withdrawal, and anti-social behavior (DeHart 429-30). During the separation-individuation process, a positive sense of self, independence, and competence can be undermined by a lack of parental support and consequently can engender feelings of shame and self-doubt, a condition identified by Erikson as “autonomy vs. shame and doubt” (qtd. in DeHart 281).

Social competencies typically mastered in preschool that support self-reliance, self-control, and self-management are diminished in many at-risk children. Specific emotional stressors can cause regression (DeHart 339). Examples of undeveloped competencies are:

- emotional regulation: control in directing emotional expression, maintaining organized behavior in the presence of strong emotion; internalizing standards of behavior;

- ego resiliency: ability to adapt oneself to changing circumstances;

- empathy: ability to understand the emotions of another;

At-risk children may replace normal competencies with the following behaviors:
-aggression: negative acts intended to harm others emotionally or damage their possessions; and

-hostile aggression: acts aimed at physically hurting someone (DeHart 349-52).

During middle childhood, understanding, rather than just experiencing, emotions begins. The families of at-risk children may not contribute to the increased understanding required to develop the capacity to feel true empathy and develop a moral life structure (DeHart 429-30).

Some familial relationships impede the development of attributes typically gained from the family unit. Benefits lost due to difficult family relationships might include:

- learning how to express anger without threatening attachment;
- receiving mutual support which compensates for poor peer relationships;
- sibling care-giving, parenting, and leadership roles;
- sibling-enhanced social confidence;
- development of negotiation skills; and

-reciprocal role modeling benefits (DeHart 432-3).

The hallmark developments of adolescence are increased independence, preparation for adult occupations, and further education. All adolescents, at-risk and otherwise, face four important developmental tasks:

1) Establishing a personal identity, a sense of integrated, coherent, goal-directed self;
2) Achieving a new level of closeness and trust with peers;
3) Acquiring a new status in the family; and
4) Moving toward a more autonomous stance toward the larger world (DeHart 488-9).
According to psychologist James Marcia, adolescents who establish a “personal identity” are confident about the consistency and continuity of self (DeHart 497). Many at-risk adolescents establish self-destructive identities rather than positive “goal-directed” identities. Without a secure self-identity, positive relationships with peers, family, and the community at large cannot be established. At this stage of development, “teenagers who have trouble coping . . . are more likely to abuse drugs and alcohol, engage in criminal activity, [become] sexually promiscuous, and even attempt suicide. Many at-risk teens run away and eventually find themselves locked up in detention centers or living on the streets” (at-risk.org).

Although exposed to multiple risk factors during each stage of development, children can be protected from negative outcomes in several ways. Protective factors can help contribute to a type of resiliency (DeHart 526-7). This paper will examine the ways in which musical and dramatic curriculums exert positive, and possibly protective, influence on the at-risk population while simultaneously generating the resiliency required to overcome at-risk circumstances.

**Why Drama and Music?**

Research documenting the impact of arts education during the past decade has been catalogued in two major, and highly acclaimed, compendia commissioned by the Arts Education Partnership (AEP), a national coalition of over 100 arts, education, business, philanthropic, and government organizations that promote arts education. Each compendium reflects the result of a survey of current research on arts education. The most pertinent studies were chosen for inclusion in this paper. The AEP and the President’s Committee on the Arts and the Humanities published the first compendium, *Champions of Change*, in 1999.
Champions of Change is composed of seven studies examining the educational and psychological effects of arts education on children. Four of the seven studies address issues pertinent to this paper. A summary of these four studies follows:

1) *Involvement in the Arts and Human Development: General Involvement and Intensive Involvement in Music and Theatre Arts* by James S. Catterall, Richard Chapleau, and John Iwanaga. The Imagination Project, Graduate School of Education & Information Studies, University of California at Los Angeles, September 1999. Catterall, Chapleau, and Iwanaga analyzed the effect of sustained involvement in music and theatre upon the lowest socioeconomic segment of the National Educational Longitudinal Survey, or NELS:88 database of 25,000 students nationwide from 8th through 12th grade. The researchers found sustained involvement in theatre was associated with improved self-concept, motivation, and higher levels of empathy and tolerance for others.

2) *Imaginative Actuality: Learning in the Arts During the Nonschool Hours* by Shirley Brice Heath with Adelma Roach, Stanford University and Carnegie Foundation for the Advancement of Teaching. Heath and Roach discovered that students working in groups involved in planning and preparation of arts programming developed self-confidence and initiative. Despite the fact that this particular set of observed students was “twice as likely to be undergoing uncertain and insecure family situations,” this same group was “more likely to feel good about themselves.”
Learning in and Through the Arts: Curriculum Implications by Judith Burton, Robert Horowitz, Hal Abeles, Center for Arts Education Research, Teachers College, Columbia University, July 1999. These researchers concluded that students involved with strong arts programs were more able to express ideas, use their imaginations, take risks, and exhibited better rapport with teachers, more interest and involvement in school, and overall, were more self-confident.

Artistic Development for Urban Youth: The Promise and the Challenge by Barry Oreck, Susan Baum, Heather McCartney, National Research Center on the Gifted and Talented, University of Connecticut, Storrs. Oreck, Baum, and McCartney observed the effects of students' involvement with the arts over time. These effects included artistic, academic, and personal achievement, and states of mind. Common characteristics across all age groups (elementary through adult) included resilience, self-regulation, positive identity, and the ability to experience flow (total focus and absorption in a task).

With the publication of Champions of Change, the Arts Education Partnership’s Task Force on Research congratulated the National Endowment for the Arts and the U.S. Department of Education on the compilation of the preceding compendium, Schools, Communities and the Arts, published in 1995 and “urged that periodic surveys of recent research be regularly produced as a service to researchers, practitioners, and policy-makers” (Deasy ii). The Arts Education Partnership was consequently awarded funding to publish a follow up compendium in 2002 entitled Critical Links: Learning in the Arts and Student
Academic and Social Development. James S. Catterall (Imagination Group at the University of California at Los Angeles), Lois Hetland (Project Zero at Harvard Graduate School of Education) and Ellen Winner (Psychology Department at Boston College) were commissioned to prepare this second document.

The format of the Critical Links compendium is as follows: Studies were selected for inclusion based upon results focusing on the academic and social effects of the arts learning experience. Studies were then categorized according to five art forms. Critical Links catalogues the most important research done since the publication of Champions of Change and describes research on the effects of learning in the arts on academic and social skills. A list of the social skills researched and their relationship to music, drama, and the arts in general follows:


2) Dramatic enactment: Increased peer interaction; conflict resolution skills; concentrated thought; understanding social relationships; ability to understand complex issues and emotions; engagement and general self-concept.

3) General arts experience: Self-confidence; risk-taking, persevering; empathy; self-initiating; collaboration; leadership.

This paper will answer a two-fold question: “Why” and “How” do the arts positively impact the psychological health of at-risk students? “Why” will be addressed through analysis of and therapeutic response to data primarily obtained from the two premier compendia previously described, Champions of Change and Critical Links. A response to “How” involves theories postulating the effect of artistic disciplines to generate neurological change in the at-risk population. The following section reviews the basic premises of neuromusical research and elementary neurological concepts in order to provide a theoretical
foundation for the neurological analyses found at the end of the next two sections exploring issues related to "self" and "socialization." These analyses postulate "how," biologically and cognitively, arts education helps to encourage behavioral change.

**NEUROMUSICAL AND NEUROLOGICAL RESEARCH**

Evidence suggests that song preceded speech and that music may be humanity's original language. Researchers have found that about two-thirds of the cilia in the inner ear resonate only at higher "musical" frequencies (3,000-20,000 hertz). The inference is that initial communication between human beings may have consisted of a universal alphabet composed of tones and rhythms. This premise was investigated by composer and conductor, Leonard Bernstein, and Howard Gardner in the 1970s. The result of their investigation was the revelation that the "Ur-song," a three-note motif similar to the beginning of "This Old Man," was recognized by virtually every ear in the world (Campbell 134-5).

Music, like language, is a species-specific trait of humankind. Neurologist Frank Wilson is "convinced that all of us have a biologic guarantee of musicianship" (qtd. in Hodges 18). Although Wilson does not guarantee musical virtuosity, he does agree with social anthropologist John Blacking, who claims that the human brain has an innate ability to respond to and participate in music. In sum, music may be a vital component of what it means to be human.

The idea that all human beings are musical has enormous implications for education. Acceptance of this theory requires that music education should not be reserved for only those "with talent," nor should it be restricted to those who can afford it or whose parents deem it important (Hodges 18).
Neuroscientists have examined sound production and processing in special populations (prodigies and savants), the elderly (including those with Alzheimer’s or other cognitive dementias), and human fetuses. Responses of naïve listeners have been compared to those of expert musicians. It is difficult for educators to sift through all this data to pinpoint useful information when polarized reporting of neuromusical research complicates the task. Results appear in scientific journals in language too difficult for nonscientists to read and understand, or it appears in the popular press in watered-down versions where the actual facts can be distorted or obscured (Hodges 17).

Encouragement for educators to persevere in this quest can be found in the results of a study published by the *Journal of the American Medical Association* on nonverbal communication. Clive E. Robbins, Ph.D., Director of the Nordoff-Robbins Music Therapy Center at New York University states, “When you have a child who is unable to relate to life successfully, cannot endure human relationships, or has communication difficulties, [nonverbal communication using music] can be very effective . . . . It is a way of reaching into the child’s mind . . . . Neurologic research is discovering that the brain comes into synthetic activity in response to music” (qtd. in Campbell 237).

Nevertheless, the question remains, how do educators harness the positive effects of music for the promotion of psychological wellness? An analysis of this question must begin with human development itself.

French physician Alfred Tomatis devoted his life to understanding the human ear. His most important contribution was to recognize that the fetus hears sound in the womb. The ear begins to develop as early as the 10th week of pregnancy and is functional by the age of 4 ½ months in utero (Campbell 18). The fact that babies respond to music at birth, and in
the womb, gives strong support for the existence of neural mechanisms that are intrinsic to processing musical information (Hodges 19).

Given this suitability, to what extent can individuals be affected by music? Is human development “relatively locked-in” or can it be “altered by various interventions” such as musical and dramatic training? Howard Gardner embraces the latter viewpoint, suggesting “appropriate interventions at crucial times yield . . . a far different range and depth of capacities” (Gardner 31-2). To determine what “kinds of intervention[s]” are “most effective” it is necessary to explore the process of learning and evaluate how arts education specifically can be utilized to achieve psychological wellness.

The Process of Learning

Learning and memory are fundamental to human experience. We acquire new knowledge about the world because the experiences we have modify our brain. Memory is the process by which what is learned persists across time. In this sense, learning and memory are inextricably connected (Squire 2).

Eric Kandel, Professor of Physiology and Cell Biophysics, Psychiatry, Biochemistry and Molecular Biophysics at Columbia University, examined the simplest forms of learning in Aplysia. This sea mollusk has relatively few nerve cells with more direct and clearly delineated behavioral circuitry compared to vertebrates. Kandel demonstrated fundamental ways in which nerve cells alter their responsiveness to chemical signals to produce coordinated changes in behavior. Kandel summarizes, “The potential for many behaviors are built into the basic scaffolding of the brain and are under genetic and developmental control. Environmental factors and learning bring out these latent capabilities by altering the effectiveness of the pre-existing pathways, thereby leading to the expression of new patterns of behavior (qtd. in Gardner 47).
A modified reading of Kandel’s summary demonstrates a relevance to arts education with regard to psychological development. “The potential for many behaviors [artistic and psychological] are built into the basic scaffolding of the brain.” The promotion or destruction of these behaviors is “under genetic and developmental control.” Through the process of pursuing musical and dramatic disciplines, “latent capabilities” can be discovered by “altering” “pre-existing pathways,” “thereby leading to the expression of new patterns of behavior.” The manner in which Japanese children learn to read is an example of how “latent capabilities” are accessed to circumvent obstacles while pursuing a goal.

Depending upon the culture, reading can be represented in the nervous system in different ways. Phonologically based systems of the West rely on areas of the brain that process linguistic sounds. In contrast, ideographic systems are preferred in the Orient. Ideographic reading is more dependent upon centers of the brain that interpret pictorial materials. In the case of the Japanese, who have both a syllabary reading system (kana) and an ideographic system (kanji), two mechanisms for reading are housed in the same individual. Children experiencing difficulty mastering the prevailing code for reading can, at least in Japan, pursue an “alternate route” to ensure success in reading (Gardner 88). Similarly, the pursuit of a musical and dramatic curriculum may offer an “alternate route” for at-risk children to achieve the goal of psychological wellness. Utilization of “emotional memory” may offer more than just an “alternate route.” Emotional memory provides a “short cut.”

**Emotional Memory**

We define memory as an impression of the past that is accessible in the present. Memory is central to our being, to our thinking, and to our doing. Without it, we have no
past, no time (Indik 251).

While memory is central to many of the most positive aspects of human experience, it is also true that many psychological and emotional problems result from negative memories (Squire 2). By studying memory in naturalistic settings, British psychologist Frederic Bartlett demonstrated that memory is fragile, susceptible to distortion, and retrieval is seldom exact. In fact, retrieval is a creative, reconstructive process (Squire 6). How we feel about an experience or fact changes the way we evaluate it upon recall (Indik 25). For example, try to recall the name of a person to whom you were recently introduced at a party. The ease with which you recall the person’s name will depend on a number of factors: how interesting you found the person, how important the encounter was for you, and how attentively you focused on the conversation, and what your general state of mind was that evening (Squire 130). These factors contribute to the “emotional” investment of a particular moment.

The assassination of John F. Kennedy, the Challenger shuttle explosion, and the events of September 11 are all examples of events that trigger “flashbulb memories,” particularly vivid and lasting memories of emotionally charged episodes. The injection of emotion vividly etches an incident into memory. Numerous studies point to the power of emotion to enhance learning. Therefore, the potential power of a single event should not be underestimated. With emotional reinforcement, a moment in time can establish a strong foothold, and, dependent on strength, initiate the biological sequence required for long-term behavioral change (Indik 256).

**Molecular Biology of Cognition**

The biology of memory can be studied at two different levels: cellular and molecular (nerve cells and the molecules within); and neural systems (brain structure, circuitry) (Squire
7). A synthesis of these two sources creates the “molecular biology of cognition” which emphasizes the interplay between the “molecular biology of signaling” and the “cognitive neuroscience of memory” (Squire ix-x).

German psychologist Hermann Ebbinghaus discovered two key principles of memory storage in the 1880s: short-term and long-term. Short-term memory exhibits three features that shed light on its basic mechanism of storage: it is transient; it does not require anatomical change to be retained; and last, but certainly not least, it does not require new protein synthesis (Squire 131). The first clue toward a biochemical understanding of the switch to long-term memory was encountered in 1963 when Louis Flexner, and subsequently Bernard Agranoff and his colleagues, Samuel Barondes and Larry Squire, observed that the formation of a long-term memory requires the making of new protein (Squire 131-2).

Eric Kandell and Larry Squire have examined short-term and long-term memory in terms of chemical changes and gradients and finally protein synthesis and lasting structural change. In theory, a single simple action is analogous to a single pulse of a neurotransmitter (serotonin). This pulse creates an intracellular messenger (cAMP) that enhances transmission in a motor neuron for a period of minutes; during this time, a small number of molecules of cAMP diffuse to the targeted nucleus. With repeated pulses, the level of cAMP rises to a point where a significant number of molecules translocate to the nucleus and activate genes critical for the growth of new synaptic connections. Though these hypotheses are not definitive, they do suggest a distinction between short- and long-term memory. Short-term memory is the result of a temporary chemical change. However, long-term storage occurs only after a process has continued long enough to cause the body to respond
with the creation of proteins that permanently change the synaptic connections between neurons. This process ultimately changes the structure of the brain (Indik 251-2).

The ability to establish a long-term memory can be constrained by inhibitory processes. These processes determine the ease or difficulty with which short-term memory will be converted to long-term memory. The most dramatic constraint is an inhibitory transcription regulator discovered by Bartsch and Kandel called CREB-2. CREB-2 blocks long-term facilitation (Squire 140). Memories of emotionally charged events are thought to depend on the amygdala and modulatory systems to release neurotransmitters, such as serotonin, to regulate mood and alertness. When these neurotransmitters are released, CREB-2 is repressed (Squire 142) and a “flashbulb memory” is imprinted in long-term memory.

Without the benefit of CREB-2 repression, repeated training trials or repeated pulses of serotonin are necessary for the creation of long-term memory. Repeated pulses allow the active component of protein kinases (enzyme catalysts) to activate the genes necessary for the long-term process (Squire 138). Ebbinghaus also found that memory is strengthened based on the repetitions required to convert short-term memory to long-term memory. He found a nearly linear relationship between number of repetitions and strength of memory conversion (Squire 131).

**Repetition Impacts Learning**

Researchers distinguish between declarative memory (memory for facts, ideas, and events) and nondeclarative memory (memory of skills and habits). Unlike declarative memory, nondeclarative memory is unconscious. Although learning a motor skill requires
conscious attention and we can later consciously reflect about it, the ability to perform the skill itself seems to be independent of conscious recollection.

Scientists also distinguish between priming (perceptual learning) and emotional learning. Priming is an unconscious memory activity in which the mind improves its ability to recognize and perceive previously experienced phenomena. Priming can sometimes occur after only one exposure and persist for extended periods of time. In singing, priming is experienced during the exposure to new sounds and the physical act of sound production. As researchers Kandel and Squire define it, “perceptual learning refers to an improvement in the ability to discriminate simple perceptual attributes, such as tones... simply as the result of performing the discrimination repeatedly.” Practicing performers rely on perceptual learning to allow the improvement of the sensitivity and control necessary to gain mastery over complex tasks” (Indik 252).

“Muscle memory” is defined as muscles and other structures outside the brain have a memory of action. Paths taken repeatedly are reinforced both at the synapse level and in the shape and size of structures like muscles. Today “muscle memory” is more popularly referred to as “motor memory.” Motor memory is defined as the neural structure that provides the trace of neuron firings in the brain necessary to bring about a body action. This “trace” is an internal model of the action necessary to achieve a goal. Motor learning is a set of processes associated with practice or experience that leads to relatively permanent changes in skilled behavior (Indik 252).

Current experimental evidence suggests that as a motor skill is acquired, there is a change in the organic structure of the brain and the control of the action passes from one section of the brain to another. The deeper structures allow for more ‘rote’ performance and
free vacated structures for other demands. Since our conscious attention can do only so much, we rely on these systems of control outside the conscious.

Actions directed by motor memory lie between conscious attention and involuntary action. By entering a sequence of actions into long-term motor memory, we take away the need for conscious control and pass much action into the routine. The stage known as “making it your own” generally feels like a positive development. The deeper the skill passes into the motor memory, the demand placed on conscious control to produce demanding coordination is reduced (Indik 253).

When a person sings, he or she draws from a long history of personally produced and heard vocalizations. Additionally, singers are affected by memories and psychological issues. The singer can be compared to the at-risk child in that both can be adversely affected by negative memories. A lifetime of negative memories can result in bad habits, both psychological and vocal, that must be overcome.

Once a bad vocal habit is established, it is tenacious. Despite great effort to remove it, the habit remains. Can we ever really fully eliminate bad habits, vocal or otherwise? By understanding how the cognitive structures of learning and memory work, practical strategies for teaching music and drama become apparent. These same strategies can also be applied to behavior modification.

For example, the biological sequence required for achieving good vocal technique is the end result of a coordinative process involving a complex of laryngeal and pharyngeal muscles, all devices and techniques employed to improve the tone. Success in teaching and learning depends, in large part, upon a program dedicated to changing a habitual, faulty, vocal coordinative process (Reid 31). Breaking a habit requires long-term, patient processes
akin to erosion and overwriting. Psychology and medicine offer similar models for breaking bad behaviors. These models also include the need for persistent, global application. Models for treating ailments such as posttraumatic stress, phobia, and addiction share some parallels to the voice studio. Patients often have therapy sessions once a week. Voice lessons are generally given once a week. The mind requires time and repetition to acquire new vocal skill[s] and psychological behaviors. Only with persistence can the desired outcome be achieved (Indik 255-6).

**Neurological Conclusions and Applications**

The potential for many behaviors are built into the basic scaffolding of the brain and are under genetic and developmental control. Environmental factors and learning bring out these latent capabilities by altering the effectiveness of the pre-existing pathways, thereby leading to the expression of new patterns of behavior (Kandel qtd. in Gardner 47).

"The potential for many behaviors are built into the basic scaffolding of the brain."

Research cited by a cross-section of experts representing many disciplines support John Hodges’s claim that music is “a vital component of what it means to be human.” It follows, therefore, that music is part of what comprises Kandel’s “basic scaffolding of the brain.” The acceptance of this premise has “enormous implications for education” (Hodges 18).

Although all “behavior” is “under genetic and developmental control,” “environmental factors and learning [can] bring out latent capabilities.” Squire tells us that learning and memory, “fundamental to the human experience,” are “inextricably connected.” Loss of memory, the mental glue that binds and interconnects life’s experiences, leads to loss of self, loss of one’s life history, and loss of enduring interactions with others. Without memory, a “concept of self” is impossible. Issues involving personal identity, self-image,
-esteem, -efficacy, -reliance, competence, and confidence find their foundation in memory. Disorders of learning and disturbances of memory haunt developing infants, and contribute to the creation of the at-risk population (2).

By combining “molecular biology” and the “neuroscience of memory,” a scientific hybrid called the “Molecular Biology of Cognition” is created. This new field of study specifically examines how “altering” “pre-existing pathways” impacts learning and affects behavior.1 An examination of the biological and neurological progression from short-term to long-term memory reveals the importance of repetitive action and emotionally enhanced “flashbulb” memories for strengthening synaptic connections. Strengthening these connections ultimately results in the “alter[ed]” “pathways” that create proteins signaling the passage of a transient memory into long-term memory.

The discipline required for repetitive musical practice and dramatic rehearsal promotes the development of self-control and regulation while simultaneously “altering the effectiveness of pre-existing pathways.” Involvement with an artistic discipline and peer group also promotes pro-social behavior while generating the emotionally charged “flashbulb” memories that also alter “the effectiveness of pre-existing pathways.”

Through the pursuit of the arts curriculum, “new patterns of behavior” can be discovered, developed and implemented by the at-risk community. “New patterns of behavior” may include the generation of resilience to adversity, newfound abilities to experience empathy, and a subsequent desire to establish a positive life trajectory.

An in-depth examination of a dozen issues impacting at-risk youth follows. These issues are divided into two categories: 1) Concepts of Self and 2) Socialization. Each issue is analyzed according to the two most recent compendia prioritizing the most pertinent and

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1 This does not apply to all neurological conditions, i.e. Autism, Asperger’s, organic brain trauma, or ADHD.
current research available addressing each issue over the last decade. A therapeutic response is offered for each issue as a result of the analysis of the research. Each general category culminates with a section dedicated to applicable neurological support.

**ANALYSIS OF THE RESEARCH AND THERAPEUTIC RESPONSES TO ISSUES RELATING TO CONCEPTS OF SELF**

**Personal Identity**

*Analysis of the Research*

Dr. Paul J. Moses, clinical professor of speech and voice in the Division of Otolaryngology at Stanford University School of Medicine, considered the voice the primary expression of individuality and believed that by listening to it, neurotic patterns of behavior could be analyzed, observed, and at times, treated. “Vocal dynamics truthfully reflect psychodynamics.” In every person’s tone and breath lies the key to understanding temperament (Campbell 97-8). The voice, in many ways, is the most exposed “organ” of the body (Campbell 87). Utterance, therefore, can be a pathway to self-knowledge, self-identity, and self-respect.

A thoughtful study of vocal technique, both musical and dramatic, must deal with extremely complex issues. Singing and acting involves the whole person. The entity that emerges as the ‘voice’ is an amalgamation of physical coordination, mental concepts, temperament, and psychological attitudes (Reid 1). If the ‘voice’ is viewed as an extension of the person, it then makes sense that vocal maturation can be as difficult to achieve as emotional maturation. Cornelius Reid, author and voice teacher, equates vocal instruction with passing through adolescence. “There is the same feeling of being in limbo, of an absence of self-identification. This is the risk factor in emotional growth, and it is the risk factor in vocal growth” (13).
Any attempt to improve a person’s musical or speaking voice requires the establishment of a dialogue with that person’s self identity. Voice teachers have trouble achieving improvements in tonal quality because students equate vocal change with personality change (Bunch 8). William McIver, former president of the National Association for Teachers of Singing, writes, “It is often difficult for the student to separate criticism of one’s handling of [the vocal instrument] from criticism of one’s very personal self” (21).

Programs designed to promote psychological progress will also arouse anxiety. Vocal music training can alleviate the anxiety inherent in addressing personal identity issues by promoting the acceptance of change. Through learning the mechanics of proper vocal registration, fundamental changes occur, improving the coordinative process which gives rise to the singing “voice.” Reconfiguration of the components comprising the “voice,” regarded by the student as a part of the “self,” can bring about dramatic improvements, which then require a new definition of “self.” It is through this process of personal reevaluation resulting from rigorous vocal study that enables “the student [to] grow into a deeper knowledge of himself as a person” (Reid 13, 16).

**Dramatic Therapeutic Response**

Uta Hagen, actress and teacher, said, “First, you must learn who you are. You must find your own sense of identity” (qtd. in Kuritz 1).

At-risk students with personal identity issues may find singing, or even speaking, difficult. By adopting the educational techniques suggested by the “Didactic learning experience,” (DeHart 395) whereby a knowledgeable teacher, who has already mastered a skill, teaches solutions to a learner, a lesson plan can be fashioned to help at-risk students...
access their personal identities through vocalization. The following three "Didactic" techniques can be utilized to create a proactive learning experience for participants:

1) Modeling: Learn by imitating others' (instructor's) behavior (DeHart 396).

Nancy Prince and Jeanie Jackson, co-authors of the textbook *Exploring Theatre*, suggest exercises dealing with names because, "Names are an important part of our identity" (5). By modeling the behavior to be imitated, the instructor begins an introduction circle. Participants introduce themselves. During each successive loop around the circle additional facets of each personality are revealed by adding something else to the name: a physical movement, a sneeze, cough, laugh, cry, yawn, hiccup, or dance step. By encouraging the unexpected, originality and personal creativity are facilitated.

Clive Barker, British author and director, explains that the "purpose" for self discovery" games, exemplified by the "Introduction Circle," "is to initiate a process of self-awareness and discovery" (2). Encouraging the at-risk student to continue along this path of "discovery" requires the implementation of the second technique identified by the "Didactic learning experience."

2) Scaffolding (an educational technique unrelated to brain scaffolding previously discussed): Provide support and change strategies according to progress (DeHart 396).

Eric Morris, acting coach, and actress Joan Hotchkis dedicate an entire chapter in their book *No Acting Please* to "Being." "You're entitled to the sum total of everything you are. And it's not always nice" (27-8). In order to discover and accept all aspects of one's personal identity, the at-risk student must overcome Erickson's "autonomy vs. shame and doubt" model (DeHart 281). By utilizing the educational technique of scaffolding, at-risk students can slowly progress from journaling to actually verbalizing needs, wants, and fears.
in a safe and non-threatening environment. The following Morris and Hotchkis exercises: “I Am, I Want, I Need, I Feel;” “What do I want?;” “Stream of Consciousness;” “I’m Afraid that...;” and “I Like that ...” (28, 59-60) facilitate the progression from acknowledgement to actualization.

3) Competence-performance distinction: Difference between capabilities under optimal circumstances and actual performance (DeHart 328).

Producer and author Milton Polsky suggests an exercise called “Everyone’s a Star!” to promote a sense of positive self-identity. The exercise requires elementary school age students to draw a star on a large piece of poster board and indicate in each of the five points, with crayons, paints, or colored pencils, their favorite song, book, movie, color, and person. The center is reserved for a picture of the student. This exercise can be adapted for the teenage at-risk population by following the format of a professional actor’s resume. On one side should be an 8x10 glossy photo taken and printed by the instructor. This is very easy to do with a digital camera. The other side is the printed resume, which lists personal, rather than professional, information. In both cases, the instructor encourages students to enumerate all those unusual, creative, exciting, and interesting aspects of each individual’s personality. The final product becomes the centerpiece of a verbal presentation “performed” for the class. Both exercises result in a verbal affirmation of a positive self-identity.

Self-image and Self-esteem

Analysis of the Research

Singing is a more vulnerable expression of self than speaking, and self-image issues directly influence the quality of the singing voice. Therefore, the singing voice, more than
the speaking voice, offers in-depth psychological clues to a person’s self-image and ultimately aids in the progression toward self-esteem.

Many diverse influences play a part in the simultaneous development of the singing voice and positive self-image. Some of these influences include physical coordination, freedom of response, expressiveness, intelligence, and general emotional health. Before the at-risk student is ready to commence vocal study, certain qualities of their voice are already accepted as being peculiarly their own. These sounds [are] fixed in the mind as his or her ‘quality’ (Reid 99), and the student equates this ‘quality,’ sometimes unknowingly, with his or her ‘self-image.’ What effect does rigorous arts instruction have on the positive progression of the vocal instrument so intrinsically identified with self-image?

Researchers Oreck, Baum, and McCartney studied a sample of current and former students enrolled in “Young Talent,” a performing arts program in the New York City Public Schools. This program offers rigorous instruction in both music and theatre. The Young Talent program serves students in grades three through six in eight New York City public elementary schools and provides a “unique opportunity to examine the conditions, experiences, and realities of [individual] talent development for a diverse spectrum of urban students over an extended period of time” (64). The study sample was chosen from a pool of 400 current students and 1500 program graduates. A high percentage of the students were economically disadvantaged and many had been labeled “at-risk.” During a two-year longitudinal, multiple-case study, data was collected through interviews, observation and testing. In addition, many students completed self-concept evaluations. The study “reveals how the development of artistic talents can positively affect . . . qualities . . . critical to becoming psychologically healthy and productive.” While outcomes were different for each
case, three positive commonalities were noted across cases and age groups: resilience, self-regulation, and identity [self-image] (69).

Oreck, Baum, and McCartney also noted identification with and acceptance in a peer group as an integral part of establishing a positive self-image:

As students reach adolescence, their identity is often contingent upon being accepted by peers. The students began to see themselves as professional artists. They developed a strong bond with similarly talented peers and formed their own support group. Together they worked toward reaching shared goals and reinforced values modeled by their arts instructors. Erikson would define this process as successful resolution of the identity crisis typical of the adolescent years (70).

Researchers Heath and Roach came to similar conclusions regarding positive self-image and self-esteem in a study focused on troubled students in community arts organizations. This particular student sample reported feeling better about themselves compared to less troubled students in a national sample control group (U.S. Department of Education, NELS:88). This was true despite the fact that the students observed were twice as likely as those in the national sample to be undergoing uncertain and insecure family situations. Nevertheless, responses to questions about feeling “good about him/herself,” “being a person of worth,” “able to do things as well as others,” and “on the whole, satisfied with self” ranged from 12 to 16 percentage points higher than the NELS control group (30). The positive results were attributed to communication with arts instructors and professionals.

Musical Therapeutic Response

In school-based programs such as “Young Talent” and the community arts programs studied by Heath and Roach, professional artists offer feedback to their students about techniques to be practiced and developed. Relationships with professional artists encourage students to work hard to merit personal recognition for developing artistic skills. This personal recognition promotes a positive self-image and enhances self-esteem.
Voice instructor Cornelius Reid describes a voice lesson involving technical skill building. This example of a typical voice lesson highlights the type of professional interaction between teacher and student that Heath and Roach deem so important in the organizations they observed:

[The student] must obliterate from his mind all concepts dealing with what he thinks his voice should sound like, or how he would like it to sound; he must be ready to ‘do’ without being conscious of the manner of ‘doing’; he must ‘get out of his own way’ so as to permit involuntary movements to take over, to let nature operate on her own terms. If the exercise is sung correctly . . . important changes will occur . . . . New sounds will appear, sounds which will serve to alter the student’s self-image and make him aware of the ‘feel’ of the functional elements at work (126).

Effective adult leaders expect youth to engage in highly serious conversations, as exemplified above by voice instructor Reid. The arts professional encourages problem solving and hypothetical reasoning by asking youth to consider myriad ways of doing and being in their artistic work (Heath 28-9). At-risk youth, under the influence of arts instructors, discover new and extraordinary ways of thinking and being. These discoveries foster a sense of accomplishment, which promotes self-esteem.

Self-efficacy

Analysis of the Research

Heath and Roach also identified a “climate of can-do” in community-based arts organizations. These attitudes and behaviors presented themselves in conversation. Participants’ language was “peppered” with “could,” “will,” “can,”—asserting possibility, efficacy. Analysis of approximately 750,000 transcribed words from conversations within arts-based youth organizations exhibit the following patterns: a) five-fold increase in the use of if-then statements; b) two-fold increase in mental state verbs (consider, understand); c)
doubling of modal verbs (could, might) (27). These linguistic patterns lay a foundation for self-efficacy by verbally structuring a goal-oriented path for personal achievement.

Burton, Horowitz and Abeles find that students participating in arts organizations exhibit more complex and multi-dimensional thinking in addition to more efficacious linguistic skills. This higher order of thinking, labeled by these researchers as “habits of mind,” is more “flexible, intuitive, practical, and logical,” and is accompanied by personal traits aligned with self-efficacy such as “risk taking, task persistence, ownership of learning, and perceptions of accomplishment” (43).

In a doctoral dissertation included in the Critical Links compendium, Larry Kassab examined the effect of a six-week poetry/drama workshop on the self-confidence and self-image of rural high school students in Pennsylvania. Both writing and performing poetry was assessed through questionnaires designed to “capture student behaviors” from different vantage points. Kassab concluded that oral dramatic presentations “enhance[d] self-esteem and self-image” (30). What Kassab fails to mention is that self-efficacy is promoted through performance and it is specifically self-efficacy that enhances self-esteem and self-image.

Dramatic Therapeutic Response

The works of Shel Silverstein provide a superior resource for the replication of Kassab’s positive results by using poetry as a script for dramatic performance. Silverstein’s books are popular with children and adults; the poems are short, funny, accessible to many reading levels, and offer a variety of choices for dramatic readings. Choosing and preparing a poem to perform can be a daunting task for at-risk students. Hesitant participants can be encouraged to begin by initially focusing on only one suggestion from a structured list of
possibilities. By using the educational scaffolding strategy, suggested by the Didactic learning experience (DeHart 396), support is provided according to students’ capabilities.

Maria C. Novelly, author of *Theatre Games for Young Performers*, suggests eight characteristics for improving performance: rate, projection, clarity, expression, pitch, stance, eye contact, and poise (64-6). A focus on any one of these eight possibilities will enable the performer to improve their performance. A progression from Novelly’s eight characteristics to the following Kuritz techniques facilitates more advanced performances: Use vowels and consonants to develop a surrealistic interpretation of the piece; Create a realistic circumstance for the poem; Invent a character to speak the lines; Include a silent character in the scene with you; “Caress your audience with sounds,” or add physical action (92). Even if the final performance is no more advanced than a simple dramatic reading, Kuritz states that “reading aloud integrates body, voice, mind, and motion,” and, in the final analysis, even an elementary performance can help develop “your voice” (92-3).

After each performer is acknowledged with applause and constructively critiqued, an opportunity to repeat and improve the performance can be encouraged. The success of the exercise, and the furtherance of self-efficacy, can be gauged according to the number of voluntary repetitions and performance improvements.

**Self-reliance and Competence**

*Analysis of the Research*

During the two years Burton, Horowitz, and Abeles observed over 2000 students, five dimensions of competencies were identified and attributed to arts learning: 1) expressing ideas and feelings openly and thoughtfully; 2) forming relationships between different experiences and accessing these relationships to work through ideas or problems; 3)
conceiving or imagining different aspects of an idea or problem to enable resolution; 4)
constructing and organizing thoughts and ideas into meaningful units; and 5) sustaining focus
over a period of time (42).

These arts competencies became evident in other areas of the observed students’ lives
when: 1) there was a need to elaborate on personal ideas; 2) there was a need to structure
and organize thinking according to changing circumstances; 3) knowledge needed to be
tested or demonstrated in new and original ways; and 4) learning involved persistence,
ownership, empathy, and collaboration with others (42).

These arts competencies contribute to the “habits of mind” posited by Burton,
Horowitz, and Abeles, and provide the foundation for self-reliance, which facilitates
competence in the arts and beyond.

Musical Therapeutic Response

“Cogito ergo sum.—I think therefore I am.” This phrase, written by French
philosopher René Descartes in 1637, the most widely quoted pronouncement in all of
Western philosophy (qtd. in Squire ix), has been applied to voice production by Anne Turner,
Senior Artist-in-Residence at Skidmore College: “I breathe therefore I intone” (10/6/06).
Everyone depends upon his or her heart to beat and lungs to accept the air inhaled in order to
live. These are the basics of existence, the basics of bodily self-reliance. If the actor or
singer need only breathe in order to produce sound, then performers are already self-reliant.
When an at-risk student takes the first step on stage with the intention of producing sound,
the state of self-reliance has already been achieved. However, spanning the gap between
self-reliance (the acknowledgement of being able) and competency (the ability to do
something well) is a life-long process. Defining competency can be as subjective as defining
beauty, because competency is also in the eye of the beholder. By focusing on process, a blueprint for achieving excellence in music as well as drama can be created. This same blueprint can be applied to other disciplines and personal endeavors. The essence of the blueprint is simply “focus on process.” The first step in the process of developing musical and dramatic skills is learning to breathe efficiently.

The physical act of breathing is a concrete, uncomplicated action that generates all vocal sound. It is an action all at-risk students can perform. By focusing on the process of basic respiration, voice teachers can help vocalists achieve competence through breath management.

The air inhaled through respiration passes through the pharynx (throat), the larynx, trachea and bronchi and into the lungs. Mouth breathing is generally more efficient than nose breathing because larger volumes of air can be inhaled more quickly through the mouth. Also, during mouth inhalation, the soft palate lifts and creates more interior space. Lowering the larynx and relaxing the tongue and the jaw results in a vocal tract that is aligned for more efficient singing or speaking.

Some excellent exercises to help students understand respiration and access the power of the breathing apparatus include:

1) Blowing out: Stand with hands behind the head and blow all the air out. Hold this empty feeling for five to six seconds, and then let the air rush in. Observe the physical sensations. This exercise enables the at-risk student to experience the power of a truly deep breath.

2) Lying down: Lie on the floor with hands over the abdominal area. Breathe in and out slowly. Observe the rise and fall of the abdominal area. Instructors can vary this exercise by
putting a weight on the abdomen, such as a large book. This exercise puts the student in touch with the power of diaphragmatic action.

3) Panting: Pant like a dog, slowly then quickly. This exercise allows the student to experience the action in abdominal area (Ware 40).

Once the power of the breath is accessed, the next step toward self-reliance and more competent use of the breath is employment of a vocal technique called “Breath Management” (Turner 2/4/04). To utilize the “Breath Management” technique, the at-risk student must first lie flat on the floor and do a “crunch” (partial sit up) and hold it. That strong, not tense or tight, but firm feeling is the driving force behind this technique.

Breath Management Part 1. Add the “crunch” firmness at the high point of a musical phrase. Try ascending on a five-note scale on “ah,” releasing the “crunch” after the top note.

Breath Management Part 2. Add the firmness of the “crunch” for the high note at the beginning of a phrase. Initiate the same five-note descending scale with firmness.

Breath Management Part 3. Add firmness according to serendipitous leaps. Try adding firmness for an octave leap. The singer is literally choreographing the breathing apparatus to accommodate the contours of the vocal line (Turner 2/4/04).

By understanding and controlling the breathing process, at-risk vocalists become self-reliant, more competent singers, and begin to develop the self-confidence required for performing or simply living life more fully.

Self-confidence

Analysis of the Research

Jeanette Horn, researcher and drama instructor at a New York City high school, examined the junior and senior students enrolled in her “theatre institute” class during the
course of a school year. Although the students studied various aspects of theatre for an hour each day, the students experienced common, doubting feelings: traditional theater was “not for people like us;” “no one looks like us on stage;” and “no one writes about the dreams and problems we share.” The students were challenged to write and perform original plays that impacted them. Although several students left the program, Horn obtained a full set of observations and data for the 29 remaining students. She noted evidence of important growth in self-perception and behavior. Students increasingly saw themselves as leaders and important members of the class. Library registration increased from 25% to 85%, and the percentage of students acknowledging their ability to produce a play grew from 25% to 57%. Horn “provide[s] a comprehensive case example of how action research\(^2\) can be used to improve practice” (28-9).

Similar conclusions were reached in the Burton, Horowitz, and Abeles’s study. According to teacher evaluations, young people were more able to “express their thoughts and ideas, exercise their imaginations, and take risks” (39). Conversations with administrators, in addition to teacher evaluations, indicated that “youngsters exposed to strong arts education acquire[d] a sense of confidence that radiate[d] beyond the studios and performance spaces (40). Burton, Horowitz, and Abeles conclude that a “narrowly conceived curriculum, in which the arts are either not offered or are offered in limited and sporadic amounts, exerts a negative effect on development.” On the other hand, a more “flexible curriculum which paces in-depth arts experiences to a sensitive appreciation of developmental needs leads to learning that combines the kind of persistence and confidence necessary for . . . accomplishment” (44).

\(^2\) Action research “evokes [the] notion of ‘unsequestered’ problem solving . . . refer[ring] to acts stretching toward a quality product or performance through identifying and seeking out helpful resources” (Horn 28).
**Dramatic and Musical Therapeutic Response**

The physical reflection of self-confidence is good posture. Voice instructors and drama coaches should address the physical stance that, in many cases, reflects the self-confidence of the at-risk student. When the body is out of alignment, the student is less able to function, and poor posture also contributes to problems such as fatigue, restricted volume, hoarseness and voice loss. Conversely, overall strength, coordination, stamina and self-confidence are enhanced with good posture (Kenney 8).

Teachers have several techniques at their disposal to facilitate improved posture among at-risk students—and, in the process, to improve self-confidence. Good posture creates a dynamic inter-relationship between muscular and skeletal tissues. Important points to emphasize for correct alignment of the skeleton include:

1) Head up, face forward, ear above the shoulder;
2) Chest high, not rigid;
3) Pelvis aligns with the shoulder and ear;
4) Feet together or slightly apart with a line continuing from ear to shoulder through the knee joint and front of the ankle; and
5) Knees flexible, not rigid (Bunch 20).

This alignment preserves the natural vertebral column curves.

F. M. Alexander, actor and creator of the Alexander Technique, made significant contributions to understanding and promoting good posture. By observing others, he developed a relationship of the head, neck, and back that unifies body movement. Alexander began teaching his technique in 1904 to actors, singers, and laypersons. Alexander’s exercises for the development of proper posture encourage self-control, self-regulation, self-esteem and self-confidence. The following are three Alexander Technique exercises:
1) Stand freely. Raise the shoulders in an isolated movement with no tension in the arms and then open them backward parallel to the floor as though you were touching the wall
behind you. Return the shoulders to the initial relaxed position. They are likely to be more open and away from the chest.

2) Stand freely, both arms hanging at the side. Bring them around behind the back, interlock the fingers and straighten the elbows. Lift the arms up behind the back. Feel the shoulders stretch. After reaching maximum stretch, bend forward at the waist with arms overhead. Hold briefly and return to an upright position with arms extended behind the back. Turn from side to side at the waist, feeling an additional backward stretch of the shoulders. Stop turning. Unclasp the hands and let the arms hang freely.

3) Stand freely, left arm behind the back, bend the elbow and place the top of the hand (not palm) on the upper back. Extend the right arm overhead, bend the elbow and reach your right palm down the middle of the back. Try to touch hands, preferably locking fingertips. If you can lock, pull down slightly with the left arm. Let go and repeat with reversed hands. Use a towel if you cannot reach your fingers (Kenney 11).

Authors John Hodgson and Ernest Richards write, “The way in which a person stands, moves about, and generally deports his physical being, is clearly conditioned by inner attitude.” Hodgson and Richards suggest the following character development exercise to physically explore how posture affects and is affected by “inner attitude.”

Ask the group to sit in a slouched position and to note how they feel during this. Then ask them to change slowly to sitting upright and let them observe the difference. Next, call for them to walk about with shoulders rounded and hands drawn into the chest, and from this to open out to a position in which the head is upright and shoulders and arms are open (77).

Good posture generates proper alignment of the body, which improves performance and self-image (Bunch 18). Improved self-image contributes to the development of self-confidence. By physically assuming “self-confidence,” the at-risk student can experience the
outward attributes of a self-confident state during the course of developing the inner attributes of self-confidence. The following anonymous proverb asks the question, “Do we run because we are afraid or are we afraid because we run?” If the proverb were reworded to accommodate the question of confidence, it would read, “Are we confident because we stand tall or do we stand tall because we are confident?”

Initiative

Analysis of the Research

Researchers Catterall, Chapleau, and Iwanaga’s study presents results from two years of exploring interactions between arts and human development and achievement. The data base utilized was the NELS:88 (National Educational Longitudinal Survey), which examined 25,000 students in secondary schools over 10 years. The focus of particular interest was “Theater Arts and Human Development.” Early results from this study suggest that by-products of arts education include initiative, motivation and engagement.

The arts serve to broaden access to meaning by offering ways of thinking and ways of representation consistent with the spectrum of intelligences scattered unevenly across our population . . . resonating with the multiple and differing intelligences identified by Howard Gardner at Harvard. The arts have shown links to student motivation and engagement (4).

In Heath and Roach’s study of Effective Youth Organizations, a list of house rules was specifically noted. One of seven expectations included “Everyone has to be ready to pick up the slack [and] to play different roles.” This is an example of strongly encouraged initiative. Although it may seem harsh and stressful, in reality, high quality and high-stakes learning environments offer recognition of the capacities of the youth involved (24).

Heath and Roach conclude that artistic work generates and inspires entrepreneurial projects (initiative-based work environments). These researchers noted that most 16 to 19-
year olds work during some part of the year, many at fast-food establishments or in low-skill, low-wage jobs with few cognitive or linguistic demands. Youth-based arts organizations offer an alternative opportunity for this age group by providing not just a job, but work that requires vision and initiative. Many graduates observed over the course of ten years in the Heath and Roach study remain linked to their former youth-based organization (32).

**Dramatic Therapeutic Response**

Improvisation means the spontaneous response to new and unexpected situations under structured circumstances, a way of ‘letting yourself go’ with self control. [Improvisation] stretch[es] your imagination, unlock[s] your creative spirit, enabling you to push out beyond the here and now to discover new worlds of feelings, ideas, and experiences . . . . Improvisation build[s] confidence [and] develop[s the] freedom to take creative risks (Polsky x-xv).

Theatrical improvisation requires spontaneity. Spontaneity “means trusting your gut instincts and going with them” (Atkins 8). It is unfortunate that modern culture encourages passivity--being a spectator rather than a participant--because experiential learning enhances and promotes personal initiative.

This [participation] affects our self-confidence and, ultimately, our ability to learn. The more we invest in learning, the more profoundly we learn. This is why the process of ‘making’ is so important . . . whether we write a poem, story, paint an image, create a drama . . . we take experience from our inner world, give it form, and make it accessible to those in our outer world. Developing our authentic voice enables us to make unique statements about who we are and what and how we think and feel (King 11).

The creative process of ‘making’ is usually unpredictable, sometimes frustrating, always exhausting, but it can be exhilarating if at-risk students can be transformed from bored, unhappy, discouraged class members into active participants.

Playwriting is the perfect vehicle for older at-risk students to develop initiative, as evidenced by Horn’s and Kassab’s documented studies of high school students. However,
the initiative-enhancing act of playwriting must be adjusted to facilitate the experience for younger at-risk students.

Author and playwright Greg Atkins suggests an exercise called “Tag-Team Storytelling” in his book Improv! A Handbook for the Actor that accomplishes similar results through creative verbal storytelling. One storyteller creates the beginning of a story, passes it to a second storyteller who creates the middle, and the third storyteller provides the end (89).

Eric Morris expands on this concept by suggesting students make up weird, outlandish stories. “Remove all boundary lines of logic. You don’t have to make sense. Start anywhere and go anywhere” (149). “Even the youngest children have something to offer if they feel confident enough that their ideas will be considered” (Davies 7). Stories evoked through image-making processes help students to improve their ability to organize thoughts and develop a sense of their own authentic voice (King 2). Even simple improvisation encourages initiative through the development of an “authentic voice.”

**Postulated Neurological Support for Therapeutic Responses Relating to Issues of Self**

The following is a discussion resulting from the evaluation of research and therapeutic responses to the six issues identified in the preceding section. The theories postulated herein suggest how, neurologically, specific musical and dramatic therapeutic responses effect change.

The first targeted issue is personal identity. Establishing a positive personal identity requires initiating a “process of self-awareness and discovery,” (Barker 2) which inevitably leads to exercises that are autobiographical in nature, such as those suggested by Morris, Hotchkis, and Polsky. These visual, pictorial, and, eventually, verbal exercises are elementary renditions of literary narratives of self.
Jerome Bruner and other narrative psychologists believe that narration is the “defining act of the human subject,” “fundamental to the emergence and reality of that subject” (qtd. in Eakin 21). Sharon Snyder of the Department of Disability and Human Development at the University of Illinois at Chicago makes a significant statement pertaining to the at-risk, as well as disabled, community, “Deficiency inaugurates the need for a story” (24). Although Snyder deals with disability issues, there are commonalities to be found in these two communities. Snyder and her colleagues state in Disability Studies: Enabling the Humanities, “Sociality might reject, isolate, institutionalize, reprimand, or obliterate [a] liability [but] narrative embraces the opportunity that such a lack provides—in fact, narrative wills it into existence—because it is the impetus that calls a story into being.” The law of disability narrative is summed up in the formula, “Difference demands display. Display demands difference” (22).

The at-risk child can profit from theatrical vehicles that encourage “display.” Morris and Hotchkiss’s exercises encourage at-risk students to embrace all aspects of self-identity. “You’re entitled to the sum total of everything you are. And it’s not always nice” (27-8). Excising these “not always nice” demons approximates autopathography, defined by G. Thomas Couser, Director of Disability Studies at Hofstra University, as autobiographical narrative of illness or disability. By heightening awareness of personal “dysfunction” the “opportunity to choose the life you will lead,” despite the dysfunction, becomes a viable option. Personal narrative becomes an “agent of recovery as well as self-expression” (5).

Personal narration is significant neurologically because, during the course of self-expression and self-discovery, the at-risk child can be impacted by “neural Darwinism.” Neurobiologist Gerald M. Edelman’s Theory of Neural Group Selection or “neural
Darwinism,” contends that the brain’s neural organization is “constantly modified to adapt to the ever-changing demands of experience.” Edelman’s theory runs counter to the concept of the brain as hard-wired and preprogrammed. Instead, Edelman promotes the model of a brain circuitry that is continually evolving according to environmental impact (qtd. in Eakin 13). The salient point is “the brain’s development is open-ended and adaptive.”

If the brain’s circuitry is “constantly evolving” from a “genetic blueprint,” as Edelman suggests in “neural Darwinism,” then a positive musical and/or dramatic “environment” can affect the development of self-image and self-esteem. Edelman suggests that, “Your brain constructs (it doesn’t mirror) and makes perceptual slices of the world (qtd. in Eakin 16). Neurologist Oliver Sacks adds that, “The nervous system [not only] adapts [but] is tailored, [and] evolves, so that experience, will, sensibility, moral sense and all that one would call personality or soul becomes engraved in the nervous system.” The inference is that the brain’s interpretation of “experience” is not passive, but actively constructed according to “impressions” or “sense-data” (qtd. in Eakin 17). Input from professionals within a musical and dramatic environment provide the “sense data” from which the at-risk child will draw when constructing the evolving perception of self. Dramatic exercises that simulate disability narrative offer opportunities for self-affirmation and expression. Through the pursuit of dramatic narrative, new experiences impacting the at-risk child can generate the “open-ended” development of a more positive perception of “self.”

The environment of a typical voice studio facilitates “open-ended” development by precipitating the perceptual changes required to improve self-image and -esteem. Vocal instructors provide the necessary input to guide students toward the assimilation of new “motor memory” (neural structure in the brain providing trace of neuron firings necessary to
bring about a body action). This leads to permanent changes in skilled singing by passing the memory of better vocal production into "routine." This stage feels "positive" because it gives the student a sense of "making it your own" (Indik 252-3). The process of "making it your own" improves self-image and self-esteem. The evidence, as Israel Rosenfield, Intellectual Historian from the City University of New York, would say, is "the body." In this case, the "body’s" new capabilities become "the brain’s absolute frame of reference" (qtd. in Eakin 19).

At-risk children with low self-esteem often exhibit diminished confidence in self-efficacy (capability of the body). Victimized by a wide variety of physical, psychological, and/or emotional abuse, at-risk children lack the ability to assert themselves. Past efforts to protect or express themselves have been futile and frustrating. This historical scenario becomes the model for future endeavors, resulting in diminishment of self-efficacy. Empowering an at-risk child afflicted by low self-esteem requires patience and a carefully designed structure of progressive steps. An example of a carefully designed exercise to promote empowerment involves performing poetry as a dramatic monologue. This exercise utilizes aspects of classical and operant conditioning models.

At the beginning of the 20th century two major nondeclarative learning procedures—nonassociative and associative learning—were delineated by Russian physiologist Ivan Pavlov, American psychologist Edward Thorndike, and others. Habituation and sensitization are examples of nonassociative learning. Classical and operant conditioning, examples of associative learning, provide a framework where a subject learns about the relationship between two stimuli (classical conditioning) or about the relationship of a stimulus to the subject’s behavior (operant conditioning). In Pavlov’s classical experiments, animals learned
to associate a bell with the taste of food and salivate when hearing the bell. In contrast, operant conditioning dictated that animals learn to associate pressing a bar or a key with the delivery of food. When the bar was pressed, the animal expected to receive something to eat (Squire 24-5). According to classical and operant conditioning models, positive reinforcement and repetition encourage specific behaviors. Exercises based on reinforcement and repetition can be utilized to encourage behavioral change. An example of this type of exercise is dramatic poetry performance. It is postulated that the repetition and positive reinforcement encouraging change throughout this exercise promotes the generation of new or altered neurological pathways affecting self-efficacy.

Performing poetry as a dramatic monologue is specifically designed to develop atrophied abilities related to self-efficacy. The structure of this exercise conforms to the Didactic Learning Experience format (modeling, scaffolding, competence-performance). This format provides the framework required to encourage a heretofore-unattainable personal and dramatic goal: verbal expression of personal creative thought, a possible manifestation of behavioral change.

Modeling: Learn by imitating others’ (instructor’s) behavior (DeHart 396):

Initially the instructor provides a model for the student, but thereafter, repetition is accomplished through the constantly changing and improving performances of the students themselves. Each performer is applauded, constructively critiqued, and encouraged to add more complex nuances to their piece. The Didactic technique of scaffolding strategically tailors acceleration and provides opportunities for improvement according to each student’s level of performance (DeHart 396). Repetition of a progressively advancing performance in
Conjunction with positive reinforcement, provided through applause and peer recognition, promotes self-efficacy.

The final step in the Didactic Learning Experience, “Competence-performance distinction,” notes the difference between capabilities under optimal circumstances and actual performance (DeHart 328). Once the at-risk student bridges the gap between capability and actual performance, self-efficacy has been accomplished and a new or altered neural pathway has been forged. To maintain the progress made toward self-efficacy, the nonassociative learning technique utilizing habituation can then be employed.

Habituation, learning to recognize and ignore familiar stimuli that are monotonously repetitive, can be accessed to disarm the personal demons preventing at-risk students from being assertive and self-efficacious. In this specific exercise, performing a verbally expressive poem is an act of self-efficacy. Once the reflexive and repetitive responses to years of abuse are identified as “monotonously repetitive” and “ignored,” inappropriate or exaggerated defensive responses which have prevented self-efficacious activity in the past can be set aside (Squire 24-6). Neurologically, this is the equivalent of an erasure or overwriting an old memory.

“If I can do this with my body, then I must be able to do this with my mind. I may not be perfect, but I am getting better” (High school student qtd. in Champions of Change 70).

This high school student’s comment is in contrast to Descartes’s “Cogito ergo sum,” which established the philosophical notion of the body being distinct from the mind (Eakin 7). The Turner derivative “I breathe, therefore I intone” returns the focus to the body (10/6/06). Elizabeth Grosz, Oliver Sacks, Gerald Edelman and others also encourage a return to the body in repudiation of the Cartesian dualism, which defines “I” as “distinct from the
body.” The common thought uniting this literature professor, neurologist, neuroscientist, and voice instructor is that any attempt to remodel our concept of self requires a return to the body, contrary to the Cartesian model (Eakin 9). Neurologically speaking, an attempt to remodel the “self” begins with the body.

Elizabeth Grosz chooses the Möbius strip, with its endless looping between dimensions of surface and depth, to illustrate the dynamic interrelation of body and mind. This model illustrates her sense of the person as simultaneously interior and exterior (Eakin 11). Grosz also stresses the ability of bodies to extend the frameworks that contain them in order to reach beyond current domains of control (Eakin 12).

A multitude of “frameworks” restrict the at-risk population in their quest to attain self-reliance. An example of one restriction is the at-risk’s child’s distrust in a personal ability to achieve. The process of “Breath Management,” previously discussed on page 31, uses the voice and body as a vehicle to neurologically develop the “habits of mind” required to attain achievement, self-reliance, and eventually, competence. Each of the five “Dimensions of Ability” identified by Burton, Horowitz, and Abeles is promoted through the practice of “Breath Management.”

1) Expressing ideas and feelings openly and thoughtfully: Breathing techniques and theories presented by the teacher are discussed and sampled by the student for viability.

2) Forming relationships between different experiences and accessing these relationships to work through ideas or problems: After physically assimilating the technique, various combinations can be utilized to address a wide variety of vocal problems.
3) Conceiving or imagining different aspects of an idea or problem to enable resolution: Execution of the various techniques presented in “Breath Management” offers alternative ways to approach previously insurmountable vocal issues.

4) Constructing and organizing thoughts and ideas into meaningful units: The practical analysis of a musical phrase, accompanied by the appropriate “Breath Management” choreography, helps organize the execution of a well-produced vocal phrase resulting in the resolution of a vocal challenge.

5) Sustaining focus over a period of time: Utilizing “Breath Management” choreography to sing a song, even a short piece, requires focus and constant attention. The more advanced the student, the longer and more complex the choreography.

The pursuit of arts training techniques, such as the “Breath Management” example noted above promotes “the appearance of arts competencies” in other disciplines, suggesting that neurological pathways controlling and dictating behavior change have been altered. After these “habits of mind” are neurologically embraced, new “competencies” surface when elaborating on personal ideas, thinking is structured and organized according to changing circumstances, and knowledge is tested or demonstrated in new and original ways. The resultant neurological learning process, developed through participation in the arts, also promotes persistence, ownership, empathy, and collaboration with others (42).

In addition to the achievement of self-reliance and competence, the discipline inherent in an arts curriculum also facilitates the acquisition of the “habits of mind” necessary to achieve self-confidence and personal initiative (Burton 42). Through the repetitive structure of artistic disciplines, new information-storage episodes continually reshape previously existing representations, neurologically replacing the old with the new,
and, with the passage of time the content of memory is changed. Forgetting occurs continuously, weakening and modifying negative experiences (Squire 77).

When this replacement process is examined at the cellular level, findings show repeated training trials or repeated pulses of serotonin are necessary to create a long-term memory. The repeated pulses allow the active component of protein kinases (catalytic enzymes) to travel to the cell nucleus, where they can activate genes necessary for long-term memory storage. The formation of long-term memory requires the making of new protein (Squire 132, 138). However, the most surprising result to emerge from studies of the genetic switch is that long-term memory can be switched off as well as on (Squire 140). This is particularly encouraging when considering the memories of the at-risk child.

**ANALYSIS OF THE RESEARCH AND THERAPEUTIC RESPONSES TO ISSUES RELATING TO SOCIALIZATION**

**Pro-Social behavior**

*Analysis of the Research*

Heath and Roach discovered an interesting “combination” of thinking, saying, and doing in arts programs, which required simultaneous awareness of self and group. The intensity of the arts programs observed built and sustained a host of skills and capacities rooted in personal recognition, competence, creativity, and productivity. The artistic work itself became recreational in nature and consequently work in this field was equated with joy, dedication, commitment, and involvement. The end result was the development of strong pro-civic and pro-social values. Young people had opportunities to reshape their neighborhoods, provide socialization for younger children, perform public service work, and promote arts in their communities (24, 29, 32-3).
Additionally, Catterall, Chapleau, and Iwanaga noted in their study that arts activities promote community by “advancing shared purpose and team spirit required to perform in ensemble musical groups or dramatic productions” (4).

In yet another study, Burton, Horowitz, and Abeles reported that “the arts, by their very nature, require a great deal of collaboration and cooperation” and are therefore pro-social. Research data revealed that students observed in these high-arts designated groups exhibited stronger abilities to communicate, cooperate, and had better “rapport with their teachers” (38-41).

The intent of Rey E. de la Cruz’s doctoral dissertation, included in the Critical Links compendium, was to test the “scholarly advocacy” of using drama to promote linguistic and social development. The study was conducted partially in response to existing research indicating children with learning disabilities typically lack social skills necessary for effective peer-to-peer and student-to-teacher interactions critical to success in school.

With the assistance of 70 special and regular education teachers, de la Cruz identified four clusters of behaviors and skills critical for classroom success. Three of the four items noted were attributes of pro-social behavior:

1) courtesy to others;
2) self-control; and
3) social compliance.

Thirty-five students, ranging in age from 5 to 11, with diverse ethnic and cultural backgrounds, were selected from two urban schools. The results of this study indicated that the children participating in the creative drama program increased their social skills in the targeted clusters of social behaviors more than students in the control group. The children
themselves, when asked about what they had learned in the experiment, most frequently mentioned aspects of courtesy and peer relations. An independent reviewer analyzing the study remarked that, “This experiment contributes relatively ‘hard’ quantitative evidence that both linguistic and social skills increased through a program of creative drama” (20-21).

In Horn’s study of inner-city high school drama students, also included in the Critical Links compendium, an impartial reviewer commented that dramatic writing, “used as a curricular vehicle,” helped develop critical thinking and collaboration skills. “It is not just the dramatic writing but the process through which students are taught that is important.” This comment referred to Horn’s “collaborative-democratic approach,” which required the class members to be dependent upon each other (29).

“Drama conventions offer a safe harbor for trying out the situations of life; for experimenting with expression and communication; and for deepening human understanding.” James S. Catterall reflects on Horn and de la Cruz’s work in his culminating essay at the end of the Drama section of the Critical Links compendium. The same sentiment appears in the study he authored with Chapleau and Iwanaga, as well as studies authored by Heath and Roach, Burton, Horowitz, and Abeles, in the predecessor to the Critical Links, Champions of Change (58). If “drama conventions” promote a variety of pro-social behaviors, which “conventions” provide the most in-depth response to specific social traits?

**Dramatic Therapeutic Response**

Establishing trust immediately is necessary to begin work as a community of actors. This contrasts with life where trust builds slowly. “In acting we don’t usually have much time to become comfortable trusting in our fellow actors” (Atkins 23). Unfortunately, the reality of the at-risk child’s environment may not be safe or conducive to the development of
trust. The following exercises can help counteract the effects of the at-risk environment by encouraging pro-social behavior that allows children to explore the possibility of trust within a small “community” of actors and peers.

In the exercise “Catch Me Falling,” a group forms a tight circle with one person in the center. Those in the circle stand with arms extended. The person in the center allows him- or herself to fall backward, to be gently caught by the hands of those standing behind. The center person is restored to an upright position (Schotz 18). The person in the center must obviously develop trust in order to participate, but an interesting by-product of this exercise is the effect on those composing the circle. The circle members must work together to keep the environment safe. This develops a sense of community and group responsibility for another person. Some examples of the many derivations on the basic premise of the trust exercise include, “Trust Run,” “Blind Walk,” “Head Holding” (Atkins 24-26), “Tossing,” “Solitaire,” and “Lifting” (Polsky 26). The common denominators for all these exercises are trust, responsibility, cooperation, and teamwork. All these attributes are hallmarks of pro-social behavior.

Self-control and regulation

Analysis of the Research

In de la Cruz’s examination of children with learning disabilities, “self-control” was identified as one of the four clusters of behaviors critical for academic success. Dramatic activities were designed with particular social skills, such as “self-control” in mind. For example, “one three-week segment emphasized mutual courtesy and recognizing when one’s actions hurt another child. The dramatic action in this segment reinforced apologizing.” The Walker-McConnell Scale of Social Competence was used to gauge social skills in the de la
Cruz study. The results of pre-and post-testing indicated significantly improved and sustained effects two months later. An independent reviewer determined de la Cruz’s findings as “significant for a society concerned about the escalation of violence in schools and the need to balance pressures for accountability with realistic and effective approaches to the social development of students” (20-1).

Another effective approach for promoting self-control and regulation is found in the list of expectations for participants in the community arts programs Heath and Roach examined. One item on this list that is paramount for all would-be artists: “Practice, practice, practice” (24). Practice requires discipline. The “high quality and high-stakes” nature of arts programs promote discipline. Discipline requires self-control and self-regulation. By creating an atmosphere of high “expectations,” participants learn to self-regulate and become responsible for their own achievement.

Key findings in the Oreck, Baum, and McCartney examination of the New York City Young Talent program reinforce the notion that discipline and self-regulation are by-products of arts programs. “The large majority of students in this study have achieved a high level of success in the arts, in school, and in their career choices.” Within the realm of “personal development,” application of discipline was specifically highlighted, and self-regulation was noted as a common attribute appearing across cases and age groups within the study (69).

The students in the Young Talent program were aware of their “self-regulatory behaviors.” Discipline, focus and hours of practice helped them succeed. Current learning theory emphasizes the importance of self-regulation for success in any endeavor. In a related study, Susan Baum noted that students “engaged in challenging activities that accentuate their talents, demonstrate extraordinary ability to regulate their own learning. Because the
arts offer deeply rewarding experiences, students work hard to achieve and become “increasingly able to apply their successful self-regulatory behaviors to other areas in their personal and academic lives” (70).

**Musical Therapeutic Response**

Robert Edwin suggests an exercise in his “Bach to Rock Connection” articles for the *Journal of Singing* for achieving a balanced vocal sound through self-regulation. “The Human Boom Box” is the perfect exercise to use with at-risk students. Most children are familiar with the treble and bass adjustment on their music systems. The treble controls high or bright sounds and the bass controls low or dark sounds. The instructor requests singers to imagine they are human boom boxes with treble and bass dials. Student should sing their concept of a balanced sound while singing a simple triad. After turning the treble to the extreme end, students create a Teletubby or Wizard of Oz munchkin sound. Next, ask the vocalists to turn the bass dial all the way up for a heavier, darker sound to create a chorus of Rocky Balboas. By exploring a wide range of tonal possibilities, students may discover sounds more pleasing than their customary sounds (49).

The goal of these exercises is not just discovery of new sounds, but to find the vocal equivalent of “balance” that is a judicious mix of heavy and light registration in the voice. Edwin suggests another way to find the “middle [balance] via working with the extremes.” The instructor can ask vocalists to “stand in the middle of the studio [and] ask how the center was found. Explain that a similar process is used to explore the extreme components of the singing system in order to establish the balance needed for the most efficient and effective singing” (73). Discovering the appropriate balance or adjustment to produce a good vocal sound requires a process of self-regulation involving discipline and practice.
“Divorce yourself from the product and devote yourself to the process” (Turner 11/29/05). When the process of disciplined practice is embraced, Cornelius Reid suggests the singer will experience “the pure joy of making sound for its own sake” (97). Creative activities, such as singing, are typical sources for what psychologist Mihaly Csikszentmihalyi describes as “flow.” “Flow” is defined as an experience that is so “engrossing and enjoyable that it is worth doing for its own sake.” Csikszentmihalyi suggests that happiness is the achievement of “flow” in whatever activity you engage in (824). Csikszentmihalyi also claims that “People are happy, not because of what they do, but because of how they do it” (826). Therefore, the emphasis remains on process or “how they do it.” Experiencing the joy of “flow,” while developing self-control and regulation, reinforces the personal discipline and self-determination critical for achieving fulfillment and happiness.

Resilience to adversity

Analysis of the Research

“Resilience describes the ability to bounce back from adverse experiences.” All students observed in the Oreck, Baum, and McCartney study faced adversity and individual challenges, but in spite of their circumstances “most were able to overcome some of the potential obstacles through external support and their strong desire to excel” (71). These researchers determined that resilience is strengthened and nurtured when children have positive relationships with peers, family, and community; professional instructors and role models to guide them; and personally display characteristics that promote professionalism and cultural values (76).
The resilient “climate of can-do, no matter what happens,” noted by Heath and Roach, is evident in the language used by youth in effective arts organizations developed through frequent conversations with instructors, professionals, and role models (24).

Young people across all socioeconomic classes have almost no time with adults to hear and use forms of language critical for personal maturation. Decision-making, thinking ahead, and building strategies make up most of what adults have to do in their everyday lives. But facility in these does not come easily. Most certainly, the linguistic competence necessary to talk oneself through tough situations cannot develop without hearing such language modeled. Young people [involved] in arts-based organizations gain practice in thinking and talking as adults (26).

**Dramatic Therapeutic Response**

According to psychologists Ganie DeHart, L. Alan Sroufe, and Robert Cooper, developing “resilience to adversity” late in childhood is possible, but it becomes increasingly more difficult as personalities stabilize (363). By adapting improvisational skills in conjunction with abilities to concentrate and focus, both of which are attributes of discipline identified in the previous section, a framework for problem solving emerges for the older at-risk child.

Hodgson and Richardson suggest the following three exercises to promote concentration, a critical component of the discipline required for problem solving in adverse situations.

1) A person starts whistling a tune. A second person joins in whistling another tune, then a third, and so on. Each aims to maintain his own tune without increasing the volume;

2) Read a newspaper article aloud while various people try to interrupt the reading by causing a variety of distractions;
3) Deliver a speech while being heckled. Maintain focus without being ruffled by shouts from the floor (55).

The final exercise introduces the element of “emotion” into the adverse situation. Exhibiting resilience in situations where participants are emotionally invested in the outcome can be more difficult and approximate life situations more closely.

Australian author and director Errol Bray, whose early work was in “tough inner-city schools” around Sydney, Australia, suggests that improvisation offers a “big advantage” to performers [who] “will come up with their best and most dramatic solutions and inventions when they are stretched to the point of real dramatic need” (29). Author Jill Peterson pursues the “point of dramatic need” by pairing students for two to four minute scenes based on conflict situations. The purpose of the following exercises is to “stretch” participants’ improvisational skills to discover solutions and inventive outcomes for conflict situations through improvisation.

1) Two little league baseball players each want to pitch;
2) Two children want the last piece of pie;
3) Two children want to watch different television shows; and
4) Two children want to play with the same ball (41).

James, Palmarini, editor of the Teaching Theatre journal, shares comments from two middle school students involved in the study entitled “An After-School Program in Thematic Theatre for At-risk Middle School Students.” This study was the focus of School Project, a program sponsored and implemented by Inside Out Community Arts in Venice, California, serving about 100 public middle school students at three Los Angeles middle schools (Catterall 4).
Many of our students are already involved in gangs, have witnessed shootings and other violence. Their parents aren’t necessarily around, maybe their older brother or sister is in a gang or jail. The idea is to show them that they can do something else—they just don’t know it yet (Zeichner qtd. in Palmarini 28).

Theatre gives these kids an opportunity to take those feelings—anger, sadness, embarrassment or whatever else—and find out what they look like in a safe, nurturing environment. Basically, what Inside Out is doing is taking the risk taking that is natural to that age and using it as preventive medicine (Ameen qtd. in Palmarini 28).

Experiencing alternative paths for conflict resolution and promoting resilience to adversity is critical for the at-risk community and can literally save lives.

Role Models

Analysis of the Research

When traditional societal structures become overburdened and unable to adapt to changing patterns of human behavior, innovative new structures need to emerge. The traditions of school, family, and church no longer meet the needs of a growing segment of today’s children. An “institutional gap” exists, and it affects our youth (Heath 20). Older children and adolescents have relatively few occasions to work with an adult or guiding expert (Heath 25). The absence of this interaction results in young people having almost no time with adults to hear and use forms of language critical for personal maturation and decision-making. Linguistic competence, a vehicle for maturation and a tool for the development of decision-making skills, is only achieved through interactive language modeling (Heath 26). The resilient “can-do” attitude evidenced by the language used in effective arts organizations is developed specifically through frequent conversations with instructors, professionals, and role models (Heath 24). Arts organizations can successfully fill this “institutional gap” by providing young people with opportunities to interact with adult professionals who serve as role models (Heath 33).
By mimicking and internalizing verbiage, at-risk youth acquire a new paradigm of being and become more confident and capable. Although it is premature to proclaim a correlation between language and behavior, Heath’s work establishes the possibility that such a correlation exists (Larson 178).

In another study, Oreck, Baum, and McCartney also found that arts instructors serving as professional role models were an inspiration to students.

You must have a professional artist coming into the school. What they bring is their commitment to the art, their own gifts, their drive to create good art, their immersion in the art world, their commitment to excellence. That gets translated to the students and to the teachers who are observing. So an artist brings something into a school that a teacher just can’t maintain for six hours a day. The artist brings the outside in, in a way that can open up worlds to students and to teachers (Classroom teacher qtd. in Oreck 74).

Charismatic professionals “pulling” youth toward particular goals or careers are rarely seen outside the sports arena. Psychologist Reed W. Larson elaborates on this unfortunate circumstance by characterizing the pathways into adult occupations as “opaque.” Pathways are unclear, not only for at-risk youth, but also for advantaged middle-class youth. Effective role models are essential to “propel,” rather than “pull,” youth into fulfilling careers (171-2).

Establishing appropriate boundaries is necessary, but teachers should not be afraid of lost authority and influence as a result of strong relationships developed with students. On the contrary, “Authority is based on the strength of your status as a beloved and admired model person.” In fact, strong relationships enhance two powerful teaching tools: (1) social reinforcement from one “whose opinion is valued;” and (2) modeling, “by adopting the adult’s values and behavior.” “Attachment [to and emulation of a role model] fosters achievement, autonomy, and altruism” (Korczak qtd. in Brendtro 74).
Musical Therapeutic Response

A 1993 study found that African-American high school students identified music teachers as their principal role models (36%), as compared to sports coaches (7%) (Campbell 181). The voice teacher may be an even more effective role model because of the one-to-one relationship with the student. “One needs a model, one needs inspiration, and who can supply these better than a great singer? To admire . . . is natural” (Reid 20).

Although at-risk students may initially be hesitant about singing, there will be no hesitation whatsoever when asked to share a favorite song track from the CD of a contemporary musical artist. Musical icons serve as models for artistic expression, performance, and vocal quality. However, the ability of a musical icon to actually provide a useful role model is limited. Famous musicians have already done the hard work required to mount a career: identification of their sound or genre; efficacious preparation; personal reliance upon techniques developed through hard work and guidance from their teacher; competent absorption of vocal strategies; self-confidence to promote themselves; and finally, the initiative to pursue a vocal music career. The beginner may admire the end product, but will require an intermediary for assistance. If the student is fortunate, the intermediary may also be a performing artist. The immediacy of a teacher’s performance elevates credibility and effectiveness by surpassing the less tangible electronic role model.

A performance-oriented voice teacher may be more comfortable modeling good vocal production, but all voice teachers, whether they perform or not, can encourage good sound, share mental images and adequately demonstrate voice production in order to help students find their best sound. The primary purpose of the voice teacher is not to sing, but to facilitate the student’s understanding of their own voice production so that the students can sing better.
The voice studio mirrors the generational structure of role modeling and mentoring as described by Larry Brendtro, psychologist, educator, and author. He suggests that older children learn responsibility by caring for younger children (50). Sociologist Martin Wolins elaborates on the “responsibility” factor by claiming one of the ways to “reclaim” youth “at-risk” is to support “care-giving” youth, not just “care-receiving” youth (qtd. in Brendtro 4). If Wolins is correct, then arts mentoring programs are excellent vehicles to put this theory into practice. For example, Cornelius Reid, pre-eminent New York City voice teacher, teaches Anne Turner. Anne Turner’s Capital District voice studio is in turn comprised of high school, college, and Master’s level students, as well as adults in the Capital District. I am one of Anne’s students, and I work with elementary through high school age students in at-risk facilities in the Capital District. Heath describes this structure in her article entitled “Three’s Not a Crowd” as “turnover teaching” and notes similar structures within many other types of arts organizations. “Turnover teaching” also includes older at-risk students teaching elementary skills in introductory workshops. Leadership roles then become collaborative, which adds to and benefits the overall experience of the older participants (13). Role modeling and mentoring programs promote new generations of role models and mentors.

Empathy

Analysis of the Research

In Catterall, Chapleau and Iwanaga’s research published in Champions of Change, higher levels of empathy and tolerance for others were specifically noted when students report a “sustained involvement in theater arts (acting in plays and musicals, participating in drama clubs, and taking lessons)” (2). Early results of the study acknowledge that arts activities “promote community” and with “community surely comes empathy” (4).
British educator Dorothy Heathcote “reminds us that drama provides situations where we can or must put ourselves in the place of another; thus empathy for others is a possible or even likely outcome of the dramatic experience.” This is true “when taking on a role; it is also true when a character labors to comprehend how his or her character is understood by others” (qtd. in Champions of Change, 13, 15).

“So drama can be a kind of playing at or practice of living, tuning up those areas of feeling-capacity and expression-capacity as well as social-capacity” (Heathcote qtd. in Critical Links 58). Producer Milton Polsky notes that the diversity of roles available for a professional actor may be no less voluminous than the wide array of personal “roles” adopted by the actor throughout a lifetime.

During our lifetimes we all play a diversity of roles. Some of these roles are acquired at birth; some we attain through long years of struggle; still others are imposed upon us by society. Some of the roles we play are beneficial in our search for identity and integrity; some serve as weapons of survival and adjustment; and some are self-denying (179).

**Dramatic Therapeutic Response**

Role-playing is “taking on the role of a person in an improvisation based on a given dramatic situation” (Prince 117). This dramatic technique helps us to “explore unfamiliar life-styles and alternative” modes of behavior. The actual process of portraying others is a natural way of exploring and discovering the world around us. Young children often repeat during playtime everything that makes “a strong impression upon them in real life.” Trying out new behaviors is a safe way of “approximating reality and testing ideas.” “In role-playing, we become what we play, and we play what we become.” Role-playing and role reversal are dramatic techniques that also enable people to “perceive a problem emotionally
from the other person’s vantage point.” The goal is to become more “sensitive to each
other’s needs and desires” (Polsky 180).

To prepare for role-playing and role reversal exercises, director and author Alex
Golson suggests a preliminary exercise entitled “Active Watching.”

As you watch a play, film, or television show, pick out one or two characters. Ask yourself what the main [or] immediate goals of those characters are. Ask what the actor/character is trying to achieve. Watch people. Daily. Find a place where you can observe people. Ask yourself what [these] people need from each other (34).

Nancy King, author of *Storymaking*, suggests the following exercise to try on the mantle of what you have observed:

Think of a newspaper story, television program, film, or book you have read or seen. Select one person or character who intrigues you. Create a one-minute monologue to tell this character what you think and how you feel about an issue he or she raises. How do you choose your words? How do you connect your feelings and thoughts in your presentation? Create a one-minute monologue for the person or character you have chosen to talk back to you. What helps or hinders you from saying what you genuinely think and feel? What helps or hinders you to think and feel from the viewpoint of the other person or character? How does the process of creating drama capture the essence of a [real] experience? (14)

Both Golson and King’s exercises can be easily adapted for young children. For more advanced role-playing or characterization, Paul Kuritz suggests striving to answer the questions provided in four separate “quality” categories (physical, social, psychological, and moral). This “four category” approach will appeal to the adolescent at-risk child because he or she may already be struggling to answer similar questions regarding him- or herself.

1) Physically: What is my sex; How old am I; How is my complexion; What is my height; Weight; How do I sit: stand; What do I like to wear?

2) Socially: What do I do when I wake up; What is my relationship to my environment; Educational background; What was my childhood like; How much money do I have; What is my nationality; Occupation; Political attitudes; Religion?
3) Psychological: What choices do I face; Make; What makes me angry; What are my ambitions; Instincts; What do I worry about; What do I want; Need; Fear?

4) Morality: Whom do I admire; Will the pursuit of my needs lead to a moral choice; What is my attitude toward the choices I make; How do I express this attitude vocally and physically? (160-3)

Exploring an acting role in depth requires personal investment in another entity’s existence. Actors are personally invested because they are charged with the re-creation of another personality. The exploratory process of pealing away the psychological layers of another being is intriguing and requires an intellectual and emotional journey into uncharted territories. Becoming invested in another is an all-encompassing endeavor. It is both enlightening and rewarding. Experiencing this process should not be restricted to actors.

Empathy is sharing another’s feelings . . . actually experiencing the sensation. We seek the connection between actor and character by research, experience, and empathy. Empathy allows us to understand other humans. If you don’t [empathize] you won’t get far in acting or in life (Atkins 13-14).

Positive Life Trajectory

Analysis of the Research

Anthropologist Ruth Benedict observed that Western society does not provide the necessary “steps” to prepare the young for adulthood. Adolescents appear to be waiting for something to jump-start their lives. Frequently, this “malaise” is the result of the “absence of engagement in a positive life trajectory” (qtd. in Larson 170). Larson focuses on initiative as a core quality in developing a positive life trajectory. Youth that are able to exercise personal “initiative” will be motivated from within to work toward their goals, to be creative, to become leaders, to exhibit altruism, and to take part in civic engagement (170-171).
It is particularly critical for children to encounter opportunities for taking initiative during adolescence because the ability to reason and think strategically develops at this time (Larson 172). This developmental period is an opportune time to encourage at-risk youth to become “organizers of [their own] development” (Larson 175) and to practice self-determination (Brendtro 4) in order to establish a personal and unique path for a positive life trajectory. When at-risk students pursue the path of a musical or theatrical discipline, a structure is established that emphasizes initiative and self-determination. This structure can be applied to the pursuit of any professional or personal goal because the structure is really a philosophy of life.

The Turner vocal principle, “Divorce yourself from the product and devote yourself to the process” (11/29/05) is, in reality, a philosophy of life. Whether you are a professional performer or simply struggling with the daily demands of living, everyone can benefit from a dedication to “process.”

For at-risk students, it is far more interesting and rewarding to focus on process. If students enjoy the process, real progress on many levels can be achieved. Process-based progress was examined in a study conducted by Glyn Roberts and Darren Treasure in 1992 and in 1997 with Maria Kavussanu comparing two “process” techniques that sports coaches utilize. One technique creates a performance-oriented climate where an athlete’s degree of natural proficiency is emphasized. The contrasting technique is a mastery-oriented style where athletes strive to attain proficiency. Participants in these studies preferred the “mastery” model because the emphasis was on development as a result of effort expended [process] rather than dependence upon the good fortune of arbitrary natural endowment.
George Leonard, author and Professor of Interdisciplinary Humanities, cuts to the heart of the process issue:

"We fail to realize that mastery is not about perfection. It’s about a process, a journey. The master is the one who stays on the path day after day, year after year. The master is the one who is willing to try, and fail, and try again, for as long as he or she lives (qtd. in Ware 22)."

Process-orientation, focus on the present moment, is the essence of "flow," a term coined by psychologist Mihaly Csikszentmihalyi. “Flow is defined as the intense state of concentration which involves a person deeply in an enjoyable activity. Individuals immersed in flow have self-contained goals [positive life trajectory], are seldom anxious [self-confidence], intensely involved in the present [self-efficacious] and capable of turning threatening situations into enjoyable challenges [resilience to adversity]” (Ware 23). These attributes, when acquired through musical and dramatic study, counteract many negative factors prevalent in the at-risk population and contribute to a positive life trajectory.

Jacques-Dalcroze, creator of the Dalcroze Eurhythmics approach to teaching music, once asked a student if he was ready for class. The boy’s reply reveals the success of process orientation in the Dalcroze classes: “This ain’t no class. This is where we do things!” (Abramson qtd. in NATS).

**Musical and Dramatic Performance as a Therapeutic Response**

A musical or theatrical production involves all three of the elements identified by Larson for fostering initiative, a key component for developing a positive life trajectory. The first is “intrinsic motivation,” wanting to do something, being invested. The second is “concerted engagement in the environment,” creating order within a field of “recognizable challenge and complexity.” The third involves a “temporal arc,” efforts directed toward a
final outcome over time (172). These three elements form the structure for artistic performance.

"Intrinsic motivation" is cultivated during the audition process for a musical or dramatic production. The venue is announced, available roles, chairs, or positions are posted, and auditions begin. A competitive spark is kindled in each student’s heart. The perfect piece must be chosen, rehearsed, and presented with excellence to earn a spot on the roster.

"Concerted engagement in the environment" is the rehearsal process. A new reality is created when a group of people strives to create a cohesive artistic performance.

The “temporal arc” culminates in a final performance or “outcome”.

To enhance dramatic performance, Alex Golson suggests 17 ways to become a better actor:

1) Get in the best physical shape you can;
2) Don’t smoke;
3) Don’t take illegal drugs;
4) Read and be curious;
5) Read aloud;
6) Watch great acting;
7) Watch people;
8) Read;
9) Keep a journal;
10) Don’t limit your look;
11) Don’t limit yourself;
12) Take lessons;
13) Direct;
14) Be honest;
15) Write;
16) Never stop learning;
17) Don’t be a jerk (37-40).

After reviewing Golson’s checklist, it is difficult to disagree with John Hodgson’s statement that “the qualities needed for the best acting are also those needed for the fullest living” (ix).

Anne Bogart, director of the SITI Workshop and Repertory Company, promotes a philosophy that speaks volumes to everyone. “Try harder. Fail better. Never give up.” This attitude is particularly useful for the at-risk child, because the life trajectory of the at-risk child is filled with obstacles. Some obstacles may be insurmountable. Resiliency is required to persevere. Artistic pursuits can help establish life-long patterns of perseverance and devotion to the pursuit of a goal.

**Postulated Neurological Support for Therapeutic Responses Relating to Socialization Issues**

The following is a discussion resulting from the evaluation of research and therapeutic responses to the six issues identified in the preceding section. The theories postulated herein suggest how, neurologically, specific musical and dramatic therapeutic responses effect change.

Almost 40 years ago, Bernstein and Gardner investigated the “Ur-song” and concluded, because this three-note motif is recognized by virtually every ear in the world, that human beings may have initially communicated with a musical alphabet (Campbell 134-5). This discovery gives credence to Blacking’s claims that the human brain has an innate
ability to respond to and participate in music. Clive Robbins capitalized on this assumption by using music at the Nordoff-Robbins Music Therapy Center at New York University to relate to children who “cannot endure human relationships, or [have] communication difficulties” because he believes that “Neurologic research is discovering that the brain comes into synthetic activity in response to music” (qtd. in Campbell 237).

More recently, Canadian psychologist E. Glenn Schellenberg examined the effect of extra-curricular activities on the intellectual and social development of six-year-old children and unexpectedly discovered that children in the drama group specifically exhibited substantial pre- to post-test improvements in adaptive social behavior (511).

If Robbins, Schellenberg, and others are correct, both musical and dramatic disciplines have the potential for great impact on socialization skills. Is there a common neurological thread that relates the two?

It has been previously noted that behavioral change requires a biological and neurological progression from short-term to long-term memory. The repetitive action required to strengthen synaptic connections and eventually alter “pre-existing pathways” heralding change is dependent upon self-control and regulation. Repetitive diligence may be difficult for the at-risk child to sustain during the development of self-control and regulation. Fortunately, musical practice sessions and dramatic rehearsals are enjoyable repetitive activities. Participating in enjoyable activities helps children persevere in their development of self-control and discipline, and ultimately this perseverance initiates the neurological processes required for self-regulation.

The recreational nature of artistic disciplines is often equated with joy, dedication, commitment, and involvement, resulting in strong pro-civic and pro-social values (Heath.
Champions 32). Susan Baum notes that students “engaged in challenging activities that accentuate their talents, demonstrate extraordinary ability to regulate their own learning. Because the arts offer deeply rewarding experiences, students work hard to achieve and become “increasingly able to apply their successful self-regulatory behaviors to other areas in their personal and academic lives” (qtd. in Oreck 70).

Csikszentmihalyi suggests that the discipline required for achieving diligent repetition can be reinforced by “flow,” an experience which encompasses and surpasses enjoyment. A flow activity is “so engrossing and enjoyable that it becomes autotelic, worth doing for its own sake.” “Flow” increases the neurological effects of diligent repetition. Creative activities such as music and drama are “typical sources for this kind of experience” (824).

Three conditions are required to attain the state of “flow:” 1) moment to moment goal orientation; 2) immediate feedback regarding personal performance; and 3) challenges [that] are in balance with skill” (Csikszentmihalyi 824-5). Arts professionals lay the foundation for neurological change by facilitating these three prerequisites for “flow.”

Arts professionals also assume the mantle of role model for their at-risk students and are the key to accessing the strength of “flashbulb memories,” which facilitates neurological change.

It has been previously noted that memory is fragile, susceptible to distortion, and that retrieval is a creative, reconstructive process (Squire 6). Memories are also personal, evocative, and intertwined with emotion. How we feel about an experience changes the way we evaluate it upon recall. Memory is enhanced when we have a reason to study, the more we like what we are studying, and the more we can bring the full breadth of personality to the moment of learning (Squire 70-1). Numerous studies point to the power of emotion to
promote learning. Therefore, the potential power of a single event, as exemplified by an interaction between an arts professional and a student, should not be underestimated. With emotional reinforcement, a moment in time can establish a strong foothold; the beginning of the biological sequence required for long-term change (Indik 256). The at-risk student’s desire to remember, learn, and adopt change is reflected in the emotional attachment to the arts professional, teacher, or role model.

The arts professional is in a unique position to wield two powerful teaching tools while simultaneously activating two neurological processes:

(1) “social reinforcement from one ‘whose opinion is valued’” provides the source for “flashbulb” memories; and

(2) “modeling, ‘by adopting the adult’s values and behavior’” (Korczak qtd. in Brendtro 74) provides the framework for diligent repetition.

By mimicking and internalizing [not just verbiage], at-risk youth acquire a new paradigm of being and become more confident and capable (Heath qtd. in Larson 178). “Attachment [to and emulation of a role model] fosters achievement, autonomy, and altruism” (Korczak qtd. in Brendtro 74) and ultimately, a positive life trajectory.

**CONCLUSION**

Arts instruction promotes the development of a psychologically healthy life style by addressing significant issues impacting at-risk children. Analysis of pre-eminent research surveyed in two recent, overarching compendia, *Champions of Change* and *Critical Links*, strongly supports this conclusion. Specific dramatic and musical applications have been identified as therapeutically responsive to the research cited for a breadth of targeted issues. The molecular biology of cognition corroborates both issue analysis and therapeutic
response. All the accumulated data, analysis and postulated neurological support indicate that musical and dramatic curricula exert positive, and possibly protective, influence on the at-risk population while simultaneously generating the resiliency required to overcome various risk factors.

Conclusions reached in three studies referenced in the Champions of Change compendium also support these conclusions:

1) Catterall, Chapleau, and Iwanaga’s study restricted their analysis to economically disadvantaged students. The results of their study indicate the impact of arts involvement is more profound for the at-risk community, defined as children from families with less education and fewer economic resources (7).

2) The results of the Burton, Horowitz, and Abeles study “offer empirical evidence that learning in arts-rich schools is complex and that it is most successful when supported by a rich, continuous, and sequenced curriculum.” There is also “clear empirical evidence that children, in what we have called the low-arts schools, are less able to extend their thinking. It appears that a narrowly conceived curriculum in which the arts are either not offered or are offered in limited and sporadic amounts exerts a negative effect on cognitive development and personal dispositions” (44).

3) Data in the Oreck, Baum, and McCartney study indicates that many artistically talented students are poorly served by traditional instruction and testing methods in school. In some schools, poor grades or other academic deficiencies disqualify at-risk students from arts activities (77).
In the Critical Links Compendium, music educator Larry Scripp “suggests that music functions as a catalyst for cognitive skills and aspects of social-emotional development across disciplines” (132).

James Catterall adds that drama produces an environment with opportunities for and evidence of transfer. Drama study promotes character understanding, comprehension of character motivation, increased peer-to-peer interactions, increased conflict-resolution skills, and improved problem-solving dispositions and strategies (Critical Links 155). Musical and dramatic curriculum outcomes indicate evidence of both near and far transfer. In the drama curriculum, an example of “near transfer” is developing empathy through role-playing. An example of “far transfer” would be the utilization of the self-regulatory skills acquired during musical practice to persevere through difficult emotional situations.

Widely accepted neurologically based theories of cognition support evidence of transfer. At the level of neuro-function, all learning experiences impact future learning experiences. Experiences reorganize neural pathways, neural receptors, and functioning of specific brain regions so that subsequent experiences are received differently. There is evidence that the arts curriculum generates cognitive restructuring. If altered neuro-function is a consequence of learning in the arts, it follows that such neural-conditioning can enhance performance in related skills, either through improved related cognitive functioning or through positive affective developments such as achievement motivation (Catterall Critical Links 152). “Research on the arts and learning has far transcended the need to test whether or not the arts have impact with potential manifestations beyond direct learning in the art forms.” Currently, the only question of consequence is the importance of these manifestations and how they occur (Catterall 154).

3 The term “transfer” is defined as developing abilities in one discipline that can be utilized in another area.
**Recommendations for Further Research**

Howard Gardner describes "the compelling reasons for arts education" to be "the likelihood that skill and craft gained in the arts help students to understand that they can improve in other consequential activities and that their heightened skill can give pleasure to themselves and to others" (qtd. in *Critical Links* 154). If "heightened skill" gives rise to a "heightened" self-concept or social self-concept through the process of transfer, under what conditions and for whom does success in the arts, specifically music and drama, transfer to success in life? Future research focused on a neurologically based response to this question is in order. The examples of repetitious activity and flashbulb memories referenced in this paper only elementarily address a much larger issue. The possibilities for near and far transfer through the arts curriculum are potentially numerous and varied, and worthy of further study.

Sources cited in this paper also make the following suggestions for future research into the fields of drama and music.

**Drama**

"What is overlooked in available drama studies? One obvious void is the lack of attention to older students" (Catterall *Critical Links* 62). One important suggestion is to follow the NELS:88 sample into young adulthood to explore sustaining effects (Catterall *Champions of Change* 17).

Another omission is substantive attention to potential outcomes beyond basic academic development. A possibility for new research is arts-generated psychological and social development. A specific suggestion for this possibility is a focus on learning that results from the interpersonal and intra-personal qualities of assuming characters and
interacting to perform narrative scenes. Theater professionals have long concentrated on the importance of character study. Learning about characters would be expected to lead to skills or traits such as increased empathy and understanding (Catterall Critical Links 62).

Dorothy Heathcote provides an “attractive agenda for research on drama in education.” She suggests that researchers “delve into promising outcomes that have never been put to formal tests.” A list of Heathcote’s “guaranteed” research outcomes follows, accompanied by a parenthetical suggestion of applicability to the targeted issues analyzed in this paper:

1) Making abstract concepts concrete (competence);
2) Teaching a narrow fact so that it is fully learned—placed in a context for added meaning (self-reliance);
3) Introducing artifacts so that children are curious about them and experience them at a significant level (initiative);
4) Inducing students to reflect on experience and see what they have in common with other people (empathy);
5) Opening doors to fields of study that students might fear to venture into, including science, mathematics, and literature (self-confidence);
6) Giving students freedom coupled with responsibility (self-control and regulation);
7) Clarifying values (positive life trajectory);
8) Developing tolerance for a variety of personalities and ideas (empathy);
9) Showing students how they can stay with something they don’t like to a point of accomplishment (resilience to adversity);
10) Increasing students’ vocabularies and helping students develop a finer control of rhetoric through interactions with others (self-confidence);

11) Bringing classes into situations that will increase their social health (pro-social behavior);

12) Helping students discover that they know more than they thought they knew (self-esteem);

13) Leading students to the real world more clearly in light of what they have learned in an imagined one (role models);

14) Helping students capture more of what is implicit in any experience. Dramatization encourages probing into the meanings of terms, the nature of human relationships and individual motivations (positive life trajectory) (qtd. in Catterall. Critical Links, 62).

Music

Neuromusical research contributes to a deeper understanding of how the brain functions (Hodges 21). Although hundreds of research studies fall under the category of neuromusical research, there is still much to be learned about the long-term value of music education.

In addition to general neuromusical research, a more thorough understanding of the transfer of learning from the arts, specifically music, would require not just additional, but different research. Future inquiries would ultimately need to accommodate growing evidence and beliefs that learning is situational, interactive and extremely complex. The Critical Links Compendium documents links between arts and social abilities. Specific topics for future research should include: preparation for future learning; concepts of
transfers; long-term developments in creativity and expression; and cultivation of "habits of mind" and dispositions impacting future problem-solving behavior (Catterall Critical Links 156-7).

The absence of a strong arts curriculum is sabotaging the potential for student achievement nationwide. At the same time, the at-risk student population is being increasingly marginalized and under-served by the American education system. The evidence suggests these at-risk students are the ones who could particularly benefit from arts programs. Future research will affirm the need for an arts education mandate, particularly a mandate that focuses on the benefits to be secured by at-risk students.
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