CREATIVITY, COGNITION, AND THE ARTS

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CREATIVITY, COGNITION, AND THE ARTS

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Thesis

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CHAPTER I

INTRODUCTION

There always has been a struggle between advocates of the arts and those who make arts-based policies, as to how to define and explain the benefits of arts education and exposure to the arts to the general public. For many, the arts hold an intrinsic value independent of any “useful” function – art for art’s sake. Others, particularly those asked to fund the arts ask for justification for public support. They ask for proof of the value of the arts to society. It is in an effort to provide some answers to these people that this thesis is written.

This paper will briefly discuss the history of creativity and how societal views of creative thinking have evolved over time. It will explore the history of creativity and the relationship between the arts, creativity, and learning. It will examine how we as human beings learn, and how exposure to the arts and arts education is vital for growth and development, cognitively, creatively, academically, emotionally, socially, and from a societal perspective. Finally, this paper will examine what *Newsweek* identified as the “Creativity Crisis” in America today with particular interest in how arts education can be utilized as vital tools of growth in all areas of life. This project will serve as a broad scope research paper, the purpose being to explore a number of topics in the field of creativity,
cognition, and the arts, to build a bibliography that will be of assistance to those interested in this area of study, and to serve as an advocacy piece for creative learning and exposure to the arts and arts-based education.
CHAPTER II
CREATIVITY

History and Concepts of Creativity

Although people use the terms *creativity* or *being creative* quite often, most would have a hard time defining exactly what is meant by those words. What comes to mind when thinking of the word *creativity*? Many people might say that to be creative is to be “artistic,” or “to think outside of the box,” or even to think “differently;” but these are modern concepts of creativity. In order to discuss a useful definition of the word *creativity*, it is useful, briefly to examine the evolution of the concept of creativity.

In his book *Creativity 101*, Joseph C. Kaufman, Director of the Learning Institute of California State University, discusses the history of creativity stating that “…the history of creativity research started with mysticism…” (3). That mysticism was rooted in religion and was how, historically, people explained creativity and behaviors associated with it. The ancient Greeks believed that creativity was a gift bestowed on someone by muses who were goddesses of the arts and sciences, believed to inspire and influence in these areas; in this concept of creativity the individual acts as a conduit through which the gods express themselves (70-71). Discovery of life altering ideas, talents, or abilities was attributed to *divine inspiration*, but never to the individual. The individual may inspire others; but the end creative product was considered to have been initiated by his/her muse. To this day people still reference this ancient idea by saying things like “I just need
to find my muse,” when what they are searching for is that spark of inspiration, that elusive “Ah ha” moment, that light bulb, once thought to be controlled and influenced by the divine, now defined and recognized as creativity.

Aristotle, one of the most celebrated ancient Greek philosophers, “…associated creativity with heightened states of consciousness” (Sawyer, 16). Creative persons were melancholic, characterized by personality types and possessing specific traits such as sensitivity, moodiness, eccentricity, and introversion. Interestingly, at this time these qualities were not associated with mental illness. Aristotle, though holding to the belief of divine inspiration, followed a rational path of thought. In his Metaphysics Aristotle states, “Of the productions or processes one part is called thinking and the other making – that which proceeds from the starting-point and the form is thinking, and that which proceeds from the final step of the thinking is making” (Rothenberg and Hausman, 34). He goes on to stipulate “Therefore, as the saying goes, it is impossible that anything should be produced if there were nothing existing before,” (Rothenberg and Hausman, 35).

According to Keith R. Sawyer, Professor of Psychology and Education at Washington University, and noted scientific expert in the area of creativity, the concept of creativity has, over time, run the gamut between “Rationalism and Romanticism” (15). Sawyer, who has dedicated his life’s research to the connections between creativity, learning, and collaboration, has published numerous articles and books in regard to this area of study and has traveled around the world lecturing on the importance of his research. He writes:

Rationalism is the belief that creativity is generated by the conscious, deliberating, intelligent, rational mind; Romanticism is the belief that creativity bubbles up from an irrational unconscious, and that rational deliberation interferes with the creative process. (15)
The evolution of the definition of creativitv and the ever-changing perception of creativity has been a difficult and much debated topic, but these two ends of the spectrum provide an explanation of its history to its modern-day perceptions. Sawyer states that striving to understand and explain creativity “...will lead to a more creative society, and will enhance the creative potential of our families, our workplace, and our institution” (5).

Throughout history, the time period most recognized for creative thinking and appreciation of humanism /the recognition of the individual, through rational thought, was the Italian Renaissance, during which a rebirth of societal, political, and cultural views occurred, as did a rebirth of how creativity was viewed. No longer did the days of divine inspiration rule; the Golden Age gave birth to an era when “Reason, knowledge, training, and education were considered necessary...” (Sawyer, 15). It was a time when ideas, imagination, and scientific thought prevailed. The invention of the printing press allowed for the widespread distribution of creative thought through poetry, music, and the written word, educating and enlightening those who might otherwise never been exposed to such areas. Leonardo da Vinci, one of the most well-known figures of the Italian Renaissance, embodied the creative energy of the time pursuing ideas in the areas of architecture, invention, science, education, and the art (painting/sculpture). He is known as a true “Renaissance Man,” interested in everything, and successful at almost everything he did. His creative nature led him to design advanced military and flying machines, among other things, the likes of which had never been seen or thought of before, and which would not truly come to fruition until years later. Had da Vinci been
born in another era, his creative nature and desire to learn and educate himself in so many areas may not have been encouraged as much as it was.

Rational thought continued into the 18th century sometimes referred to as the Age of Reason or the Age of Enlightenment. Faith in God and a higher power gave way to faith in man and his ability to reason. No longer was the idea of “divine rule” taken on pure conviction; it was questioned, as was the supreme authority of the church and those in positions of power. It was a time of change and a time of empowerment. Intellectuals, philosophers, and writers were heavily influential in major changes in power within the government and societal shifts that occurred during this period of time. Logical and rational thought were the cornerstones of the creative thought process. John Locke, an English philosopher, believed that the government was created for the people and should serve the people. According to him, if government failed the people, they were within their rights to demand a new form of government. His ideas and philosophies were not only significant influences in the creation of the Declaration of Independence, but were the backbone of the American Revolution as well (Hammond, 2008). The utilization of rational and logical thinking during this period of time assisted in the creation of some of the most noteworthy documents that our country was founded on, including the Bill of Rights and the Constitution. As French philosopher Rene Descartes stated, “I think; therefore I am;” a quote that has come to epitomize the period Enlightenment (Hammond, 2008).

The idea of a rational progression in the process of “being” creative continued until the Romantic era during the 19th century, when the view shifted back to the more emotionally driven “…spontaneous faith in creativity” (Brian, 1998). During the period
of Romanticism it was believed that “...rational deliberation would kill the creative impulse” and that it was better to “...listen to the inner muse and create without conscious control” (Sawyer, 16). Mental illness was “...an unfortunate side effect of extreme creativity” (Sawyer, 16). It was believed that “...creativity requires escape from the conscious ego and a liberation of instinct and emotion” (Sawyer, 16). The value was placed more on the “artist’s imagination” versus “the mastery of the tradition of the past.” Poetry, as a means of expression, reigned and now famous poets, such as Percy Bysshe Shelley, wrote of the creative process within their works. In “To a skylark” written in 1901, Shelley states “Poetry is not like reasoning...this power arises from within, like the colour of a flower which fades and changes as it is developed” (qtd. in Sawyer, 16).

The modern fascination with self-definition and self-invention, the notion that adolescence is naturally a time of rebellion in which one ‘finds oneself,’ the idea that the best path to faith is through individual choice, the idea that government exists to serve the individuals who have created it: all of these are products of the romantic celebration of the individual at the expense of society and tradition. (Brian, 1998)

Where rational thought and reason had once ruled, emotion and creative impulse now reigned.

Defining Creativity Today

Today, although we adhere to a rational creative thought process, we still embrace the notion associating irrational antics of artists and performers with their “creative nature,” graying the line between the two schools of thought. We are willing to write off extreme actions or outbursts as being a path leading to “creative expression,” often admiring those without a filter as being more creative and willing to take risks. A modern pop culture-based example of a “creative persona” is that of musical artist, Stefani Joanne
Angelina Germanotta, most famously known as Lady Gaga, who has become well-known for dressing in bizarre costumes and often saying things that are shocking and eccentric. Her appearance at the 2010 Video Music Awards in a dress consisting completely of raw meat is one, in a number of examples, of an extreme measure taken in order to “make a point;” a point which could have been made in a less provocative manner. But due to her “creative nature” or marketing savvy, a large part of the public is willing to overlook these violations of normal behavior, while attributing them to creative impulse.

As mental illness and madness came to be associated with creativity, Sawyer states that “…many creative individuals believe that being normal is the same thing as being typical, and they are eager to distinguish themselves from the average person” (17). The thought process being, the more different you are, the more creative you are. Whether this is factual, a societal perception, or an excuse for the antisocial behavior is debatable, as are the views that creative people are more emotionally fragile and susceptible to substance abuse. To Freud, “The arts were based on illusion and the creation of a fantasy world, and were thought to be similar to a psychiatric disorder called neurosis” (Sawyer, 40). Although this is a highly debatable topic, a recent article on CNNhealth.com makes a compelling case for the link between creative people and an increased rate of bipolar and unipolar disorders. In the 2009 article “Experts ponder link between creativity, mood disorders,” author Elizabeth Landau quotes Kay Redfield Jamison, professor of psychiatry at Johns Hopkins University as stating that “There have been more than 20 studies that suggest an increased rate of bipolar and depressive illnesses in highly creative people.” In the article Landau goes on to state that “Experts say mental illness does not necessarily cause creativity, nor does creativity necessarily
contribute to mental illness, but a certain ruminating personality type may contribute to both mental health issues and art” (2009). Within the article, Mihaly Csikszentmihalyi, Professor of Psychology and Management at Claremont Graduate University states:

Creative people in the arts must develop a deep sensitivity to their surroundings -- colors, sounds, and emotions. Such hypersensitivity can lead people to worry about things that other people don't worry about as much and can lead to depression. The arts are more dangerous than other professions because they require sensitivity to a large extent. If you go too far you can pay a price -- you can be too sensitive to live in this world. (Landau, 2009)

This statement in regard to the sensitivity and psyche of those who are artistically gifted paints a vivid picture and provides much needed insight into why mental health issues and mood disorders tend to be associated with this particular field. In order to illicit and communicate emotion and feeling, which is at the heart of the arts, an extreme openness and understanding to them is often necessary, though it may be possible for this openness to be hazardous to the artist him/herself.

In his book *Flow and the Psychology of Discovery and Invention*, noted creativity expert, Mihaly Csikszentmihalyi, discusses how “…creativity is the central source of meaning in our lives” (1). He states:

…most of the things that are interesting, important, and human are the results of creativity (and that is) what makes us different (from chimpanzees who we share over 98% of our genetic makeup with) -- our language, values, artistic expression, scientific understanding and technology -- is the result of individual ingenuity that was recognized, rewarded, and transmitted through learning. (2)

Creativity is what makes us who we are. It makes us capable of growing as individuals and as a society. Creativity allows the impossible to become possible and presents a promise of change. Without creativity there is no passion and without passion, no desire to do or be more. He goes on to state that another reason for our “fascination” with creativity is that “…when we are involved in it, we feel that we are living more fully than
during the rest of life” (2). These explanations of our desire to understand creativity and its meaning to mankind suggests that creativity and the creative thought process are not limited to one specific area, but encompass all areas of life. In support of Csikszentmihalyi, Sawyer provides the following five specific overlapping reasons for our need and desire to understand creativity:

- Explaining creativity can help us identify and realize every person’s unique creative talents.
- Explaining creativity can help our leaders to respond better to the challenges facing modern society.
- Explaining creativity can help us all to be better problem solvers.
- Explaining creativity helps us realize the importance of positive peak experiences to mental health.
- Explaining creativity can help educators teach more effectively. (4-5)

Although modern definitions and understanding of creativity vary, in his *Handbook of Creativity*, Robert J. Sternberg, psychologist and creativity theorist, states that there are always “…two defining characteristics…originality and usefulness” (450).

By this definition, in today’s society creativity is not a gift or a message from the divine or a possession of madness; it is the creation and production of something new and valuable to society in some manner. Sternberg goes on to say:

...there is a lack of consensus on such basic clarifying issues as whether creativity refers to a product, process, or person; whether creativity is personal or societal; whether creativity is common or rare; whether creativity is domain-general or domain-specific; and whether creativity is quantitative or qualitative. (451)

There are people who have attempted to answer these questions by measuring and defining how creativity is measured throughout history and to the present. This has been done through both and Individualist Approach, focusing on the individual, and a Contextualist Approach, focusing on the subject from a societal, cultural, and historical standpoint (Sawyer, 113-114).
In the scientific community, “…only solutions to extremely difficult problems, or significant works of genius, are recognized as creative” (Sawyer, 27). This definition of creativity is termed “big C creativity.” On the other hand is the idea that “…the act of creativity is itself enough, even if nothing recognized as socially valuable is generated” (Sawyer 27). This definition of creativity is termed “little C creativity” or everyday creativity. Although big C creativity may appear to be of more importance than little C creativity, a careful understanding and appreciation of both areas is necessary in order to appreciate creativity of any kind, which, according to Sawyer, “…is part of what makes us human” (Sawyer, 3).

Creativity Assessment and Theory

Supporting the illusiveness of a singular method of measuring and defining creativity, Kaufman states “There are many different ways in which someone can be creative, and there are almost as many different ways that people try to measure creativity” (9). Throughout history there have been many scholars, scientists, and psychologists who were interested in a further understanding of what creativity actually was and where it came from, but there is no evidence that anyone attempted to measure and define the nature of creativity from a psychometric standpoint until J.P. Guilford and E. Paul Torrance. These researchers recognized the importance of understanding the creative process and devoted their lives to studying it and attempting to measure it. They both took an Individualist Approach, versus a Contextualist Approach, in studying creativity (Sawyer, 113-114).
J. P. Guilford and His SOI

J.P. Guilford, a well-known psychologist and creativity researcher, suggested that, “In its narrow sense, creativity refers to abilities that are most characteristic of creative people,” (qtd. in Isaksen, 33). In fact this is a very broad definition indeed. In 1950, J.P. Guilford’s presidential address to the American Psychological Association (APA) focused on the area of creativity and the lack of research in the field. In his speech he encouraged his fellow scientists to make the study of creativity and creative thinking a priority. Guilford’s speech had the effect of empowering his colleagues and encouraging them to embrace this area of study (Sawyer, 40).

At a critical time in the Cold War and ultimately the race to space, the United States government was also keenly interested in cultivating creativity in the future leaders of tomorrow. This initiative provided some much needed support for those interested in this field of research. Between WWII and the nuclear arms race, it was believed that those who had a creative edge would come out on top. Psychologist, Carl Rogers stated that “…international annihilation will be the price we pay for a lack of creativity” (qtd. in Sawyer, 41). The common thought among those receiving funding for their research was “[that] they were defending freedom and helping save the world from nuclear annihilation” (Sawyer, 43). The goal of the research was to “…better understand freedom and its place in American society” (Sawyer, 41); and if being patriotic in this manner of researching was not enough of an incentive, then the amount of government funding being provided for creativity research during this time, would have been very persuasive.

Aside from his address to the APA and active influence in this field, Guilford’s largest contribution to the field of creativity research was his Structure of Intellect (SOI)
model, as seen below in Figure 1. The SOI model was his attempt to organize thought processes into three specific areas: operations, contents, and products. Each “facet or dimension,” as Guilford referred to it, was comprised of specific areas of creative thought:

- “Contents” are representative of the area of creativity, consisting of four kinds of information.
- “Operations,” refers to how one thinks and consists of five methods of evaluating and assessing information.
- “Products,” are made up of six outcomes that we evaluate after the information and evaluation process. (Kaufman, 11)

This model provided 120 different possibilities for the creative thought process and was later expanded upon twice in order to include more; adjusted to 150 in 1977 and then finally, it was adjusted to 180 possibilities [shortly before Guilford’s death in 1987] (Pritzker and Runco, 790). Although Guilford expanded upon his original SOI model “…the 120-factor model has been predominant in most research endeavors” (Pritzker and Runco, 790).

One key focus of Guilford’s SOI model was that of divergent thinking, or the ability to come up with multiple answers to a question versus convergent thinking, or that of coming up with one correct answer to a question (Sawyer, 44). He defined the following four key “components” of divergent thinking:

- Fluency, or being able to produce many ideas.
- Flexibility, or being able to produce different ideas.
- Originality, or being able produce the most original ideas.
- Elaboration, or being able to build on all said ideas. (Sawyer, 44)

The conclusion was reached that the ability to think creatively required divergent
thinking, an idea that E. Paul Torrance, one of Guilford’s successors in this line of research, used as the basis for his pioneering efforts in the field of creativity research. (Kaufman, 14).

Figure 1.1. Guilford's Original SOI Model. http://iqtest.learninginfo.org/iq02.htm. 20 December 2011.

E. Paul Torrance and His TTCT

E. Paul Torrance, well-known psychologist, successor of Guilford’s, and a pioneer in the field of creativity research, defined creativity as “... the process of becoming sensitive to problems, deficiencies, gaps in knowledge, missing elements, disharmonies, and so on; identifying the difficulty within the problem and solution; searching for solutions, making guesses, or formulating hypotheses about the deficiencies; testing and retesting these hypotheses and possibly modifying and retesting them; and finally communicating the results (Kim, 3). He is most well-known for his Torrance Tests of Creative Thinking (TTCT) which are centered on divergent thinking.
encompassing and measuring the four key components of creativity set forth by Guilford. The TTCT are used worldwide mainly as methods of identifying “gifted” students within school systems. Kyung Hee Kim, an assistant professor of Educational Psychology at William and Mary College who has made major contributions to the field of creativity research, states that “The tests were not designed to simply measure creativity, but instead to serve as tools for its enhancement” (3).

The TTCT are comprised of verbal and figural components and there is even a “short form” that combines elements of both the verbal and figural tests into one basic test entitled the Brief Demonstrator Form of the TTCT or BD-TTCT (Millar, Hebert, Cramond, Neumeister, Silvian, 14). Each component, figural and verbal, has sub-categories in their specific areas that task the person taking the test with completing a series of task. An explanation of these components, illustrated by Joseph Kaufman, a seminal expert in the area of creativity assessment is as follows. The figural component is comprised of three subtests:

Picture Construction, in which you use a basic shape and expand on it to create a picture; Picture Completion, in which you are asked to finish and title incomplete drawings; and Lines/Circles, in which you are asked to modify many different series of line or circles. (Kaufman, 16)

The verbal component is comprised of seven subtests:

Asking, in which you ask as many questions as you can about a given picture; Guessing Causes, in which you try to guess as many possible causes for a pictured action; Guessing Consequences, in which you try to guess as many possible consequences for a pictured action; Product Improvements, in which you are asked to make changes to improve a toy; Unusual Uses, in which you are asked to think of many different possible uses for an ordinary item; Unusual Questions, in which you ask as many questions as possible about an ordinary item; and Just Suppose, in which you are asked to “just suppose” an improbable situation has happened and then list the various ramifications. (Kaufman, 16)
Utilizing the figural components of the TTCT, the drawings below in Figure 2 are part of an assessment performed by Kaufman for an article in Newsweek entitled “The Creativity Crisis” (2010). The assessments of the drawings are as follows:


Kaufman observed that turning the incomplete figures into people may be commonplace; however, by making the drawings into cartoons, the sketches are clever and innovative. Kaufman gives points for humor, abstractness of the titles, and use of space. The openness of the drawings is also noteworthy; in the balancing figure, using the legs as negative space is both original and shows an openness of personality. Kim gave Paul a perfect score: 20 of 20 points. "Paul is a lateral thinker and very innovative, is intellectually curious and open to new experiences; especially creative personality and creative cognition are his strengths." (Bronson and Merryman, 2010)

Hoping to prove the effectiveness of his TTCT in identifying creativity in children as a prediction of future creativity, Torrance conducted many longitudinal (long-term)
studies. Although results from his studies have been encouraging, there will always be those who seek to invalidate the findings (Kaufman, 17). That said, as reported in the *Newsweek* article “The Creativity Crisis,” a recent study by Jonathan Plucker, Professor of Educational Psychology and Cognitive Science at Indiana University, that focused on some of Torrance’s longitudinal studies found that “The correlation to lifetime creative accomplishment was more than three times stronger for childhood creativity than childhood IQ” (Bronson and Merryman, 2010). Although not definitive, studies like this provide great support for the measurement of creativity, as well as for continuing research in the field of creativity.
CHAPTER III
COGNITION

The Brain and R-Directed Versus L-Directed Thinking

"Cognition is involved in seeing that a problem exists and structuring the problem so that it is understood" reasons Guilford (qtd. in Isaksen, 50). Once that problem is understood then an appropriate approach can be developed to solve it. In order to get to this point one must first understand the different ways that people learn and process information in order to synthesize information so that it can be easily comprehended. The first step in this process is to understand the brain and its functions. Coining the terms R-Directed Thinking and L-Directed Thinking, author and champion of creative thinking, Daniel H. Pink, in his New York Time's bestselling book A Whole New Mind: Why Right-Brainers Will Rule the Future, presents a solid argument for the importance of nurturing and encouraging creative thinking, focusing on the brain and how it functions in relationship to this.

The human brain is divided into two hemispheres; the Right Hemisphere and the Left Hemisphere, sometimes referred to as the Right Brain and Left Brain. These hemispheres are joined by over 300 million nerve fibers, called the corpus callosum. The hemispheres of the brain have often been studied independently of one another, under the theory of "separate but unequal" (Pink, 13-14). Until recently, the left hemisphere of the brain was viewed as essential and "...the half that made us human," while the right
hemisphere was merely viewed as “the remnant...of an earlier stage of development” (Pink, 13). Broca and Wernicke’s discoveries associating the ability to speak and understand language with the left hemisphere of the brain only solidified this theory, until Sperry’s research (involving patients with epileptic seizures) in the 1950s, which reshaped our views of the brain. According to Sperry “The left hemisphere reasoned sequentially, excelled at analysis, and handled words. The right hemisphere reasoned holistically, recognized patterns, and interpreted emotions and nonverbal expressions” (qtd. in Pink, 14). Both sides of the brain have specific purposes and work together in order to accomplish tasks, a process made more difficult, if not impossible with only one side. As this theory has become increasingly accepted, the information about the brain, its hemispheres, and their unique yet integrated function informs all aspects of life - from the classroom, to the workplace, to instruction, to everyday life.

An example of how the functions of the brain and their varied capabilities are being utilized within the popular culture is widespread, particularly within the advertising world, demonstrated in part by the creative print campaign by Mercedes Benz, pictured below. Not only do the advertisements explain the functions of each hemisphere of the brain, they illustrate it visually and in a creative manner, using the brain and its functions as “Wonderfully executed metaphors for the science and art that Mercedes espouses” (Smith, 2011). The copy is as follows:
Not only is this a unique and creative advertising campaign, but it is applicable to everyday life. The acknowledgment of the brain and its capacity to function on a variety of levels and in a variety of ways is something that, in the past, has only been subject to discussion by professionals in the field, yet today, most people are aware of whether they are more of a right brain or a left brain thinker.

Compiling, examining and evaluating research on the brain and its functions over the past three decades, Pink has detailed four key differences in the roles the right and left hemispheres play. The first difference is that the human brain functions in a “contralateral” manner; that is to say, the right hemisphere controls the left side of the body and the left hemisphere controls the right side of the body. A demonstration of this fact is that of stroke victims who have suffered damage to the right side of the brain often have difficulty moving the left side of the body (Pink, 17-18).

Another difference is that the left hemisphere of the brain functions sequentially, assisting in “…verbal activities, such as talking, understanding the speech of other people, reading, and writing,” whereas the right hemisphere of the brain functions simultaneously, assisting in piecing many things together in order to understand what they mean as a whole. “The right hemisphere is the picture; the left hemisphere is a thousand words” (Pink, 18-19).

The third difference is apparent from the way language is processed and how each hemisphere interprets language. The left hemisphere controls speech and text, handling “what is said,” whereas the right hemisphere is the interpretive part of the brain handling “how it is said” and in what context, often relying on intonation and facial expressions (Pink, 20-21).
Finally, the two hemispheres of the brain differ in that the left hemisphere focuses on analysis and understanding details, whereas the right hemisphere synthesizes details into a larger picture. Pink summarizes these functions as follows:

Analysis and synthesis are perhaps the two most fundamental ways of interpreting information. You can break the whole into its components. Or you can weave the components into a whole. Both are essential to human reasoning. But they are guided by different parts of the brain. (22)

Although the right and left hemispheres of the brain offer completely unique functions, as illustrated by the above information, their reliance on each other is apparent. A healthy brain does not exist without each hemisphere of the brain working together. These insights into how each hemisphere functions are enlightening and can assist in understanding how people learn and why they excel in specific areas in school and within the work force.

The Creative Thought Process

The following quote from Sir Ken Robinson, world-renown creativity expert and international advisor in the areas of creativity, education, and economic development and innovation, expresses the close relationship between cognition and creativity:

A creative process may begin with a flash of a new idea or with a hunch. It may just start as noodling around with a problem, getting some fresh ideas along the way. It’s a process, not a single event, and genuine creative processes involve critical thinking as well as imaginative insights and fresh ideas. (qtd. in Azzam, 22)

Creativity cannot occur without critical thinking and although there may be those “Ah-ha” moments require a working relationship between both hemispheres of the brain.
Although a bit simplistic in its explanation, the creative thought process has typically been broken down into five steps which Csikszentmihalyi discusses in his book *Flow and the Psychology of Discovery and Invention*. They are listed as follows:

- The first step is that of *preparation*, or "...becoming immersed, consciously or not, in a set of problematic issues that are interesting and arouse curiosity."
- Next is a period of *incubation*: "It is during this time that unusual connections are likely to be made." The connection of ideas is made without force, in a nonlinear manner.
- The third step is that of *insight*, or the "Ah-ha!" moment; it is when the "...pieces of the puzzle fall together." This moment may come at any time, after a week, after a few months, or after a few years: "In real life, there may be several insights interspersed with periods of incubation, evaluation, and elaboration."
- Next is *evaluation*, the point when "...the person must decide whether the insight is valuable and worth pursuing." This part of the process can be emotionally draining and stressful as so much effort has been devoted to the process at this point. "It is the period of self-criticism, of soul-searching," when the question of "Is this idea really novel, or is it obvious" must be asked and addressed.
- Finally, there is the component of *elaboration*, which is the most time consuming. "This is what Edison was referring to when he said that creativity consists of one percent inspiration and ninety-nine percent perspiration." (Csikszentmihalyi, 79-80)

Although each of these steps is important, it would be a mistake to analyze this process as being rigidly linear. Csikszentmihalyi modifies his analysis when he points out that:

> How many iterations it goes through, how many loops are involved, how may insights are needed, depends on the depth and breadth of the issues dealt with. Sometimes incubation lasts for years; sometimes it takes a few hours. Sometimes the creative idea includes one deep insight and innumerable small ones. (80-81)

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**Howard Gardner and Multiple Intelligence (MI)**

As Torrance and Guilford worked towards the goal of understanding and identifying "creativity" within people, Howard Gardner, a developmental psychologist
and Professor of Cognition and Education at the Harvard Graduate School of Education, worked toward his goal of understanding and identifying varying “intelligences” within people. As creativity is a part of human intelligence and requires a cognitive link, it is important to have a basic understanding of how one learns and how the brain functions and processes effectively — a process usually related to intelligence. After all, “...some degree of intelligence is needed for creativity activity; there’s a reason why rocks don’t compose sonatas (other than the fact that they don’t have opposable thumbs)” (Kaufman, 68).

Gardner’s theory of Multiple Intelligence proposed that instead of a “...single quantifiable intelligence,” intelligence should be viewed as “the ability to solve problems that one encounters in real life” and “...the ability to generate new problems to solve,” and “the ability to make something or offer a service that is valued within one’s culture,” (Silver, Strong, Perini, 7). His definitions of intelligence are closely related to current definitions of creativity; acknowledging the importance of the “new” or “original” as well as the importance of “of value” or “productivity.” Gardner took his idea of intelligence and divided it into eight subgroups of intellectual abilities, which he referred to as “multiple intelligence” (MI).
<table>
<thead>
<tr>
<th>PEOPLE WHO ARE HIGHLY:</th>
<th>THINK</th>
<th>BENEFIT FROM</th>
<th>NEED</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Linguistic</strong></td>
<td>in words</td>
<td>reading, writing, telling stories, playing word games</td>
<td>books, tapes, writing tools, paper, diaries, dialogue, discussion, debate, stories</td>
</tr>
<tr>
<td><strong>Logical-Mathematical</strong></td>
<td>by reasoning</td>
<td>experimenting, questioning, figuring out logical puzzles, calculating</td>
<td>materials to experiment with, science materials, manipulatives, trips to the planetarium and science museum</td>
</tr>
<tr>
<td><strong>Spatial</strong></td>
<td>in images and pictures</td>
<td>designing, drawing, visualizing, doodling</td>
<td>art, video, movies, slides, imagination games, mazes, puzzles, illustrated books, trips to art museums</td>
</tr>
<tr>
<td><strong>Bodily-Kinesthetic</strong></td>
<td>through somatic sensations</td>
<td>moving, running, jumping, building, touching, gesturing</td>
<td>role play, drama, movement, things to build, sports and physical games, tactile experiences, hands-on learning</td>
</tr>
<tr>
<td><strong>Musical</strong></td>
<td>via rhythms and melodies</td>
<td>singing, whistling, humming, tapping feet and hands, listening</td>
<td>sing-along time, trips to concerts, music playing at home and school, musical instruments</td>
</tr>
<tr>
<td><strong>Interpersonal</strong></td>
<td>by bouncing ideas off other people</td>
<td>leading, organizing, relating, manipulating, mediating, partying</td>
<td>friends, group games, social gatherings, community events, clubs, mentors/apprenticeships</td>
</tr>
<tr>
<td><strong>Intrapersonal</strong></td>
<td>in relation to their needs, feelings, and goals</td>
<td>setting goals, meditating, dreaming, planning, reflecting</td>
<td>secret places, time alone, self-paced projects, choices</td>
</tr>
<tr>
<td><strong>Naturalist</strong></td>
<td>through nature and natural forms</td>
<td>playing with pets, gardening, investigating nature, raising animals, caring for planet earth</td>
<td>access to nature, opportunities for interacting with animals, tools for investigating nature (e.g., magnifying glass, binoculars)</td>
</tr>
</tbody>
</table>

Figure 2.2. Howard Gardner’s Multiple Intelligence Theory Chart.
Gardner believed that all people have specific genetic predispositions on which they can build on, but the majority of people tend to be especially gifted in only one or two areas (Silver, Strong, Perini, 9). The MI model illustrates that though creativity is related to our ability to learn and express ourselves, creativity and our ability to utilize and express it well can be impeded or disrupted if the manner in which one learns is stifled or ignored. Multiple forms of intelligence suggest different ways of learning, which suggests that there is a need for a variety of teaching and communication methods designed to serve specific people. As ancient Chinese proverb advises, “Tell me and I'll forget; show me and I may remember; involve me and I'll understand.” The arts are interactive and at the heart of involvement; whether as a performer or as an audience member, the arts evoke emotion and passion and are engaging and participatory in every sense of the words. As a hands-on participant or as a member of the audience, immersing oneself in an artistic endeavor is part of the process, and through discussion and feedback, connections are made, ideas formed, and lives altered. Many of Gardner’s MIs have a direct correlation to the arts, therefore a conclusion could be reached that many people who struggle while trying to learn what they are being taught in one specific manner could benefit through learning in an arts enriched environment—especially Kinesthetic, Musical, and Spatial learners.
CHAPTER IV

ARTS

The Arts as “Champions of Change”

In their *Boston Globe* article “Art for our sake,” Ellen Winner and Lois Hetland, both researchers for The Harvard Graduate School of Education’s Project Zero and advocates in the area of arts education observe:

For students living in a rapidly changing world, the arts teach vital modes of seeing, imagining, inventing, and thinking. If our primary demand of students is that they recall established facts, the children we educate today will find themselves ill-equipped to deal with problems like global warming, terrorism, and pandemics.

Those who have learned the lessons of the arts, however — how to see new patterns, how to learn from mistakes, and how to envision solutions — are the ones likely to come up with the novel answers needed most for the future. (2007)

As Winner and Hetland suggest, perhaps the best, if not the only way to address important, life-threatening issues such as global warming, terrorism, and pandemics, is to think creatively. The world is in need of new solutions and new ideas — the result of creative thinking. The re-employment of efforts to address chronic social problems that historically have proven unsuccessful will be unsuccessful again. The arts can serve as a catalyst for the type of original thinking that may revolutionize the way challenges are approached.

All of the traits described in the above selection are among those Guilford and Torrance deemed essential to creative thinking. By identifying these traits and their
relationship to the arts and arts-based learning, the arts, as a whole, garner more respect by those who would insist upon “proof” of their importance. The link between creativity, cognition, and the arts becomes clearer and more pronounced. A report issued from a joint study by the Arts Education Partnership and the President’s Committee on The Arts and The Humanities entitled “Champions of Change: The Impact of the Arts on Learning” (Fiske, 1999) addressed this issue. The goal of this study was to provide evidence which could support analysis regarding quantitative data in the field of cognitive learning and the arts. Over a period of several years, some of the nation’s leading researchers in these fields devoted their time and effort to analyzing arts education programing throughout the nation. Seven separate teams evaluated and analyzed a variety of school age children from diverse backgrounds who participated in arts programming within the school system and/or through extracurricular offerings outside of the school system. The study methodologies ranged from investigating “…the impact of intensive involvement in instrumental music and drama/theatre on student achievement,” to investigating “…the ways that learning in the arts affected learning across the curriculum and the conditions which made this possible,” to creating “…a model of obstacles, success factors, and outcomes for talent development in the arts” (Fiske, 1999). A summary of their findings follows:

- “The arts reach students who are not otherwise being reached.” The arts provide an outlet and a purpose for these students, engaging them within their community and decreasing the risk of failure.
- “The arts reach students in ways that they are not otherwise being reached.” As discussed in Gardner’s theory of Multiple Intelligence, people have a variety of learning styles, and the arts provide methods of learning that regular classroom instruction cannot.
- “The arts connect students to themselves and to each other.” The arts can provide a meaningful experience that provides insight into oneself while
creating a powerful link to those participating in the activity, building on a sense of community.

- "The arts transform the environment for learning." An environment where the arts are present is one of excitement and innovation. Self-discovery and an openness to possibilities in learning are improved.
- "The arts provide learning opportunities for the adults in the lives of young people." An arts environment is a creative one and one that promotes learning not only for the students but for the educators as well; encouraging them in new methods of teaching and new ways of interacting with their students.
- "The arts provide new challenges for those students already considered successful." There is always room for growth in an arts environment, even for those students who "outgrow their established learning environments." Expanding their horizons and challenging them to think in a new way can provide many challenges and opportunities for further growth.
- "The arts connect learning experiences to the world of real work." In an ever-changing workplace, it is important to be able to communicate your ideas while working cohesively with others. This is also true in the arts world. (Fiske, 1999)

As the title of this study suggests, the conclusion reached was that the arts are indeed "champions of change," and should be utilized in order to assist students in reaching their full potential, not only as performers, but as people and productive, contributing members of society, whether within the school system or outside of it, in a recreational setting. The long-term, real-world effects of involvement in and exposure to the arts have a variety of implications, aside from developing career artists or art appreciators. Exposure to the arts can provide students with insight into themselves and how they relate to others, building a foundation of empathy and open-communication, key leadership attributes. Involvement in the arts can also spark creativity and challenge students to think "outside of the box," preparing them for careers in a world that is in need of creative thinkers.

Another supportive longitudinal study of over 25,000 students was conducted by Dr. James Catterall of UCLA’s Graduate School of Education in 2009. Data from the study "...shows that consistent participation greatly improves academic performance and
significantly bumps up standardized test scores. Students who make time for the arts are also more involved in community service, and less likely to drop out of school” (Wood, 2012). That said extra-curricular learning in the arts “…provide recreation, but no sense of creation” and “…provide recess, but no sense of success” (Fiske, 1999). This is not to say that the arts cannot and do not have a positive effect in recreational settings; but the report asserts that the arts may have more of a profound effect on students when integrated by a school system into everyday learning experiences. Exposure to the arts on a consistent basis and in an intensive setting, such as within the school system, can provide students with a sense of accomplishment that may be lacking within a recreational or extracurricular setting. When the arts are integrated into curriculum or are made a part of everyday school-based activities, the societal value and importance that is placed on education and everything that is involved with it from grades to assignments, is then made applicable to the arts. They are no longer viewed as an “option” but as a “necessity,” and are treated and viewed in that manner by not only the students, but by the parents and educators as well.

Creativity, Cognition, and the Arts: Elliot Eisner’s Views

Elliot W. Eisner, Professor of Art at Stanford University, and author of sixteen books in the field of arts-based education, including his book *The Arts and the Creation of Mind*, discusses how the arts have many uses and assist in the development and creation of the mind and its varying functions. Like Hetland and Winner, Eisner focuses on the link between the arts and cognition and how exposure to and involvement in arts
activities is fundamental in forming creative thought. It goes on to say that the nurturing of creativity is critical to making people highly functioning and contributing members of society. Eisner discusses a variety of cognitive functions that the arts achieve (10). One of these is the ability to view things in "another" way. According to him, experiencing an artistic representation of a familiar place or object can alter one’s perspective of that place or object. One literally sees in "a new light." In this manner the arts provide an enhanced way of knowing. Another cognitive function of the arts is how they "...liberate us from the literal." By engaging the imagination one can experience vicariously things are not possible to know from real experience (10). From an artistic perspective the arts are also means of expression without external judgment; there are no rules to be adhered to, no one to please...only the art is of importance. In this sense, we are able focus on what we truly think and feel at that point in time (10). And through these realizations, we are able to discover the depths of our emotions and "...the range and varieties of our responsive capacities" (11). A final cognitive function of the arts, according to Eisner, is that the arts are a means of providing form to elusive thoughts and ideas. Eisner summarizes his argument in stating that "Through the arts we learn to see what we had not noticed, to feel what we had not felt, and to employ forms of thinking that are indigenous to the arts. These experiences are consequential, through them we engage in a process through which the self is re-made" (12).

In addition to his views of the cognitive functions of the arts, Eisner is a strong proponent of arts education and discusses his varying visions of its purposes: "There is no single sacrosanct vision of the aims of arts education" (25). His visions "...direct the aims and content" of arts education and provide insight into its application. Each vision is
significant in a person’s growth and has a wide range of effects on the type of person
he/she will become. These visions are not only methods of application, but are also areas
of advocacy for the arts, giving varying perspectives on how the arts are useful and
significant for growth and development, cognitively, creatively, academically,
emotionally, socially, and from a societal perspective.

The first vision is that of “discipline-based arts education,” the purpose of which
is to assist students in acquiring an appreciation for the arts, “…learning how to see and
talk about the qualities of the art they see,” as well as to “…help students acquire the
skills and develop the imagination needed for high-quality art performance” (26). This
vision not only encourages expression of feelings and beliefs but asks those involved to
explore the reasoning behind their feelings; why might a specific piece of music or
artwork have such a profound effect on someone? It encourages critical thinking and a
critical eye. It also encourages creativity and imagination, signifying that taking risks is
okay.

The second vision is that of viewing the arts from an anthropological perspective;
that is to say a way to understand and appreciate diverse cultures. When looking back
through history, works of art reflect a specific time in the development of a specific
culture. From the writings of Shakespeare, to the music of Billie Holiday, to the artwork
of Andy Warhol, by learning to understand the artists and their works, people learn to
think critically and place each work of art into the context of its time, in addition to
acquiring the ability to dig deeper into the subtext of the work itself. What presents itself
on the surface is rarely all there is and being able to identify the underlying information
and meanings is a very beneficial and useful life-skill.
The third vision is that of identifying problems and solving them in a creative manner. "Creative problem solving" is a highly valued skill. People who recognize multiple options for problem solving and dealing with changing environments are heralded as leaders. This ability combines analysis and synthesis—the ability to break situations down into individual components, and the ability to reconstruct them in surprising ways. These are skills that describe successful artists.

The fourth vision is that of the arts as "...as means for human development," or "creative self-expression" (32). This idea stems from a scientific and psychological perspective. Fundamentally, artistic expression has no element of "correctness." While in a commercial sense there may be accepted standards, from a creative point of view, everything is possible, and everything carries some element of self-validation. Though not everyone has the ability to be profoundly expressive in every mode of artistic expression, everyone has the right to expression. From piercings, tattoos, and how a person chooses to dress, to the creation of a roadside mural or a landscape design; these are all methods of self-expression that reflect that particular person.

The fifth vision focuses on arts education as a tool for growth. Lessons learned and skills acquired through the arts are applicable to everyday life and careers. Eisner points out that art teaches such skills as "...initiative and creativity, stimulates the imagination, fosters pride in craft, develops planning skills, and in some arts fields helps the young learn how to work together" (34). All of these skills are relevant and coveted in the workplace as the market for new and useful ideas is increasingly competitive. In order to remain viable, companies must remain current and employees passionate.
The sixth vision is that of a relationship between the brain, cognition and the arts. Eisner states “...work in the arts contributes to the development of complex and subtle forms of thinking” (35). Between critiquing works of art to planning and designing a work of art, the brain functions at a sophisticated level. The ability and opportunity to analyze, evaluate, and communicate intelligently and emotionally has a measurable effect on the ability of students to score higher on standardized tests, have higher GPAs and ultimately to perform at a high level within the work place and as a contributing member of society. A recent study commissioned by the National Endowment for the Arts (NEA), and led by Dr. James Catterall, focusing on “The Arts and Achievement in At-Risk Youth,” affirms this vision. The study concentrated “...on teenagers and young adults in the bottom 25 percent of the socioeconomic scale (as measured by family income, parental employment and the parents’ level of education)” (Jacobs, 2012). The research determined that involvement in the arts can assist in bridging the “achievement gap” within such populations, taking them to levels at, if not higher, than the general public. Not only are their GPAs affected, but the study also provided data that showed a strong correlation between college enrollment and arts involvement as well. Rocco Landesman, NEA Chairman reaffirmed these findings and Eisner’s vision by stating:

James Catterall and his fellow authors have shown that something else is lost, too: potential. Students who have arts-rich experiences in school do better across-the-board academically, and they also become more active and engaged citizens, voting, volunteering, and generally participating at higher rates than their peers. (qtd. in Jacobs, 2012)

Arts With the Brain in Mind: Eric Jensen’s Views

Eric Jensen, a well-regarded researcher in the field of arts education, has compiled data related to the arts, the brain, and cognition, in his book entitled Arts With the Brain
Reaffirming his position as an advocate for the arts and arts integration education, Jensen states that:

The arts should be supported not only because research supports their value but also because they are as dynamic and broad-based as more widely accepted disciplines. They contribute to the development and enhancement of multiple neurobiological systems, including cognition, emotional, immune, circulatory, and perceptual motor systems. Ultimately, the arts can help make us better people. (qtd. in Ball, 2002)

Jensen supports his argument by discussing and identifying criteria that can be used in determining what makes a “discipline” such as science or math a “major discipline,” providing research based examples supporting the arts as a major discipline. He identifies seven types of criteria and how they relate to the arts, which are listed below:

- “Is the discipline assessable?” Many assessment tools and modules have been utilized when assessing the arts, specifically when broken down by discipline; visual, music, and kinesthetic (movement based art forms such as drama and dance).
- “Is it brain based?” This criteria refers back to cognition and R-directed versus L-directed thinking and how the arts not only utilize various areas of the brain, but can have a profound effect on the brain as whole.
- “Is it culturally necessary?” Jensen says it best “The arts promote the understanding and sharing of culture. The arts promote social skills that enhance awareness of others and tolerance of differences. The arts promote unity and harmony. They enhance cognition and perceptual skills. They serve as vehicles for cultural identity and free expression” (5). The arts are a universal language.
- “What is the downside risk?” There is no downside to the arts and arts education. Test scores, attendance, behavior…none of these areas are negatively affected by exposure and participation in the arts.
- “Is the discipline inclusive?” The arts are an all-encompassing arena of expression. Anyone and everyone can and does participate in the arts. The only barriers are those that are self-inflicted. “The arts have the capacity to engage us all” (5).
- “Does it have survival value?” Jensen states “Arts creates, enhances, and defines culture” (6). Through anthropological studies and the discovery of historical artifacts and documents, it is evident that the arts have strong roots within culture and within communities.
• “Is it wide ranging?” Although the arts are often lumped into the basic categories of the performing and visual arts, the subcategories of each area is widely varied. To say music is just music is a mistake as there is listening, composing, arranging, singing, instrumental performance, and theory to name a few. He then goes on to discuss the importance of each area of the arts (music, visual arts, and kinesthetic arts).

When utilizing the criteria listed above in determining the legitimacy of an area as a “major discipline,” Jensen has made a strong case for the classification of the arts as a major area of study.
CHAPTER V
VIEWS

The Arts, Emotional Intelligence, and the Leaders of Tomorrow

Creativity, empathy, and leadership go hand in hand and exposure to and participation in the arts provide a means of assisting in the development of such traits. These characteristics have application in all aspects of life and are highly sought after within many career fields. But, "As schools cut time for the arts, they may be losing their ability to produce not just the artistic creators of the future, but innovative leaders who improve the world they inherit," state Ellen Winner and Lois Hetland (2007). Advocating for the wide-ranging effects of the arts and the necessity of an adjustment of curriculum and methods of instruction, Eric Jensen states:

Make the goal high test scores and you get a majority of students who get higher test scores and a minority who are turned off by learning and school. Make your priority better human beings and you’ll not only get better test scores, you’ll also get cooperative, self-disciplined, creative, and compassionate students with a real love for learning. (10)

The end result cannot always be measured by a grade of a test score, but by the actions and/or reactions of those taught. To educate students to be leaders who have the self-awareness and insight to make good decisions and think creatively, is a more complex and long-term process than teaching towards success on standardized tests that evaluate rote learning.

Rosenbach and Taylor suggest that in addition to being able to think analytically
and possessing a certain level of cognitive intelligence, leaders "...all have a high degree of what has come to be known as emotional intelligence" (Rosenbach and Taylor, 159). Traditionally Intelligence Quotient (IQ) has been used as the primary predictor for leadership potential. Rosenbach and Taylor question that assumption. They state that Emotional Intelligence (EI) is the "...sine qua non" of leadership. Without it, a person can have the best training in the world, an incisive, analytical mind, and an endless supply of smart ideas, but he still won’t make a great leader" (Rosenbach and Taylor, 159).

According to Daniel Goleman, psychologist, author, and leader in the field of emotional intelligence research the following are the five primary components of EI:

- **Self-awareness**: The ability to recognize and understand your moods, emotions, and drives as well as their effect on others.
- **Self-regulation**: The ability to control or redirect disruptive impulses and moods. The propensity to suspend judgment---to think before acting.
- **Motivation**: A passion to work for reasons that go beyond money or status. A propensity to pursue goals with energy and persistence.
- **Empathy**: The ability to understand the emotional makeup of other people. Skill in treating people according to their emotional reactions.
- **Social skills**: Proficiency in managing relationships and building networks. An ability to find common ground and build a rapport. (Goleman, 2004)

Each of these components is key to being a successful "emotionally intelligent" leader; and each corresponds to skills that are identified as measurable outcomes in the "Champions of Change: The Impact of the Arts on Learning" study, mentioned earlier.

In analyzing over eighty competency models, methods developed by companies with the goal of "...identifying, training, and promoting likely stars in the leadership firmament," Goleman found that although "...intellect was a driver of outstanding performance (and) cognitive skills such as big-picture thinking and long-term vision were
particularly important...emotional intelligence proved to be twice as important as the others for jobs at all levels” (2004). These are skills that are not inherently acquired through traditional classroom techniques—particularly those which are focused on standardized testing. However, they are skills that can be taught, and arts-based education is a powerful and effective method of doing so. The leaders of tomorrow must be intelligent and have the ability to think analytically. They also must be able to make connections with others, while remaining aware of their own positions and relationships, not only as leaders, but as human beings.

In an article commissioned by The Getty Center for Education in the Arts, Charles Fowler, an arts writer, consultant, and author, states:

The arts are one of the main ways that humans define who they are. They often express a sense of community and ethnicity. Because the arts convey the spirit of the people who created them, they can help young people to acquire inter- and intra- cultural understanding. The arts are not just multi-cultural, they are transcultural; they invite cross-cultural communication. They teach openness towards those who are different from us. By putting us in touch with our own and other people's feelings, the arts teach one of the great civilizing capacities – how to be empathetic. To the extent that the arts teach empathy, they develop our capacity for compassion and humaneness. (qtd. in Jeanneret, 2008)

The qualities discussed in the above quote are those qualities most likely to be found in dynamic, charismatic, and influential leaders. Truly effective leaders can embody a leadership role in whatever they do; transcending boundaries and inciting passion in those they interact with at any point in time. They are able to touch those they work with on emotional levels, appealing to their sense of community, humanity, and empathy. The arts assist in the development of leadership qualities by making the focus that of becoming a well-rounded person in addition to a well-rounded student.
Creativity, Cognition, and the Leaders of Tomorrow

Awareness of and the value placed on the importance of creativity, not only in artistic endeavors but within the general workforce, is increasing, as supported by the following research:

For CEOs, creativity is now the most important leadership quality for success in business, outweighing even integrity and global thinking, according to a new study by IBM. The study is the largest known sample of one-on-one CEO interviews, with over 1,500 corporate heads and public sector leaders across 60 nations and 33 industries polled on what drives them in managing their companies in today's world...About 60% of CEOs polled cited creativity as the most important leadership quality. (Carr, 2010)

![Most important leadership qualities over the next five years](image)


The challenge is to develop methods for addressing this—a challenge that has become acknowledged in mainstream publications such as Newsweek, which ran an article in 2010 entitled “The Creativity Crisis.” According to this article, until the year 1990, creativity test scores in America had been on the rise. Since then those scores have been decreasing. The “most serious” decreases are found in children in kindergarten
through sixth grade (Bronson and Merryman, 2010). Speculation as to the causes of the
decline identifies the amount of time children spend watching television, playing
videogames, and surfing the internet. The “...lack of creativity development in our
schools” also has been identified as a significant contributor to the problem (Bronson and
Merryman, 2010). If this is the case, it is reasonable to believe that “teaching to the tests”
has not served our children well. As Kyung-Hee Kim states in the article Smart? Yes.
Creative? Not so much, “If we neglect creative students because of the structure and the
testing movement---creative students cannot breathe, they are suffocated in school---then
they become underachievers” (qtd. in Zagursky, 2011).

Other nations around the world have recognized the importance of creative
thinking and “…are making creativity a national priority” state Bronson and Merryman,
citing the following examples:

In 2008 British secondary-school curricula—from science to foreign language—
was revamped to emphasize idea generation, and pilot programs have begun using
Torrance’s test to assess their progress. The European Union designated 2009 as
the European Year of Creativity and Innovation, holding conferences on the
neuroscience of creativity, financing teacher training, and instituting problem-
based learning programs—curricula driven by real-world inquiry—for both
children and adults. In China there has been widespread education reform to
extinguish the drill-and-kill teaching style. Instead, Chinese schools are also
adopting a problem-based learning approach. (2010)

Where in all of this is the United States of America? The American focus on
standardized testing and assessment neglects to nurture creativity and imagination. A
lack of time and energy both of teaching professionals and students, combined with
misconceptions about what creativity is and the ease with which it can be incorporated
into everyday teaching perpetuate this problem. But as Bronson and Merryman say,
“Creativity isn’t about freedom from concrete facts. Rather, fact-finding and deep
research are vital stages in the creative process. Scholars argue that current curriculum standards can still be met, if taught in a different way” (2010). The idea of incorporating creative learning into curriculum is not new one; and as studies continue to build upon the concept that creativity is learnable and can be taught, it is advisable for school systems to reassess current classroom standards and teaching methods.
CHAPTER VI

CONCLUSION

Peter Brosius, Artistic Director of The Children’s Theatre Company of Minneapolis, Minnesota, serving over 350,000 and the first children’s theatre to win a regional Tony Award (in 2003), states:

When you look at the U.S. and where the growth in the economy is, it’s evident that there’s a need for idea generators. Our country is not necessarily anymore a producer of goods. Our economy thrives because we are a producer of ideas. Facts are just facts and as a society, with a touch of the calculator or a hit of Google, kids can find factual answers. But that can’t teach a mind to be subtle and flexible. (Wood, 2012)

As the age of technology continues, the internet places information at anyone and everyone’s fingertips, but what is done with that information and how it is used is paramount. Jensen states “Knowledge is no longer the key now that everyone has access to it” (9). The key is how that information and knowledge is utilized in shaping a society, a business, a culture, or an organization. Those who are able to apply the information and knowledge in order to develop and produce new and useful ideas are those for whom creativity is a driving force.

Through defining and exploring the profound relationships between creativity, cognition, and the arts, and by presenting factual information and data driven research related to these areas, this paper is meant to server as an advocacy piece, accessible to both advocates for the arts and creativity as well as to those who may harbor some
skepticisms in these fields. The goal is to inform and educate those interested as to the expanding application of creativity, cognition, and the arts in every aspect of life from the increased success of students in school, to the development of future leaders. As Bronson and Merryman suggested in the Newsweek article that prompted the writing of this thesis, “The problems we face now, and in the future, simply demand that we do more than just hope for inspiration to strike. Fortunately, the science can help: we know the steps to lead that elusive (Greek) muse right to our doors;” (2010). Those steps begin with acknowledging and nurturing the links between creativity, cognition, and the arts.
BIBLIOGRAPHY


