Developing Brain Multi-Dominance Through Diverse Education

An Honors Thesis (HONRS 499)

by

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Abstract

The education system tells students they can choose one of two pathways: being logical using the left side of the brain, or being creative using the right. This misconception is limiting students' abilities to learn. Throughout elementary, middle, and high school, society should be encouraging students to find interests, whether in science, math, history, art, or a combination of disciplines. Exploring theories of the left and right brain, we find how both parts work individually and collaboratively. Emerging research about art in schools shows the importance of a diverse education. Students should be encouraged to increase their brainpower and become multi-dominant, to benefit the world.

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Developing Brain Multi-Dominance Through Diverse Education

Human beings are complex creatures. We use more of our brain than any other species, and have different feelings and intelligence than other species. For daily activities, we are constantly using all of our brain—both left and right hemispheres. Unfortunately, from a young age, society categorizes individuals based on interests and abilities. Left-brained people are logical, straightforward, and enjoy math and science. Right-brained people are creative, abstract, and excel in English and the arts. We tend to believe society's misperception about being only left-brained or only right-brained. However, this classification disallows complex connections within the brain, rejecting the development of multi-dominance. We as humans have the ability to become multi-dominant between the two hemispheres. In reality, engaging both hemispheres is the most beneficial. To develop multi-dominance, students must be given the opportunities to explore and try everything from a young age.

School is where children figure out their interests, talents, and abilities. They develop likes and dislikes, and create a pathway conducive to their personality. The more options children have in and out of school, the more confident they will be about their choices. Whether their parents consider them left-brained or right-brained, students will gravitate towards the subjects and activities they most enjoy. Thus, integrating subjects like science, technology, engineering, arts, and mathematics is key for schools to help children become successful in their chosen careers and other interests. Extracurricular activities extend teaching beyond the classroom, giving students a well-rounded education in their interests. Students need the option to try everything they wish, to gain knowledge necessary to choose a career and lifestyle suited to their wants and needs.
Throughout early elementary school, my schedule was booked solid, participating in many activities. When I started preschool, I enrolled in dancing and tumbling lessons. My mother took me to dance classes because ever since I had taken my first few steps, I had been moving and grooving even without music playing. I absolutely loved these classes, because I was active and learning new things. During kindergarten, I started Girl Scouts. Being a Daisy, the first level of Girl Scouts, we had a meeting every other week on Mondays after school. We were hands-on during every meeting, mostly doing arts and crafts. Being creative to make some sort of visual art piece was not my strong suit – I was more interested in physical activity. Although I struggled, I pushed through the arts and crafts and improved my confidence.

Commencing first grade, I was in soccer, basketball, piano lessons, gymnastics, ballet, and Girl Scouts. Although soccer was only in the spring, and basketball in the fall, and piano lessons only during the school year, I was still booked pretty solid for three years. Considering I was only six years old when I started first grade, my parents were the ones who obviously enrolled me in all these activities. They are encouraging parents and with two sisters close in age, I was lucky to participate in everything. My mother especially wanted me to get a feel for any and all extracurricular activities, specifically dance, because it was something she had grown up with. I am thankful that she put me in dance classes because it is an activity that I continue to enjoy to this day. Participating in these activities shaped who I am as a person. I gained many skills from dance classes, sports games, and musical practices. Without them I would not be the coordinated, music-appreciating, artistic woman that I am today. These extracurricular activities were imperative to my growth and development during elementary school.
Now with all these extracurricular activities, I was still doing surprisingly well in school. Granted, it was only elementary school, but those are critical years of development. In third grade, I started to gravitate towards math. I remember learning multiplication and realizing that it easily came to me. I enjoyed school and liked something about each subject we learned. With school and my extracurricular activities going well, at the end of third grade I was on my way to being a completely well-rounded child. I was loving math, playing sports, enjoying art through dance class, practicing musical skills, and working hard on Girl Scout craft projects. Unfortunately, this all changed when my mother told me I had a choice to make.

After three years of doing everything I loved, my mother told me I had too much on my plate. She gave me the summer to give up one of the following: dance, gymnastics, or soccer. For an indecisive little girl, this was an extremely hard decision. At the end of the summer, I gave up gymnastics, because I knew I was not going to give up dance, and soccer would keep me a little more versatile in my activities. I must admit this still ranks as one of the hardest decisions I have had to make in my life, and I still think about it sometimes, wondering how different my life would be if I had continued with gymnastics instead of dance. I made a new beginning in fourth grade, trading basketball for volleyball, and learning to play flute in the school band. Fourth and fifth grade were smooth sailing, but when sixth grade came around, it was time for more changes.

In middle school, I was placed in honors English and math classes, giving me incentive to continue performing well academically. I stopped playing flute, mainly because even after two years I never seemed to improve much. In seventh grade, I sadly gave up soccer to get more involved in dance, becoming a member of my studio's concert dance
ensemble and starting dance on pointe. At this time, dance started to take over my life, and I realized how important it was to me. With classes and rehearsals, I sacrificed most nights and Saturdays to be in the studio. This schedule further intensified in high school.

Continuing my math craze, I sailed easily through honors classes. I was a good student in other classes, but fully embraced learning in math. Geometry was different, algebra was amazing, statistics was interesting, pre-calculus and trigonometry were highly graph-oriented, which was not my favorite, but something I came to deal with and even enjoy in calculus. With my long-lasting appreciation for math, I knew I wanted to continue it into college, but was unsure what I should study. While researching colleges, I discovered options for pure mathematics, applied mathematics, secondary mathematics education, statistics, mathematics/economics, mathematics of computation, and actuarial science. With help from my mother, I chose actuarial science, because this career is in great demand and piqued my interest.

Dance—my other great life interest—was soaring through high school. After a hiccup of needing to change studios, I fell right back into the routine, devoting every night and Saturdays to classes and rehearsals. Not wanting to give up dance made looking for colleges a little more difficult. I had been dancing since I was three years old and did not want to stop, just because I would be in college, majoring in something else. Luckily, despite my interests being quite polar opposites, I found someplace that was a good fit for me—a school with good programs in both actuarial science and dance. When I tell people I am studying actuarial science and dance, most have the same reaction, saying I chose a very odd combination. I realize this is true, because math and dance do not necessarily relate to one another. However, they do connect more than people think.
Actuarial science is a logical career, using mathematics, statistics, and risk management to create models and calculate risk. Dance is a creative, disciplined, physical art form used to convey emotion. Some would say that actuarial science uses the left side of the brain and dance uses the right. While defending my choice in studies, I would say that I love math, but since it is very logical, dance is my essential creative outlet. Hence, I continuously engage both sides of my brain, learning to look at problems from different points of view, and finding solutions that are not just right-brained or just left-brained, but multi-dominant.

A stigma in the United States education system says individuals should take one of two pathways: logical, using the left side of the brain, or creative, using the right. Mary Lou Décosterd (2008), an organizational developer, applied psychology professor, and author of three leadership books, says, “the right and left hemispheres of the brain [direct] different aspects of our mental ability” (p. 11). With this in mind, we still use both sides of our brain no matter what we are doing, but we can be left-dominant, right-dominant, or multi-dominant. According to Décosterd, multi-dominant individuals use more brainpower while possessing both strong right-brain and left-brain qualities (p. 12). Thus, Décosterd’s work supports the foundation that has been essential to my own life. Keeping both sides of the brain in practice through elementary and middle school is important to allow students options when they advance into high school and college.

Individually, students with a wide range of education will be more open-minded while researching potential majors and careers. STEM is a newly developed pedagogy, integrating the so-called core classes of science, technology, engineering, and mathematics to benefit students. STEAM, another pedagogy, is built off STEM, with the addition of “A”
that stands for arts. Watson and Watson (2013) explain this program emphasizes "science and technology interpreted through engineering and the arts, all based in mathematical elements" (p. 2). This program engages students in each subject, by integrating skills and topics, assigning relevant, hands-on projects. For example, a project combining science, math, and English could be an experiment where students observe and record data, calculate an outcome, and write about the whole experiment and their results. This experiment educates students about the importance of reading, writing, calculating, observing, and thinking through results, skills they have learned in classes throughout their education. Using both sides of their brains will help students accomplish more and understand how they can apply all the skills they learn in school in a future career. Through this type of education, well-rounded students will explore different options outside of the classroom. They will have the ability to generate more innovative solutions considering their experience is wider and deeper.

Society will also benefit from students' well-rounded education. Today's students are tomorrow's leaders, and since "STEAM is a practical and holistic model," it will fully engage "students with real-world applications in order to increase their pragmatic knowledge" (Watson & Watson, p. 2). Many career fields benefit when prospective employers have more diverse education. This is happening because not all fields are cut and dry. The job market is ferocious, and most college students struggle to find employment after graduation because employers want to see more rounded education, not just activities related to your major. Implementing STEAM and using more brainpower through multi-dominance, students will develop the skills necessary to go out and improve the world.
We have one brain that controls our entire body. Each anatomical part of the brain has certain functions, but they all work together to form who we are. Many people consider the left and right brain two separate entities that do not interact or influence each other. However, this idea of the hemispheres of the brain is over-simplified. Both sides of the brain collaborate, since they have different perceptions of and responses to every situation (See Figure 1).

![Diagram of Left Brain and Right Brain](image)

Figure 1: “Guiding Behaviors Sorted by Right and Left Brain Ability” (Décosterd, p. 25)

The left side of the brain physically controls the right side of the body, plus logical thought and reasoning. Décosterd says, “the left side of the brain controls sequential and linear thought, [and] it is where our verbal and analytical abilities come from” (p. 12). The left-brain is practical and sees the logic in situations, analyzing from part to whole, meaning that it looks at each individual part to see what can be done to remedy the entire situation. While learning in school, most classes work the left side of the brain. Math and science are logical and require that part-to-whole analysis. Working through some kind of problem or
experiment means going step by step, because trying to solve or design it all at once will not work. Hence, the left-brain uses the most realistic and practical solution to the situation.

The right side of the brain physically controls the left side of the body, plus unstructured thought. According to Décosterd, "the right brain [...] controls intuitive and emotional thought [and] it is imaginative, nonverbal, and holistic" (p. 12). The right-brain is reflective and sees the world as it could be. While looking at situations, the right-brain analyzes from whole to part, meaning it finds a solution to the problem and then breaks down that solution to figure out how it can be accomplished. While in school, classes such as art, music, literature, and history engage the right-brain. Creative components of these classes help develop the right side of the brain and teach students to find the most creative solution to any situation.

Décosterd identifies ten behaviors that show the way each hemisphere of our brain works differently and how both collaborate. She explains, "the left [brain] behaviors are methodical, expressive, grounded, and assertive" (p. 24). These behaviors form the acronym MEGA, and give the left-brain the title of MEGA Mind (p. 31). Focusing on organization and in-the-moment execution, the MEGA Mind uses logic and fluidity to solve problems. This "skill set assumes the view of looking over the work [by] organizing, monitoring, and driving the work in progress" (p. 25). When the left-brain sees a problem, it will use these behaviors to logically create an immediate satisfactory solution.

While the left-brain creates in-the-moment solutions, the right-brain is more open-minded and sees future outcomes of such solutions. According to Décosterd, "the right brain behaviors are strategic, innovative, transformational, and engaging" (p. 24). These
behaviors form the acronym SITE, and give the right-brain the title of Line of SITE (p. 29). Focusing on long-term effects, Line of SITE uses historic knowledge and visionary skills to solve problems. This "skill set assumes the view of looking out to the future, to a desired state [and] seeing beyond the day-to-day [...] challenges and opportunities," either short or long term, but always futuristic (p. 24-25). The right-brain finds a solution based on emotions and long-term effects.

Using both sides of the brain, we incorporate in-the-moment and futuristic solutions. By developing multi-dominance, we can use more brainpower, engaging MEGA Mind and Line of SITE, along with resilience and savvy, which are auxiliary behaviors (Décosterd, p. 24). These traits tend to us personally: "resilient contributes to [our] health, well-being, and staying power" and "savvy speaks to [our] image and ability to negotiate the ever-so-crucial landscape within [our] organization" (p. 24). These two behaviors focus on inward discipline and achievement. Décosterd says these behaviors are “looking in at one's own fortitude and influence” (p. 25). These two traits are called the Plus Factors because they are additional skills we gain by developing multi-dominance. Although just acronyms and names, MEGA Mind, Line of SITE, and Plus Factors, also combine as the ten behaviors our brains use to develop necessary skills to tackle any problems.

Décosterd explains each specific behavior and gives examples of traits related to each. For the left side of the brain, she describes MEGA Mind. Methodical is “to plan well, to be systematic and effectual in your approach to initiatives” (p. 31). A methodical approach to solutions would be taking control of a situation in a deliberate fashion. Methodical traits are “task oriented, detail oriented, organized, effective, focused, procedural, sequential, logical, analytical, [and] factual” (p. 31). Expressive is “to clearly communicate your
thoughts both formally and informally while providing the necessary context” (p. 31). An expressive approach to a situation would be having everything out on the table and using all the information to find an appropriate method to solve the situation. Expressive traits are “prepared, articulate, coherent, concise, erudite, presentable, passionate, personable, persuasive, [and] interesting” (p. 31-32). Grounded is “to act with integrity, consistency, and stability, and to be the steward and the gauge” (p. 32). A grounded approach is to be cautious of all surrounding options. Grounded traits are “composed, approachable, genuine, pragmatic, cautious, questioning, stable, loyal, established, [and] trustworthy” (p. 32). Assertive is “to be upfront, direct, and determined [to achieve] the desired results” (p. 32). An assertive approach would be confident and compelling compared to other solutions. Assertive traits are “purposeful, tenacious, driven, delegating, decisive, courageous, candid, confrontational, [and] closure-seeking” (p. 32). The left-brain focuses on daily tactical demands, ability to plan, and execution of plans.

For the right side of the brain, Décosterd describes Line of SITE, which engages a strategic approach “to be proactive and visionary and to have the long-range view” (p. 30). Strategic traits are “intuitive, insightful, anticipatory, shrewd, big-picture oriented, global, holistic, theoretical, [and] conceptual” (p. 30). Innovative is “to have an open mind and be able to think creatively without restraint” (p. 30). An innovative approach would be creative and prudent. Innovative traits are “pioneering, risk-taking, playful, creative, novelty-seeking, imaginative, experimental, curious, spontaneous, [and] unconventional” (p. 30). Transformational is “to drive change in cultures, teams, and individuals relative to values, thoughts, and actions” (p. 30). A transformational approach would be creative and inventive. Transformational traits are “open to learning, assimilative, attuned, ambiguity-
allowing, facilitative, opportunity-conscious, incremental, adaptive, mentoring, [and] alignment-driven” (p. 30). Engaging is “to understand and work well with others, to validate, involve, and recognize others, and to help them take responsibility” (p. 31). An engaging approach is taking the opportunity to use others’ opinions and ideas in tandem with our own. Engaging traits are “inquisitive, listening, respectful, responsive, inclusive, collaborative, empathetic, empowering, charismatic, [and] motivational” (p. 31). Looking at the future, the right-brain focuses on the organization of the desired state.

Décosterd describes the Plus Factors: resilient and savvy. Being resilient is “to possess the optimal physical and mental functioning, stamina, and mindset” (p. 33). A resilient approach would be using practicality and creativity to find the best remedy. Resilient traits are “positive, emotionally sound, clear thinking, tolerant, flexible, spiritual, physically fit, fulfilled, relaxed, [and] environmental.” Savvy is “to sense and respond appropriately to the organization’s cultural climate and to get things done in a way that advances both you and those individuals and organizations you are affiliated with.” A savvy approach is to think about all sides of the situation and find the absolute best solution. Savvy traits are “astute, subtle, diplomatic, promotive, timely, culturally oriented, networking, assimilating, coalition-building, [and] visible” (p. 33). Multi-dominance uses the whole brain, and that brainpower devises the most appropriate solution.

With only these ten behaviors, we can see that the left and right hemispheres work individually and collaboratively to give the viewpoints we need. Going through each behavior proves helpful to truly understand how each side of the brain thinks. By “looking over,” the left-brain sees everything happening in the moment, to find the best immediate option. While “looking out,” the right-brain sees how certain options will transpire in the
future, near or far. Collectively, the brain is constantly “looking in” to take care of personal needs (See Figure 2). With these three efforts, the brain should reach decisions that are both beneficial and practical. This proves that we are not just right-brained or left-brained. We commonly use both parts of our brain, but that does not mean everyone is considered multi-dominant. To obtain multi-dominance, we must consider all possibilities and use the best solution. This is a daunting task, looking at every single option, but at this level we can achieve multi-dominance.

![Figure 2: “Right Brain/Left Brain Leadership Model (partial)”](Decosterd, p. 26)

Various theories explore differences in the brain. Another common theory calls the left-brain the linear model and the right-brain the rich model. Andy Hunt, author of multiple software development books, describes the right and left-brain in a completely different way than Mary Décosterd. From computer science, he uses the terms L-mode and R-mode to stand for Left and Right-brain and also Linear and Rich models, respectively.
Seeing a different perspective on the hemispheres of the brain is useful, especially when trying to prove the importance of developing each part.

The left-brain "Gives you the power to work through the details and make it happen" (Hunt, 2008, p. 47). This logical side is important in everyday life. Paying attention to detail is a crucial part of life in common daily activities. As Hunt says, “L-mode processing is comfortable [and] familiar” (p. 59). The left-brain uses several abilities: verbal, analytic, symbolic, abstract, temporal, rational, digital, logical, and linear (p. 59). This list shows the left-brain is balanced and sensible. Some might consider abstraction a more creative and right-brained ability, but Hunt describes it as “taking out a small bit of information and using it to represent the whole thing,” which is similar to part-to-whole analysis (p. 59). However, linear ability—or “thinking in terms of linked ideas, one thought directly following another, often leading to a convergent conclusion”—is commonly considered left-brain logic (p. 59). Hunt uses this interesting take on right and left hemispheres to disprove simplistic stereotyping of our brains.

The right-brain is “critical for intuition, problem solving, and creativity” (Hunt, p. 47). Problem solving uses imagination and innovative thinking. Although problem solving may be considered a left-brain ability, with the creative component, it tends to be part of the right-brain abilities and functions. Hunt describes the right-brain abilities as non-verbal, non-rational, spatial, concrete, intuitive, analogic, holistic, and non-linear (p. 61). This includes quite a few opposites from the left-brain. This is understandably justifiable, but we have said that the hemispheres work together, so what is the use of describing the left-brain as being linear and the right-brain as being non-linear? This further deepens our understanding of how the hemispheres look at situations differently. The right-brain is
“intuitive, making leaps of insight, often based on incomplete patterns, hunches, feelings, or visual images” (p. 60). Disregarding judgment, the right-brain takes that risk to create something beautiful, whether a solution to a math or political problem, or an artistic creation or statement.

These abilities are good examples of how stereotyping our brain can be misleading. By categorizing brains as either a right-brain or a left-brain, and no in between, we lose the ability to make choices that are best for us individually. For example, knowing I enjoyed math and dance, choosing to study just one interest in school could have been quite an utter disappointment. Giving students the option to continue doing what they love—whether only one interest or five independent interests—allows them to better select their college, studies, career, and ultimately their life.

Growing up, school is the most important part of life, or so it seems. The traditional school year is August to May, and each week is Monday through Friday arriving at school early in the morning and leaving around seven or eight hours later. Other than a few days off, winter and spring break, school is non-stop. Throughout elementary, middle, and high school, this is what life revolves around. Now the schedule includes extracurricular activities, holidays, and other gatherings that happen during the year, but school is where most growth and progress occur. Kindergarten and elementary school are crucial developmental years, when students find their interests. The curriculum must keep the students engaged and excited to be learning new subjects in each and every class.

STEM, the acronym used before STEAM, stands for science, technology, engineering, and mathematics. It was the first attempt at connecting important subjects and teaching students how to use knowledge from one class in other contexts. STEM is known "as a
meta-discipline—an integration of formerly separate subjects into a new and coherent field of study" (Vasquez, 2014, p. 11) (See Figure 3). This form of education can answer students’ questions about why what they are learning is important, and how they will use what they are learning. Vasquez states, “[STEM] gives students opportunities to apply the skills and knowledge they have learned” (p. 12). Focusing on applications for what they are learning gives students the answer to why they are learning these subjects.

Figure 3: “Relationship Model of the STEM Initiative”
(Watson & Watson, p. 1)

Education can have many “levels of integration,” and emphasizing STEM practice in the classroom requires teachers to use transdisciplinary techniques (Vasquez, p. 13). Transdisciplinary learning “[undertakes] real-world problems or projects [so that] students apply knowledge and skills from two or more disciplines and [shape] the learning experience” (p. 13) (See Figure 4). Integrating the subjects and using real-world applications gives students more motivation to try and understand the material they are learning. This gives them the opportunity to test out different career paths in school, while
they still have time to change their minds. Elementary, middle, and high school are the perfect time to investigate fields. The “transdisciplinary STEM experience would be both relevant to the students and beneficial to the community,” helping them understand the usefulness of most if not all of their education in their chosen career (p. 14). Since the future is in children’s hands, they should receive the best education with the most advanced techniques.

Figure 4: “The Inclined Plane of STEM Integration” (Vasquez, p. 13)

Adding STEM into curriculum has sparked arguments and debates around the country. Unfortunately, as practical and beneficial as STEM is, its techniques ignore a huge portion of careers. Without any art, STEM only focuses on the logical side of each career. Practicality is vital to education, but problem solving will not work without any creative ideas to initiate the process. Watson and Watson (2013) argue “true scientific imagination is correlated with and supported by creative activity outside science” (p. 1). Using art while
working scientifically proves necessary. At achievement of a “high level of technical skill, [...] science and art tend to coalesce in esthetics, plasticity, and form” (p. 2). Intertwining these two disciplines will specifically result in more integration of knowledge. Generally incorporating art into STEM will add a necessary component to most careers. STEAM—the integration of science, technology, engineering, art, and mathematics—covers all the grounds while educating students. It offers them a wide range of options that they have experienced while selecting college studies or even a career.

Working with innovative STEAM techniques introduces new ways to work with different learners. This is progress since learning can happen in many different ways. While learning, students are perceiving and processing information. Generally, there are two ways of perceiving—sensing/feeling and thinking—and two ways of processing—acting and watching (McCarthy, 1987, p. 20). This shows four different learning styles, all of which can be explained multiple ways. One example of these four types of learners are diverger, assimilator, converger, and accommodator (p. 26). First, divergers perceive concretely and process reflectively. They are social scientists and organizational developers, who observe and “reflect about what they find” (p. 22). Assimilators perceive abstractly and process reflectively. They are researchers and designers, who start with an idea, play with it, and shape it into what they wish it to be (p. 22). Convergers perceive abstractly and process actively. They are engineers, who start with an idea, conduct experiments to test it, and see if it works (p. 23). Lastly, accommodators perceive concretely and process actively. They are marketers and sales people, who use their knowledge and experience to jump right in and make a difference (p. 23). These four different types of learning reveal many ways to experience and manipulate information.
Type one divergers or imaginative learners “integrate experience with self” and “learn by listening and sharing ideas” (McCarthy, p. 37). To learn, they must be personally involved in the process and “absorb reality.” McCarthy describes goals and good careers for imaginative learners. Their main goal is “To be involved in important issues and to bring harmony.” Some good careers are “counseling, teaching, organizational development, [and] humanities and social sciences” (p. 37). Divergers are here to make a change whether for one person, a whole community, or bigger. They use their own concrete experience to ask why and reflectively find a solution.

Type two assimilators or analytic learners “devise theories by integrating their observations into what is known” (McCarthy, p. 39). Detail-oriented and sequential thinkers, analytic learners “will re-examine facts if situations perplex them.” Self-motivated, they “seek intellectual competence and personal effectiveness.” Their main goal is “intellectual recognition,” and good careers are “mathematics, research and planning, [and] natural sciences” (p. 39). Assimilators are here to know and understand all the facts. They use their own abstract experience to ask “what?” and reflectively find a solution.

Type three convergers or common sense learners “integrate through theory and practice” and “learn by testing theories and applying common sense” (McCarthy, p. 41). Strategic thinkers and skill-oriented, common sense learners “need to know how things work” and can come across as “bossy and impersonal.” They consistently focus on finding results that will work. The main goal of common sense learners is “to bring their view of the present in line with future security,” and good careers are “engineering, applied sciences, [and] surgeons” (p. 41). Convergers are here to get right down to work. They use their own abstract experience to ask how things work and actively find a solution.
Type four accommodators or dynamic learners “integrate experience and application” and “learn by trial and error” (McCarthy, p. 43). As risk takers, dynamic learners “often reach accurate conclusions in the absence of logical justification.” Although “sometimes seen as manipulative and pushy, [they] seek to influence” and excel when challenged. The main goal of dynamic learners is “to bring action to ideas,” and good careers are “marketing, sales, entertainment, education, [and] social professions” (p. 43).

Accommodators relish in change and ease others into it. They use their own concrete experience to ask “what if?” and actively find a solution.

These four types of learners have many more characteristics, but this gives a general overview of different students’ abilities to learn. With twenty to thirty children in a classroom, teaching is ridiculously complex, when trying to find something for each child to enjoy and excel in. This is a reason schools now emphasize more small group learning. It is also a reason for programs like STEAM, that integrate learning styles and subjects to help students altogether. We all learn differently; we should embrace these differences. STEAM principles teach students in ways they learn best, encouraging them to engage diversity in solving future problems. For some students, their best approach to learning could be practicing problems in a mathematics class or being hands-on in a painting class.

The arts is an expression used as an umbrella descriptor of any physical demonstration based on creativity and culture, including literature, performing arts, culinary arts, media arts, and visual arts. Some of these categories may be more appropriate for high school, but many can start in elementary school. With different types of art integrated into schools, students can start to explore career options, plus essential creative outlets in tandem with careers. In my own education, I enjoyed math, but used my
eagerness for physical movement as a creative escape to form art. A balance between educational disciplines is imperative for elementary, middle, and high school students.

Most high schools already implement literature as a subject, with poetry, novels, short stories, and epics as a few examples. Reading famous pieces from writers like Shakespeare, Charles Dickens, Harper Lee, George Orwell, and Emily Dickinson is essential to learning history and appreciating culture. However, after learning about texts and their authors, students should also be given an opportunity to form a piece of their own. Although this may be difficult for some students, helping them work through and finish literary projects will make them feel accomplished. Creative writing is also helpful for students who have the ability to create worlds, scenarios, or characters inside their head. A literature class will give these talented students the creative outlet they need.

The performing arts include music, theatre, and dance. Most schools require some type of music class, starting in elementary school, continuing through middle school, and then becoming an option in high school. Nearly all middle and high schools offer band as an extracurricular activity. In high school, this could also include marching and jazz band. Choir is another class offered in many schools as a performing art credit. Since music comes in many different forms, it is necessary to offer a wide range of classes to cover all musical possibilities. Most middle and high schools also offer theatre. Plays and musicals are great experiences for learning and memorizing lines and songs. They also allow students to act by stepping into the shoes of a completely different person. Acting is a great confidence builder. If students are unsure of their ability to be creative and perform, they may be able to step into a character’s shoes and play that role with complete confidence. Theatre opens a range of career options because of the large amount of TV shows and
movies, as well as live theatre around the country. Although it may be an extremely demanding field—physically and mentally—students with endurance and passion will continue to pursue this career. Acting skills are also helpful in many other careers, including sales, teaching, ministry, and politics. Almost every job comes with some type of speaking role, which acting skills will help develop in high school.

While most schools offer music and theatre, few offer dance. High schools most likely have some sort of “dance team,” but they only perform at sporting events or competitions. Dance teams do not provide formal training, thereby missing the point of art within this extracurricular activity. Physical education classes may give the option of dance classes in high school, but unless they include a creative component, they will not be worthwhile to students. Having dance classes in schools brings ongoing benefits, including exercise, creativity, quick learning, open-mindedness, and social interaction.

In general, performance itself is a major benefit of the performing arts. Being in front of an audience performing music, theatre, or dance builds confidence, shows passion, and improves social skills. No other subject in school is capable of helping students excel at live performance. Students must try music, theatre, or dance in school to figure out if they enjoy and/or want to pursue any of these arts. Performing arts give students options to try their talent and appreciation for these arts while in school. Unfortunately these programs are lacking or being depleted in many schools across the country.

Most schools also ignore culinary arts as a category of the arts. Baking, chocolatiering, and winemaking are some examples. In elementary and middle school, culinary arts are scarcely found due to the students’ ages. This is understandable considering these activities require hot ovens, sharp objects, and cleanliness. In high
options for a culinary class should be readily available to all students, whether they know they have a passion for it, or they just want to give it a try. Although seemingly insignificant to development, students can and will realize this is their creative calling. Another important benefit of culinary arts classes is the practical life skills they teach. Eventually, most students will be living on their own, having to cook for themselves. High schools have classes like consumer education, which teach budgets, saving and checking accounts, loans, payments, and taxes—all essential life skills. Cooking and baking are also essential life skills. Schools should implement the culinary arts for this simple fact.

Many careers in today’s society use media arts, including photography and cinematography. All the advertisements seen around cities and towns, in newspapers, magazines, online, and on billboards are giving employment to photographers and graphic designers. Baby, senior, wedding, and family portraits are all societal norms, which offer job opportunities for students who may have a passion for art photography. Thousands of movies, TV shows, and documentaries are produced each year. Every single one requires multiple cinematographers to capture the scenes to make the production. These skills, although harder to teach to elementary and middle school students, should be offered in high school. Photography and cinematography classes give students access to this world of advertisement and entertainment that is a huge part of our society. This creative opportunity could be a mind-opening experience for students who never tried it before high school.

When anyone mentions art, visual arts are the most commonly thought of classes, with drawing, painting, and sculpting as some examples. Elementary and middle schools use drawing and painting to give students a creative outlet during the school day. Sculpting
would be more appropriate for high school students because of its difficulty and danger. Now some students, myself included, may not have the talent for this type of visual art, but they should have the opportunity. Although not a talented visual artist, I enjoyed art classes in elementary and middle school and had the option to continue my studies if I wished to. Personally, I enjoyed dance classes more than art classes, so I continued with dance. Giving students the opportunity to continue developing skills in whichever classes they wish is one of the most important elements of any art curriculum. Specifically, school visual art programs give students the option to continue taking art as part of their education.

Just like science, technology, engineering, and mathematics, the arts fill a critical role in elementary, middle, and high schools. Students must be given the opportunity to learn and develop skills in artistic disciplines. Despite many physical and social benefits of dance, many schools lack a dance education option. Music education is also on the decline because of budget cuts. Unfortunately, music and other art programs are typically the first cut when facing financial issues. Hopefully implementing STEAM will give art curriculum the respect it deserves. Art is a critical activity in schools, and children deserve the opportunity to try everything to find a career they love and want to do for the rest of their lives.

Dance and music education are rare in most public schools because many state education departments feel these classes lack sufficient benefits to justify requiring them. Contrary to such beliefs, many studies have found these classes beneficial in regard to brain development, creative ability, and confidence. All schools across the country should implement dance and music education as essential options within the curriculum.

Dance can be a sophisticated art form, taught in dance schools and universities by incredibly disciplined teachers. Elementary school dance classes encourage children to
learn and create movements based on their own experience and imagination. The wide spectrum of dance education covers my five-year-old self in a community ballet class, high school students choreographing a hip hop piece in physical education, and professional modern dancers warming up before a show in New York City. Dance speaks many different languages and does not discriminate. Whether for a profession, an extracurricular activity, exercise, or fun, dancing is an opportunity to enjoy freedom and creativity.

Elementary students will be excited to take a dance class. During the school day, students are sedentary in classes; however, “the 2008 Physical Activity Guidelines for Americans recommend that children and adolescents engage in at least 60 minutes of physical activity daily” (Turner, Chriqui, & Chaloupka, 2013, p. 533-534). This should include a physical education class and recess. Dance education could easily be placed in a physical education curriculum, and has been successful in schools. For example, my high school offered many different activities every four weeks for our physical education class, including social dance and hip-hop, which were both incredibly popular.

Being active and having creative outlets during the school day improves students’ ability to focus in classes when they are sitting at desks. As for recess, debates have occurred about whether it is a waste of time. Recess is proven to be beneficial, and as Carol Chmelynski (2006) explains, “play is important for the emotional, social, cognitive, and physical development of children, [helping] them become more creative and imaginative, as well as physically fit” (p. 10). Unfortunately recess is increasingly losing its place in schools across the country. As frustrating as this is, dance education could be a balanced solution, keeping students active and imaginative, but a little more structured than recess. In dance class, they will feel free to move around, be active, and create new movements.
Although not exactly the same freedom as recess, dance class "is associated with teacher reports of better classroom behavior, better focus, and less fidgeting among students" (Turner, Chriqui, & Chaloupka, p. 534). Dance classes are educational and beneficial, and should be fun and encouraging, but also challenging for students who have a gift for dance. Students should be given the opportunity to try this art form along with many others in a school setting with educational resources.

Dance produces potentially infinite benefits, and most individuals will find something beneficial from dance in their own lives. For some, it may build confidence. Whether for a big audience or simply other classmates, performing boosts confidence and courage. An example is Ryan Ridler (2014), an undergraduate student who needed a dance education course to complete his degree. Although at first scared to take the class simply because it was something he had never tried, it turned into an incredible experience (p. 24). He explains, "It's crazy to think that I began this course never wanting to actually have to dance, but by the end of it, I wanted everyone to see me perform" (p. 25). His courage and confidence grew throughout the course, giving him a unique experience. Others may benefit more from the physical movement and exercise component. No matter what style of dance, students are being active in whatever they chose to do. Still for others, myself included, it could be an outlet or release from everyday activities. While dancing, I forget about my troubles and focus on my body, the music, and my feelings, disregarding my surroundings. In a society where "we hear about how much we should weigh, what we should eat, how we should stretch, how we should feel about this piece of art or that piece of music," programs focused on physical wellness and mental health are essential (Lussier-Ley & Leger, 2011, p. 32). School dance education programs focus on each student's
individual health, both physical and mental. Participating in dance class, similar to children playing at recess, physically "makes the heart pump better, stimulates the brain, makes the bones stronger and denser, and makes the muscles more flexible and supportive" (Chmelynski, p. 11). Students would be less prone to chronic illnesses, and their overall physical health would increase due to dance classes in schools. Specifically through middle and high school, it could potentially be a therapeutic class, giving students the option to explore and examine their troubles. Even without finding a solution to every single problem, dance class could release tension and stress, providing students a healthy way to process emotions. Physically and mentally, dance takes care of the body by staying active, engaging the imagination, and releasing endorphins.

Accomplishing such successful results in every class is a difficult task. Since students are all unique, teaching a class, no matter what subject, is complicated, so teachers must have the right attitude and approach. The teacher-student relationship is important for both sides to benefit the most from the class. Students' probabilities of success consistently rely "on how [teachers structure] learning experiences, [create] learning environments, and [interact] with children" (Chen & Cone, 2003, p. 170). From personal experience, teachers can make or break a class. Dance is no different, and teachers must be prepared for the students who come into their class, knowing the "reciprocal relationship between what students experience and how teachers structure learning content within the learning environment" (p. 170). With a positive relationship and focused daily goals, students can and will succeed in dance classes, gaining skills that will continue helping them throughout life.
Dance classes give "rich experiences [that] enable students to learn along several dimensions at once—socially, spatially, kinesthetically, [and] self-reflectively" (Purvis, 2014, p. 36). Dance is a multidimensional learning platform "where students can freely explore themselves through dance technique and artistry" (p. 36). Through a process called "scaffolding," teachers create safe environments for their students to excel. Scaffolding is "controlling those elements of the task that are initially beyond the learner's capability, thus permitting him to concentrate upon and complete only those elements that are within his range of competence" (Chen & Cone, p. 170). This process slowly gives students more responsibility when they feel comfortable with it. In any type of art class, this allows hesitant students to take their time to adjust. Hopefully they will start to try concepts of their own, which will improve their creativity. For dance teachers, "presenting sequential open-ended tasks and learning cues, and providing instructional scaffolding" are key components when developing their students' critical thinking skills (p. 169). With these techniques, "teachers [help] students generate divergent and original movement responses and refinement of dance quality and expression, which are critical thinking elements" (p. 169). Critical thinking is just one of the many skills dance curriculum can focus on. A skill used in every subject each year, critical thinking is a necessary asset in any career.

Critical thinking is just one of the many potential skills learned and practiced through dance curriculum. Yet, some schools mistakenly claim that dance education is unimportant and unhelpful to standardized testing, which is the most emphasized part of school. For example, "the pressures to improve test scores and avoid lawsuits [cause] many schools to cut back on play time," and any subject not directly related to a standardized test (Chmelynski, p. 10). This means state education departments value only math, science,
reading, and English. The possibility of each student successfully learning critical thinking, imaginative creation, problem solving, innovative thought, and collaboration skills is slim to none with only these classes. These skills cannot be measured by a standardized test, therefore it is not part of the curriculum for the test, so the core classes do not teach these skills. Standardized tests were increased as a part of No Child Left Behind, but after fourteen years, it does not show much improvement in schools. According to the National Association for Education Statistics, standardized test scores have not increased a significant amount. For example, the SAT is a test defined by three subjects: mathematics, reading, and writing. Mathematics average scores increased by nine points between the years of 1998-99 and 2004-05, but decreased six points between 2004-05 and 2011-12. Reading average scores decreased nine points between 1998-99 and 2011-12. Writing average scores decreased nine points between 2005-06 and 2011-12 (Snyder & Dillow, 2013, p. 68). Test scores have not been improving in the past fourteen years, yet we continue to push standardized tests on students. Different and frankly more important skills are learned through integration of curriculum from science and math, to history and art. Implementing dance in schools would benefit students by learning important life skills, and would benefit the community by giving cultural performances available to see.

Like all arts, dance has the ability to touch peoples' lives. As artists, choreographers have creative power to forge a new piece of work, giving it deep personal meaning, making it a fun, outgoing dance, or creating something in between. Most choreographers and dancers continue their work because of their passion for it. Since most start when they are young, they have fifteen to twenty years of experience before making it a career. Instead of becoming professionals, others may keep it as a hobby, continuing to take and/or teach
classes for lifelong wellness. Either way, dance would not be a wasted art class. Involving more people in the dance world would create more respect for the profession. Dance can be an outlet for emotions and feelings, worldly issues, struggles through illness or death, or anything else. Without boundaries, dance is an infinite art form.

Combining art forms creates infinite possibilities. Collaborations are a typical pathway when working on a creative piece that may be influential or controversial. Combining dance with other art forms gives artists a plethora of creative options. An experiment by Golden Wright and Barbara Hernandez (2014) at Lamar University in Beaumont, Texas, provides a perfect example of the benefits of collaboration. Merging an advanced drawing class and a dance rehearsal created a beautiful piece of art. According to Wright and Hernandez, it started with “the [drawing] class [being] invited to the dance rehearsal and the [drawing] students [sketching] the dance students as they performed their choreography” (p. 12). For both classes, this first step brought exhilarating new experiences: “The dancers were excited to have regular audience members [for rehearsal], and the [drawing] students had live subjects to draw,” advantages neither class previously had the privilege of doing (p. 12). This collaboration culminated with drawing students making posters for the dance concert and a live dance performance in an art lobby (p. 12). This collaboration gave the students and professors more ideas for how to combine these art forms and create more interactive works that would benefit the community and students.

This experiment evolved into a greater, more captivating piece of art. Eventually, it became a painting that dancers created while performing. A large canvas was put on the performance stage; the dancers dipped their feet and hands in paint, and then danced on
the canvas, transforming it into an artwork (Wright & Hernandez, p. 12). Unfortunately, the first time they tried it during rehearsal, "the authors noticed that there was not enough paint on the canvas to make the work interesting" (p. 12). After a little more experimentation, "over a year with numerous people and lots of time [the] final product was fantastic" (p. 12). Everyone involved enjoyed the process and took pleasure and pride in creating the work. Wright and Hernandez explain, "the dancers enjoyed the creative process, the audience experienced something new, and the designers created something special" (p. 12). Building this experiment and creating this piece of art influenced many people in the university, bringing them together to experience art. This proves that even at a university level, dance and other art forms have the ability to inspire students and professors to innovatively think, try new things, and explore different potentials.

To get to the university level, where intriguing opportunities arise, students must first go through elementary, middle, and high school learning the basics of different art forms. In the few primary and elementary schools that do have a solid dance programs, experiments have taken place and have evaluated the programs. New Zealand specifically studied the differences between having a regular teacher versus an outside expert instruct a dance class. According to Snook and Buck (2014), the research sought to discover the effects of teaching dance in primary classrooms, but also how to "focus on building teachers' confidence to 'give dance a go'" (p. 18). The results were rational, proving that having experts in the class was great, until they left and teachers felt inadequate to continue teaching the class (p. 22). Teachers' confidence to direct their students is imperative while instructing any course, dance being no exception. For dance to influence students, it must be "offered regularly [or] what learning took place in [some] sessions
could be lost” (p. 22). If teachers need help, experts should be hired to instruct the class, plus give teachers tips and strategies to do it on their own (p. 22). These results are logical and should be used in primary and elementary schools that integrate dance in their curriculum.

Another observation of students took place in South Carolina. This particular school added dance class to grades K-5, where all the students participated in multiple ways and performed at the end of the semester. The goal was to “[use] dance as a means to explore curricular content and perform student knowledge and artistry through whole-school residency” (Leonard, 2014, p. 1). To keep the focus broad and significant to a wide audience, the experiment “[tailored] the dance experiences to exploration, communication, and problem solving, using creative movement, modern dance, and dance conditioning techniques versus developing rigid standards of technical dance skills” (p. 2). With this purpose in mind, the target was finding the benefits of dance in elementary school related to other subjects and skills. For example, artistic outlets such as dance classes exercise creative thinking. In school, creative thinking is essential to problem solving in math and science, writing in English and history, and envisioning projects for any art class. Since this is useful in all subjects, all elementary schools would benefit from the addition of dance classes.

More benefits were acknowledged during the South Carolina observation of the added dance classes for K-5 students. Each combined grade level had its own curriculum and theme for this experiment. A hired dance artist taught each combined grade level the curriculum through a theme assigned by teachers (Leonard, p. 2). For instance, “the fourth and fifth grades explored concepts of flight and aerodynamics through movement.” These
different lessons gave the dance classes more connection to the students’ other classes. This experiment exhibits STEAM principles in action and outcomes. For more focus on their creativity, students “were also given autonomy to make artistic and choreographic decisions with the dance artist acting as the artistic director, shaping their choreography and piecing it together compositionally” (p. 2). Allowing students such opportunities to create art, builds confidence and courage. To generate a more accurate reaction to this experiment, students reported their opinions. This feedback gives insight to the positives and negatives about the experiment and requiring dance classes in a K-5 curriculum.

Students commenting on their own participations in the dance classes gives the school results in qualitative form, in addition to the numerical data. One “student noted that the dance warm-up seemed like he was in his football practices and that one move ‘felt like a push-up’” (Leonard, p. 3). Dance is compromised of everyday movements and “can never exceed the natural capacities of the human body” (p. 3). Beginning the dance class with this mind set, the students were more open because dance seemed more approachable. It was not an unrealistic goal as it would be if they went to a professional ballet, jazz, or modern company performance.

Another account investigated a kindergartener named Gabriel (Leonard, p. 5). During dance class, he could never sit still, always up and dancing around. The teachers would try to make him sit still and listen, but the dance artist just let him dance around while she continued with the class. A researcher observed him while the dance artist was instructing, and realized his movements were related to what she was saying (p. 6). This was definitely an “ah-ha” moment for the researcher because she realized “[Gabriel] would [...] bring her words to life or perform [movement sequences] to which she was referring”
Along with interpreting the artist's instruction, Gabriel would "add his own flair and allow the movements to take him elsewhere" (p. 6). Gabriel is an example of a dynamic learner, hands-on and willing to take risks to achieve a goal. Dance class brought out this side of Gabriel, and will hopefully help other teachers learn the best way to instruct him.

The performances at the end of the dance sessions showcased all the students' talent, hard work, effort, and time dedication. Participation in every class was high, and that showed at the performance. The school principal even said, "he was most impressed that every single child participated, even those he called 'very challenging kids' in terms of behavior" (Leonard, p. 3). More than 400 people attended the performance; the largest audience ever to attend an after-school event at this particular school (p. 2). This experiment was successful and meaningful, in terms of research and member participation. The results demonstrate dance can "[explore] movement as a way of thinking, knowing, and communicating while creating artistic [...] learning communities in schools" (p. 1). Dance covers a wide spectrum of abilities taught in schools, combining them to show students how knowledge integration works. Dance and music blend together, forming amazing pieces of art.

Musical selection is an important part of teaching dance. The music can inspire the choreographer and performers. In school dance classes, a variety of music is essential to engage diverse students because they all have different interests in musical genres and artists. Letting students bring in their favorite songs will immediately interest them and keep their attention in the classes. "[Choosing] a wide variety of music, from classical to contemporary and everything in-between" will engage the students (Kalyn, 2014, p. 31). Teachers should also bring in music from their collection to keep their own interest. The
students may find a new artist they enjoy, but have never heard of before because the artist’s prime was before they were born. Students will surprise teachers with their willingness and eagerness to participate in classes, solely based on the music choice. There are millions of songs in the world, and trying new things will benefit students and teachers.

Music and dance are connecting art forms, since dance typically revolves around music. Dances without music can still be influential and complex pieces of art, but most dance performances feature music. Schulkin (2013) states, “the essence of music is sound in motion” (p. 162). This one statement encapsulates the relation of music being dance, in sound form. Another connection is that “the dance completes the music, and the music is embedded in the dance,” showing the crucial union of these two art forms (p. 167). Music and dance contribute to one another and strengthen each other’s possible effects on the audience. We as humans also feel a specific connection to music, dance, and the collaboration. Schulkin (2013) asserts, “the human condition is linked to music and dance” (p. 156). The great part of music and dance is the diversity within both art forms. Both bring people together from certain backgrounds, interests, and experiences. As described above, dance benefits students in schools; music has a similar effect since the skills students learn in music classes will enhance their skills in other classes.

Along with classroom skills, some researchers even suggest music improves intelligence. One debatable effect of music on children is the Mozart effect. Researchers have investigated the effects of classical music on a wide range of people, from three-year-olds to college students. The Mozart effect first came up in 1993, when researchers happened upon some interesting results of college students’ IQ test scores (Zigler, Finn-Stevenson, & Hall, 2002, p. 147). One group of college students listened to ten minutes of
Mozart before taking the Stanford-Binet spatial intelligence test, and their results “were eight to nine points higher than students who had listened to either a relaxation tape or nothing.” After collecting this data, the researchers wanted to replicate their findings, trying again with another seventy-nine college students. Five different tests taken over five days used three groups who listened to ten minutes of Mozart’s Sonata K. 448, a variety of non-classical musical selections, or nothing. The scores of the Mozart group after the first and second days of testing were significantly higher, but the third, fourth, and fifth days were not much different (p. 147). Although these results were not as meaningful as hoped for, researchers continue exploring the Mozart effect.

Many researchers have collected large amounts of data about the Mozart effect, seeing whom it helps the most, when it is most effective, and how it could be most useful. One study “[investigated] the effect of ‘The Mozart Effect: Music for Children’ [a CD] collection on the social, cognitive, and physical development of five and six-year-olds” (Mattar, 2013, p. 370). The experimental group listened to Mozart during any work time in their kindergarten year of school, while the control group listened to no music. “The results showed significant statistical differences in social, cognitive, and physical development [favoring] the children in the experimental group,” which show how important music can be to child development. Music in the classroom of kindergarteners “provides a positive atmosphere, which helps children to experience reduced stress and enhanced development” (p. 370). A positive atmosphere in school is essential, especially in kindergarten, because it is the start of education. Children should be able to enjoy and appreciate kindergarten in a stress-free environment. Since this was a long-term experiment with children, the results seemed more promising than either of the others
with college students. This quick comparison suggests the Mozart effect is valid while in the developmental stage.

In addition to the Mozart effect, studies have been done about using any type of background music while in the classroom during work time. Investigations have been made throughout the years, and although a range of results has been found, "more recent studies [confirm] positive results that background music enhances performance on cognitive tasks as a result of arousal or mood" (Taylor & Rowe, 2012, p. 54). Listening to music in an educational setting can reduce students' anxiety (p. 54). This reaffirms findings of the Mozart effect on younger children. Reducing anxiety in elementary school will relax children and make school less stressful and more enjoyable.

Collins (2014) further explores music's effects including the differences of brain structures and functions between musicians and non-musicians. The research "consisted of 14 studies and took the form of a meta-analysis that compared the criteria used in each study to identify musicians and non-musicians." Each study focused on specific elements of the brain, the time period of certain functions, and the age of the participant. For example, "some [...] studies investigated one small part or activity within the brain whereas other studies focused on the broader range of brain activity that was influenced by music education." The results were overwhelmingly conclusive, proving "that music education could positively and permanently improve cognitive skills, physical development, and emotional well-being." Neuroscience can back up these studies, for hardcore scientific proof of the benefits of music education. As Collins states, "Musicians have been found to possess advanced skills in both long and short-term memory, and memory storage and retrieval." Another intriguing result was that "musicians have been found to acquire
language and understand the rules of language and its syntax more effectively than non-
musicians.” This actually makes total sense; since music is its own language, musicians
learn quickly and are fluent in what is commonly considered just a hobby, instead of a
language. The positive results in these studies display the importance of music education in
schools, at all levels.

Music, dance, and theatre are performing arts that all public schools should
integrate into their curriculum. They are beneficial to all students since they develop
confidence, courage, creativity, language skills, and the brain, physically, socially, and
cognitively. STEAM is a movement that includes these important performing arts, along
with the rest of the arts that are conducive to elementary, middle, and high school learning
environments. These principles provide students opportunities to try a wide range of
classes, from science, mathematics, and technology, to dance, painting, and creative writing.
This promotes more growth in their chosen class or classes, creating well-rounded
students who have solidified interests while still in school. The arts are crucial in
elementary, middle, and high school because of students’ creative ability during those
periods in their life. Starting at the beginning and continuing on gives students time to take
advantage of their imagination as children.

Our education system should prioritize developing multi-dominance, so the left and
right hemispheres of our brains learn to work together. STEAM principles give students the
tools and opportunities they need to accomplish multi-dominance. With the arts integrated
into school programs, students have a wide range of creative outlets that supplement
science, technology, engineering, and mathematics courses. As part of STEAM, arts
education helps students apply knowledge taught in school in real-world applications.
Diverse studies make them better candidates for their career. They also grow more knowledgeable about the problems and possible solutions in today’s world. A well-rounded education will encourage students to look at situations using their right and left-brain, since they grew up learning about multiple approaches to all problems. Through STEAM education, they will be accustomed to integrating knowledge from all classes to develop elegant solutions to complicated issues. With this change in the education system, students will become multi-dominant, benefiting the world around them.

Personally, as I am completing my Bachelor’s Degree, I feel strong and confident in my education. I learned how to be logical through my actuarial science major, and how to embrace my creativity through my dance minor. Although I will continue learning throughout my career, I have formed a solid foundation with my college education. I have become multi-dominant, appreciating being able to look at a problem with different points of view, and finding the best possible solution.
References


