the art of education
UNIVERSITY

THE UNIQUE BENEFITS OF
Art Disciplines in K–12 Education

UNIQUE BENEFITS OF

Art Disciplines in K–12 Education

ARTS EDUCATION

- Build self-esteem and confidence
- Improve memorization
- Stimulate new ways of thinking
- Improve general well-being
- Increase focus and engagement that transfer to other subjects

VISUAL ARTS

- High creativity scores
- Improved literacy
- Critical problem-solving
- Strengthened connections to text and vocabulary
- Increased memory through drawing
- Higher engagement

MEDIA ARTS

- Problem-solving skills
- Student autonomy
- Creative thinking
- Increased engagement through play-based learning
- Heightened academic achievement through critical feedback

MUSIC

- Cognitive organization and structure skills
- Higher math proficiencies
- Connection to human experiences and expression
- Teamwork
- Movement and coordination
- Analyzing non-verbal communication

DANCE

- Endurance
- Relationship skills
- Spatial learning
- Movement and coordination
- Analyzing non-verbal communication
- Expressing emotions
- Kinesthetic intelligence

THEATER

- Relatedness and emotional connections
- Interactivity
- Teamwork
- Expressing emotions
- Kinesthetic intelligence
- Strengthened connections to text and vocabulary

Research confirms the benefits of Arts Education for K–12 Students.

While there is tremendous value that extends across all arts education disciplines, **the visual arts offer distinct benefits** like enhanced creativity, problem-solving, critical thinking, and increased self-esteem and well-being.

VISUAL ARTS

Experiences with visual arts significantly enhance memory retention, visual literacy, and observational skills, contributing to improved GPAs, higher graduation rates, and increased college attendance.

MEDIA ARTS

In play-based learning and design thinking studies associated with media arts, problem-solving is just one of the positive effects that students experience.

DANCE

The physical movement of dance fosters reflective learning, self-confidence, teamwork, and relationship skills.

MUSIC

With music, students experience more teamwork and outperform others in spatial cognition, memory, structure and organization, and dexterity.

THEATER

Performing arts students show deeper emotional connections, improved memorization, and enhanced understanding of text.

Explore the supporting research ▸

AUTHORS

Theresa Haugen, Ph.D.

ASSOCIATE PROFESSOR & CURRICULUM SPECIALIST

The Art of Education University

Heather M. Crockett, Ph.D.

CHIEF ACADEMIC OFFICER

The Art of Education University

REVIEW OF EVIDENCE

Research Supporting the Impact of Arts Education on Student Success

A varied arts curriculum offers **COMPREHENSIVE, COGNITIVE, AND CREATIVE GROWTH.**

A well-rounded curriculum that includes arts education instruction is essential for meeting the evolving educational needs of students. Varied instructional approaches and experiences allow all learners to succeed and support student achievement in a diverse world (Alto, 2014). In the 21st century, innovation, adaptability, and collaboration are paramount. Integrating the arts into K–12 education fosters the development of these essential skills. Additionally, students with access to a diverse arts education curriculum experience higher graduation rates and decreased absenteeism, reflecting the broad benefits of a well-rounded education (Bowen & Kisida, 2023; Catterall, 2012; Kisida et al., 2016; Steele, 2019; Winsler, 2019).

Arts education is vital for academic and emotional development, as it reduces stress, improves learning outcomes, enhances intrinsic motivation, regulates brain chemistry, augments body memory, and rewires neural pathways (CampbellJones et al., 2004). Students who participated in arts programs demonstrated improvement in academics and behavior. Participation in arts programs develops qualities such as tolerance (Catterall et al., 1999), empathy, collaboration, and communication (Arts Education Partnership & National Art Education Association, n.d.).

Arts education skills overlap with mathematics, science, and language arts (Bowen & Kisida, 2019; Catterall, 2012; Kinney & Forsythe, 2005). However, the connection between cognitive skills within the arts and other disciplines varies (Spelke, 2008). One study found a correlation between different arts majors—music, visual art, dance, theater, and creative writing—and geometry skills (Spelke, 2008). Music and dance students performed better in estimation, mapping, and geometrical invariants. Visual arts students performed better in geometry in visual forms. A curriculum that includes multiple arts disciplines allows students to experience the full range of benefits that arts education provides.

Art education provides significant value to K–12 education. Skills such as creative thinking, problem-solving, imagination, and increased literacy are irreplaceable and unique to the visual arts (Arts Education Partnership & National Art Education Association, n.d.). This report highlights the contributions of dance, music, and the performing arts, as well as the power of visual arts for a well-rounded education.

Visual Arts

By engaging in visual arts, students gain valuable skills that enhance their academic and personal growth. Visual art experiences and artistic development lead to high creativity scores and early reading skills through storytelling (Moore et al., 1993; Wandell et al., 2008). These experiences also increase critical thinking and creativity, strengthen memory, and improve engagement (Arts Education Partnership, 2019). Art integration and STEAM-infused opportunities lead to increased math, science, and social studies performance. Improved English skills with increased listening, writing, and speaking have also been noted (Bowen & Kisida, 2019; Kinney & Forsythe, 2005; Schlaack & Steele, 2018)."

VISUAL ARTS INCREASE

critical thinking and creativity, strengthen memory, and improve engagement.

(Arts Education Partnership, 2019)

Students who participate in the arts demonstrate **IMPROVEMENT IN ACADEMICS AND BEHAVIOR.**

DRAWING EXCEEDS

writing in information retention.

(Fernandez, 2018)

Students draw before they learn to write and practice formulating narrative ideas, which can lead to improved writing and storytelling, and increased development of spoken language (Moore et al., 1993; Wandell et al., 2008). Visual literacy and the idea that "drawing is one of our earliest forms of expression … is well documented in the early years of development and supports the use of picture storybooks to encourage and consolidate learning" (Minichiello, 2012, p. 179).

Fernandez (2018) discovered that drawing exceeded writing in information retention in all research areas, even in a lecture hall with groups of 10 to 30 participants. Participants fell evenly into three groups: little to no drawing experience, some drawing experience but no formal training, and classically trained artists; yet drawing experience or lack thereof did not influence the research findings of the effect of drawing on memory (Fernandez, 2018). Participating students remembered almost twice as much when drawing (49.5%) than when they were writing notes (28%), regardless of their former drawing experience, ability, or learning style, including visual learners (Fernandez, 2018).

Memory recall increased significantly when a drawing component was added to visual imagery and writing, and at times drawing alone still had better results than the three combined components (Fernandez, 2018). Consistent participation in visual arts over time leads to increased opportunity for students to discuss and write about their art, increasing literacy by practicing listening, writing, and speaking skills. This process is especially pronounced in English learners (Catterall & Peppler, 2007; Valcarcel et al., 2008).

Sensory channels and motor activities in the brain are triggered when concepts and ideas are explored and expressed through visual art (Lusebrink, 1990). Visual art stimulates the brain's frontal region, enabling students to simulate reality and create fantasy (Sousa, 2006). A balanced curriculum that utilizes both sides of the brain fuels innovation and enhances visual thinking, less fatigue, and more self-esteem (Bockert, 1980).

Kisida et al. (2014) showed that students engaged in visual arts develop critical thinking skills. Crystal Bridges Museum of American Art studied nearly 8,000 grade 3–12 students in a school visit program. This study found that when analyzing a new painting, the students in the school visit program showed significantly stronger critical thinking skills, which were more pronounced among students of lower socioeconomic levels, students of color, and rural students (Bowen et al., 2014). Researchers also found a strong relationship between visual art exposure and visual creativity, as students exposed to visual art have higher creativity scores (Moga et al., 2000). Researchers also found a strong relationship between visual art exposure and increased creativity, a skill necessary to complete in a globalized market (Moga et al., 2000). According to The World Economic Forum, critical thinking and creativity will be among the most sought-after employment skills in 2025 (Hoffman, 2023).

Kisida (2014) found that when students participated in visual arts, teachers observed increased engagement not only in art classes but also in other academic subjects. Students, especially those from low socioeconomic backgrounds, who have a high level of engagement with the arts are more likely to complete high school, have a higher GPA, and attend college at higher rates than their peers with fewer visual art opportunities (Catterall et al., 2012). Engagement continues to benefit students at the college level, where students with art experience show higher performance in geometry and, for medical students, more accurate observational skills (Spelke, 2008).

Students participating in arts education are more likely to

COMPLETE HIGH SCHOOL, HAVE A HIGHER GPA, AND ATTEND COLLEGE,

at higher rates than their peers with low arts engagement.

(Catterall et al., 2012)

Play-based learning in media arts fosters exploration, problem-solving,

SKILL ACQUISITION, AND INNOVATION.

(Lueng et al., 2020)

Media Arts

Media arts is emerging as an arts education category that includes photography, videography, animation, and design education with specific benefits (National Core Art Standards, 2016). Many media studies center on play as an effective teaching strategy. Although media arts for young children can be controversial, with the push to decrease screentime, Lueng et al. (2020) allowed young children to explore video making in a 2-day summer workshop. During video planning and creating, the team observed two types of play-based learning: epistemic play, where children engage in curious exploration, and ludic play, where children use their imagination. Within these play categories are numerous educational benefits of play including exploration, problem-solving, skill acquisition, symbolic, and innovation (Lueng, 2020). Based on Dewey's theoretical framework on the concepts of experience, purpose, and freedom, Shively & Taylor (2023) found a similar play-based learning opportunity, studying one young learner through a media arts project. Both studies centered on the importance of student autonomy, personal decision-making, problem-solving, and play-based learning.

When design thinking is added to the media arts curriculum, problem-solving and innovation benefits are even stronger. Design thinking is integrated with STEAM, arts integration, and design disciplines such as graphic design, fashion design, product design, and interior design. It can also be used as an artmaking process for any media and because of this, there is much crossover between the benefits of visual arts and design education. Design thinking allows flexibility in problem-solving, critical thinking in decision-making, human-centered empathy, collaboration, creativity, and innovation, all connected to 21st century skills. Problem-solving and critical feedback provided a boost to academic performance regardless of past achievement (Chin, 2019; Cutumisu et al., 2020). Yu & Lin (2024) analyzed 25 empirical journal articles on design thinking and its possible effect on learning and academic achievement. The majority of studies showed a positive effect with higher creative thinking, engagement, problem-solving, self-efficacy, and academic achievement.

Music

Music education initiates new ways of thinking and perceiving (Iușcă, 2022). Silverstone (2018) notes six main benefits of music education: enhanced language capabilities, improved memory, strengthened hand-eye coordination, powerful study habits, teamwork, heightened mental processing, and problem-solving. Music students also benefit from increased organization, and dexterity (Iușcă, 2022, Silverstone, 2018).

Research in music education indicates that music has a neuro basis for functional organization within the brain (Iușcă, 2022). Brain involvement through the acquisition of music-related grammar includes neural structures for acquired knowledge and memory, and this heightened concentration improves reading and verbal skills (Ettlinger, 2011, Levitin, 2005). Students with music educational experiences outperformed students without music training on mathematical tasks related to spatial cognition and reasoning, boosting math proficiency significantly by the 12th grade (Catterall et al., 1999, Speike, 2008).

Musical training is associated with

SIGNIFICANTLY HIGHER MATHEMATICS PROFICIENCY

by the 12th grade.

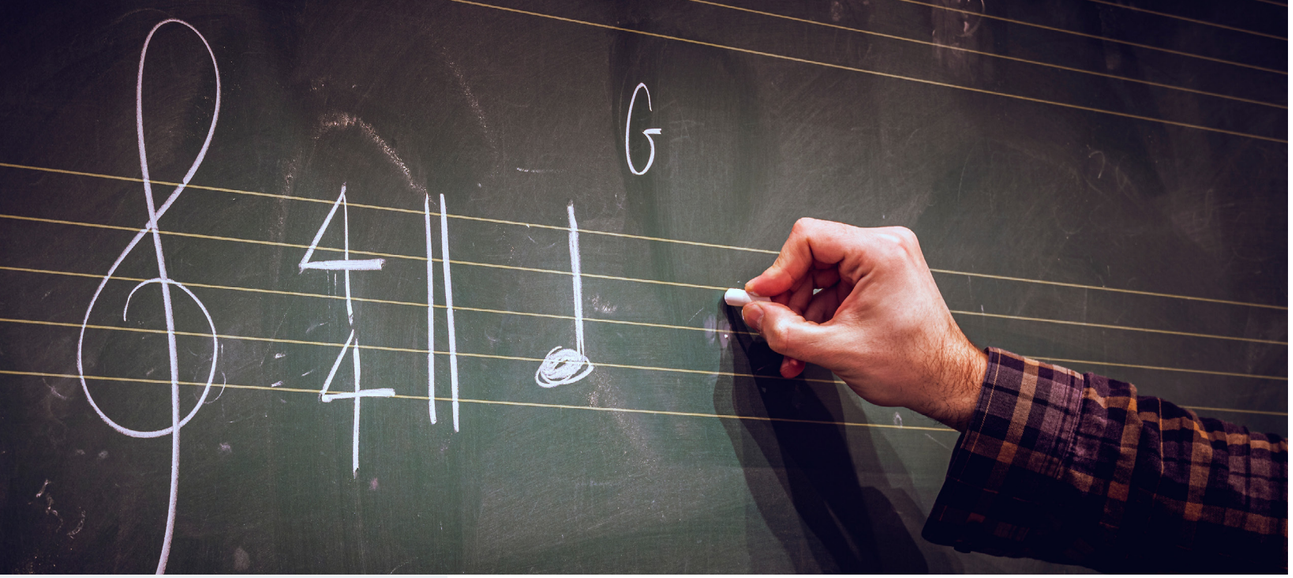
(Catterall et al., 1999)

Nutley (2014) analyzed the relationship between musical practice, performance, reasoning, processing speed, and working memory over a span of two years. The results paired music training with cognitive and math performance benefits. Nutley discovered formal music practice integrated many learning elements: long periods of controlled focus, storing musical passages in working memory or adding passages into long-term memory, decoding music scores, and translating music into corresponding motor commands. These activities

Music education adds intuition, reasoning, and imagination,

IMPROVING COMMUNICATION AND EXPRESSION.

(Iușcă, 2022)



Music practice
ENHANCES COGNITIVE FUNCTIONS
demonstrated by increased grey matter volume in brain scans.

(Nutley, 2014)

create complex cognitive functions in the brain (Schon et al., 2002; Stewart, 2003). Brain scans revealed that grey matter volume increased in two areas when participants played an instrument: the inferior temporal lobe and temporal-occipital fusiform gyri and the insula, caudate, and putamen areas (Nutley, 2014).

Nutley's (2014) study also revealed a significant effect on visuospatial and verbal working memory performance, processing speed, and reasoning. This connection between music and math performance appeared to increase with music practice over time.

Another study found that students with musical education "gain powerful tools for understanding human experiences, learning to adapt to and respect others' ways of thinking, working and expressing themselves, analyzing nonverbal communication and making informed judgments about cultural products and issues, and learning artistic modes of problem-solving" (Iușcă, 2022, p. 1). Music education adds intuition, reasoning, and imagination, improving communication and expression. The psychological advantages of music education include increased self-esteem, self-expression, socialization, teamwork, and discipline (Iușcă, 2022). The effects of music education translate well beyond the music room.

Dance

Engaging in dance offers students both physical and cognitive benefits. Children learn how their bodies work within a space, increasing understanding and their ability to control movement. Through movement and rhythm, physical expression develops endurance and improves motor functioning (Blasing et al., 2019; Laban, 1988). Students in dance also benefit from reflective learning, improved learning transfer, self-confidence, and relationship skills (McGreevy-Nichols & Dooling-Cain, 2022; Payne & Costas, 2021).

Including dance in the curriculum supports socioemotional and communication skills, increasing self-identity while boosting self-confidence and self-awareness, creativity, and a greater capacity for decision-making (Payne & Costas, 2021). Research cites benefits for creative dance include stimulating, modifying, and expressing emotions in socioemotional, physical, and cognitive learning, including relationships, feelings, and ideas (McGreevy-Nichols & Dooling-Cain, 2022; Payne & Costas, 2021). Social knowledge gained through dance is essential in developing or supporting empathy, communication, and the ability to read emotions in others (Green, 2002).

Students in dance learn to think concretely. Creating movement is problem-solving in motion, linking a problem or idea with a solution (Furman & Sibthorp, 2013). Dance integrates kinesthetic learning with divergent thinking and problem-solving (Keun & Hunt, 2007; Robinson, 2001). Students can transfer knowledge to other subjects by applying dance-inspired spatial thinking to geography or transportation concepts (Hanna, 2001). Three-dimensional concepts learned in dance can be applied to rhythmic

CREATING MOVEMENT
is problem-solving in motion,
linking a problem or idea with a solution.

(Furman & Sibthorp, 2013)

EARLY EXPOSURE TO DANCE
lays a
foundation for
HOLISTIC LEARNING.

Theater can **INTRODUCE AND CONNECT STUDENTS** to historical context and human issues.

(Smith, 2020)

Immersion in performing arts cultivates a **POSITIVE AND SUPPORTIVE SCHOOL ENVIRONMENT,** motivating academic achievement and fostering a sense of identity and belonging among students.

(Walton, 2020)

patterns in addition, subtraction, and fractions. In New York City schools' ArtsConnection program, students applied learning in dance to vocabulary (e.g., steps and gestures), grammar (e.g., order of movements), and meaning (Hanna, 2001). The dancers initiated and improved problem-solving, including perseverance and a growth mindset approach. According to Hannah (2001), "Dance requires the same underlying brain faculty for conceptualization, creativity, and memory that speaking and writing need, but its multiple symbolic meanings more often resemble poetry than prose" (p. 22).

A study at the Wolf Trap Institute for Early Learning Through the Arts examined a math-based residency in dance (Temple, 2020). Researchers interviewed two pre-K teachers and corresponding teaching assistants during a 7-week residency. The active engagement of kinesthetic learning from dance allowed students to gain spatial awareness skills, increasing focus and self-confidence, which spurred a growth in creativity. When combined with math and spatial awareness, students were more focused and free of physical accidents, creating a healthy learning space, engaging in sustained learning, and completing tasks more efficiently (Temple, 2020).

Theater

Performing arts help students develop deeper emotional connections and expression, improve memorization and understanding of written text, and increase aesthetic intelligence in awareness and interaction (Clarke & McLellan, 2022; Smith, 2020). Performance integrates students' ability to express tone, space, tension, and emotion, including the sounds and rhythm of words and phrases.

A study of middle and high school students performing Shakespeare revealed benefits, including increased academic learning, stronger historical connections, practiced decision-making and memorization, increased confidence, and emotional development (Smith, 2020). Students increased their academic vocabulary by learning and internalizing new Shakespearean words through this performance. Shakespeare's language also encouraged students to find their voice through speech and writing. Theater can introduce and connect students to historical context and human issues. The moral complexity of a Shakespearean play creates a learning opportunity to analyze human motivation and debate decisions while practicing critical thinking and decision-making. Student collaboration through theater can generate meaning and a deeper understanding of a scripted text through collective ideas and practices. Students work together to convey the message and meaning to an audience, gaining a deeper understanding of a character's emotions using academic and creative skills to communicate that emotion onstage (Smith, 2020).

In a recent study consisting of five male students who graduated from a performing arts high school, all participants described how immersion in performing arts created a positive and safe school environment. The study found improved academic performance and increased positive identity (Walton, 2018). Participants credited their interest in performing arts with their motivation to exceed the 2.0 GPA requirement to perform in extracurricular public performances. Academic achievements were most pronounced in vocabulary development and reading comprehension as they analyzed and memorized written scripts. Three participants excelled in AP courses, and four of the five participants cited the performing arts high school as the primary reason they chose to attend college (Walton, 2018).

Students interviewed in another performing arts study by Clark and McLellan (2022), provided similar results. Relatedness was the most frequently mentioned benefit, as students expressed a connectedness to others through their performing arts experiences. Students especially noted others being receptive and empathetic to their performance skills and ideas without judgment. Involvement in performing arts gave students higher self-esteem, making them feel happy, uplifted, and fulfilled. The students looked forward to attending school and considered theater a vital part of their identity. Student performance reflected increased autonomy and freedom of expression. For some, emotional regulation and management were central to their interest and engagement in theater (Clarke & McLellan, 2022). Clarke and McLellan (2022) speculate that child well-being drops when not afforded collaborative, participatory art experiences that may not exist in other curricula.

Involvement in performing arts nurtures social skills, self-esteem, and emotional regulation, fostering **A SENSE OF COMMUNITY AND PERSONAL FULFILLMENT** among students.

(Clarke & McLellan, 2022)

ARTS EDUCATION INSTRUCTION
is not just
BENEFICIAL
but
ESSENTIAL.

Summary

The body of evidence presented in this report underscores the invaluable role of arts education in fostering holistic student development across cognitive, emotional, and social domains. As educational paradigms evolve to meet the diverse needs of learners in a competitive global market, it becomes increasingly evident that a comprehensive K-12 curriculum inclusive of arts education instruction is not just beneficial but essential.

Educators and policymakers who recognize the intrinsic value of arts education will prioritize their integration into K–12 curricula. By investing in arts education, students will be empowered and develop vital competencies for future success, nurturing their academic growth and well-being and ensuring every child has the opportunity to flourish academically and creatively.

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