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Arts Integration & the Mississippi Arts Commission's Whole Schools Initiative

A Stennis Institute Study for Decision-Makers

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The Mission Statement of the John C. Stennis Institute of Government

Elected to the United States Senate in 1947 with the promise to "plow a straight furrow to the end of the row," John C. Stennis recognized the need for an organization to assist governments with a wide range of issues and to better equip citizens to participate in the political process. In 1976, Senator Stennis set the mission parameters and ushered in the development of a policy research and assistance institute which was to bear his name as an acknowledgment of his service to the people of Mississippi. Created as a service and research arm of Mississippi State University, the John C. Stennis Institute of Government was established on February 9, 1976. Announcing its formation during a two-day Forum on Politics honoring U.S. Senators John Stennis and Margaret Chase Smith, MSU President William L. Giles outlined the Institute's mission and goals. According to Giles, the Institute would seek to integrate research, service, and teaching activities to improve government in the state, as well as promote the training of students who seek careers in public service.

Thirty-seven years later, the Stennis Institute of Government has remained true to that initial charge. By providing meaningful, applied research to both local and state units of Mississippi government, the Institute brings a wealth of experience and knowledge to bear on real-world issues. Through its executive development programs, training opportunities, and technical assistance programs, the Institute provides support for today's policy-makers from the courthouse to the classroom. And, by playing an active role in the development of tomorrow's leaders, the Institute is working to ensure that Mississippi's future remains strong.

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Executive Summary

The Whole Schools Initiative (WSI) is an arts integrated conceptual approach to education reform that redesigns the school learning environment to promote enhanced learning using the arts as the vehicle to support high quality education and instruction for all students. The Whole Schools Initiative is housed at the Mississippi Arts Commission (MAC) and is supported by the National Endowment for the Arts, the state of Mississippi, and with private funds. Since 1991, the Mississippi Arts Commission has provided support to Mississippi schools seeking to adopt the WSI arts integration model. Over 70 Mississippi schools are current or past participants in the Whole Schools Initiative.

This study examined the impact that arts integration has on the academic performance of 4,275 students enrolled in Mississippi public elementary schools and 1,172 students enrolled in Catholic elementary schools that are currently participating in the Mississippi Arts Commission's Whole Schools Initiative. The study explored factors that contribute to the effective implementation of arts integration across the curriculum in Mississippi schools. To analyze the performance of Mississippi public schools participating in the Whole Schools Initiative, the study used databases from the Mississippi Department of Education for student performance on standardized Mississippi Curriculum Tests, Grade 4 Mississippi Writing Assessment Tests, and the 5th Grade Mississippi Science Test. The

performance of Catholic schools participating in the Whole Schools Initiative used data from the Stanford Achievement Test. In addition to the analysis of student performance on standardized tests, surveys of school administrators, principals, arts specialists, classroom teachers and students at participating WSI schools were used to evaluate the Mississippi Arts Commission's Whole Schools Initiative.

This study found the percentage of students scoring "*Proficient or Above*" on standardized Language Arts and Mathematics Mississippi Curriculum Tests, Grade 4 Mississippi Writing Assessment Tests, and 5th Grade Mississippi Science Tests was significantly higher at schools participating in the Whole Schools Initiative that had effectively implemented the WSI arts integration model when compared to student performance statewide and when compared to district level student performance for the school district within which the WSI school was located. WSI schools that effectively implement arts integration were found to have reduced or actually eliminated the academic achievement gap for e*conomically disadvantaged* students. In WSI schools that effectively implement arts integration, a higher percentage of e*conomically disadvantaged* students score "*Proficient or Above*" when compared to *all* students (not just e*conomically disadvantaged* students) at the district and state level, across multiple grade levels, and across multiple subject areas on standardized tests.

Extensive research has found a consistent and robust link between arts integration and a range of positive student outcomes to include increased academic achievement, improved critical thinking skills, enhanced creative thinking, augmented school engagement, and the reduction of the achievement gap for *economically disadvantaged* students. More recent developments in neuroscience provide additional support for the role of the arts in brain development and learning. The findings of this study on the Whole Schools Initiative provide additional evidence that arts integration can make a significant contribution to improved educational outcomes for Mississippi students.

Engagement in quality professional development experiences was found to be a key requirement for the *effective implementation* of arts integration. Professional development provides classroom teachers with the requisite proficiency to integrate the skills and content of the arts across the curriculum; it enhances their capacity to use multiple arts disciplines as learning tools, and enables them to identify the natural connections between the arts and other subject areas. Participation in professional development activities was found to increase teachers' feeling of competency using arts integration, which in turn increased the frequency with which teachers practice arts integration in the classroom.

Participation in the WSI Summer Institute and WSI Fall or Spring Retreats

sponsored by the Mississippi Arts Commission and working with teaching artists was found to be positively associated with teachers' feeling of competency and their increased practice of arts integration across the curriculum. The study found that survey respondents who reported a high level of participation in the WSI Summer Institute and WSI Fall or Spring Retreats sponsored by the Mississippi Arts Commission were more likely to indicate that their students' academic performance "*improved significantly.*"

Historically, Mississippi has fallen short of meeting the educational needs of students. The U.S. Department of Education's National Center for Education Statistics reported that in 2011, 78 percent of 4th grade students in Mississippi public schools scored below a "proficient" level on reading tests. These percentage rates have not changed significantly since 2007. If children cannot read proficiently by the end of the 3rd grade their future educational achievement is in jeopardy — they are highly likely to continue to be poor readers and struggle with mastering subject content throughout their remaining years in school, they are more likely to drop out of high school, and they are more likely to become the state's least-skilled and lowest-income citizens.

The state has recently adopted the Common Core State Standards to "***create a world-class education system in the state of Mississippi that***

provides students with the skills and knowledge required for them to be successful in college and in the 21st century workforce." The Common Core State Standards are precise in conveying a detailed description of "***what"*** level of performance is to be expected of students for every *standard* across grade levels, but are not prescriptive in terms of "***how"*** teachers will achieve these levels of performance.

Implementation of the Common Core State Standards in the State of Mississippi will require a significant investment of time and resources by school districts, school administrators, and classroom teachers as they move up the learning curve regarding "***what***" the Common Core State Standards require. Arts integration has demonstrated the potential to successfully answer the question of ***"how"*** to achieve the deeper learning of content, creative problem solving, and mastery of advanced higher order thinking skills to be achieved by the adoption of the Common Core State Standards.

Arts integrated learning presents an opportunity to improve the educational attainment of students in Mississippi public schools. To achieve this objective will require the development of an augmented educational strategy that builds upon the successful arts integration model of the Whole Schools Initiative to improve educational achievement in schools throughout the state and to assist the state of Mississippi to meet the objectives of the Common Core State Standards.

This report makes the following recommendations, for consideration by decision-makers:

- **Provide school administrators and teachers with resources, professional development, and information on specific practices to address the new Common Core State Standards through arts integration**
- **Increase the number of elementary schools participating in the Whole Schools Initiative and expand the adoption of arts integrated learning by early childhood education programs**
- **Prioritize Whole Schools Initiative resources to maximize the benefits of arts integrated learning for children during early childhood and elementary school**
- **Expand teaching artists programs, increase access to teaching artists, and use teaching artists to augment the implementation of the Common Core State Standards**
- **Leverage the existing resource of K – 12 Arts Specialists**
- **Develop state policies that reinforce the adoption and expansion of arts integration education models**
- **Increase arts integration professional development opportunities**

The Whole Schools Initiative's arts integrated model of educational reform was found to have a significant positive impact on the educational outcomes of Mississippi students. The recommendations contained in this report are designed to build a sustainable system to support arts integration in Mississippi schools and to provide all students in Mississippi with the opportunity to thrive in a world-class educational system.

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"Arts Integration is an approach to teaching in which students construct and demonstrate understanding through an art form.

Students engage in a creative process that connects an art form with another subject area and meets evolving objectives in both."

Source:

The Kennedy Center

Introduction

The Whole Schools Initiative (WSI) is an arts integrated conceptual approach to education reform; this strategy redesigns the school learning environment to create a culture of collaboration that inspires improved student engagement and promotes enhanced learning using the arts as the vehicle for supporting high quality education and instruction for all students. WSI is committed to the belief that "*every child deserves to be taught in and through the arts, thus nurturing the imagination and creatively impacting lifelong learning*." The Whole Schools Initiative is housed at the Mississippi Arts Commission (MAC) and is supported by the National Endowment for the Arts, the state of Mississippi, and with private funds.

The Whole Schools Initiative engages the entire community in the education of children. The arts play an intrinsic role as the link between schools and communities. Parents and community members serve as classroom volunteers, participate in student performances and arts experiences, serve as advisory team members, and continue the learning outside of the classroom. Business and philanthropic organizations partner with WSI schools to provide technical and financial support. Arts councils and teaching artists provide resources and volunteer assistance to support student learning and educational experiences. The Whole Schools Initiative brings together superintendents, principals, arts and classroom teachers, parents, community organizations, local artists, and the business community for shared, collaborative experiences using the arts to create a community of learning that nurtures a robust cultural environment that encourages lifelong learning.

Historically, the Whole Schools Initiative began in 1991 with the establishment of an "*arts in the curriculum*" program at Beachwood Elementary School in Vicksburg, Mississippi; this effort was led by Jann Terral Ferris, an accomplished artist and advocate for comprehensive school reform based upon an arts integrated curriculum. Building upon the success of Beachwood Elementary School's "*arts in the curriculum*" program, Phase I of the Whole Schools "*Project*" (1991 – 1998) began as a response to "back to basics" school reform. Piloted in six elementary schools throughout the state of Mississippi, the Whole Schools "*Project*" sought to integrate the arts into daily classroom instruction and to involve every student and every teacher within a school. Evaluations of the outcomes from the six participating schools were salient; student performance on standardized tests improved, school environments were visually and culturally transformed, community and parental involvement increased, student absenteeism and discipline referral declined, and teacher morale improved.

The Goals of the Whole Schools Initiative:

1. To improve student academic achievement through the integration of the arts into the core curriculum.

2. To enrich the lives of students by increasing their skills and knowledge in all arts disciplines.

3. To assist the professional and personal growth of teachers and administrators through the arts.

4. To use the arts to increase parental and community involvement in schools.

5. To build a sustainable system for supporting arts integration and arts infusion.

In 1998, the Whole Schools Initiative was launched as a refinement to the Whole Schools "*Project.*" Evaluation teams identified the essential components of successful pilot schools that became the foundation for WSI: strong professional development support; continued internal and external evaluation; leadership support for superintendents, principals, and project directors; and parental and community involvement. To support the adoption and implementation of arts integration, the Mississippi Arts Commission provides grant funding and additional resource support to participating WSI schools; WSI schools receive grant support from the Mississippi Arts Commission for a period of six years, and then become self-sustaining.

Schools interested in adopting the WSI arts integration learning model are required to participate in MAC's *Arts in the Classroom* (AIC) grant program for a minimum of one year prior to submitting a letter of intent to be considered for participation in the Whole Schools Initiative. Prior to the completion of the initial WSI application, meetings are held between the school, school district and MAC staff to discuss the overview of the project. These activities are followed by an invitation from MAC/WSI to apply. After the application has been approved, schools participating in WSI are required to: be involved in a full year of orientation, training, planning, and goal setting in collaboration with and under the guidance of the Mississippi Arts Commission; provide professional development to faculty and

administrators after partaking in annual Fall/Spring Retreats and the WSI Summer Institute; designate a WSI Project Director for the school and create a WSI Advisory Committee; agree to interact with a WSI Field Advisor and utilize a Strategic Planning Consultant provided by MAC. WSI schools must also agree to utilize MAC approved teaching artists and consultants for classroom demonstrations and professional development training for faculty, provide planning and release time to faculty for curriculum mapping, and participate in program evaluation conducted by MAC and other state/national organizations. The Mississippi Arts Commission provides each participating WSI school with a cadre of National Board Certified Teachers to facilitate curriculum mapping and planning sessions. The Mississippi Arts Commission provides grant funding to WSI schools during the initial first year of start-up and provides implementation grants for a maximum of five years. After at least three years of participation in WSI, schools may apply for Model School Status. The Whole Schools Initiative emphasizes parental and community involvement at participating schools. To support community and parental engagement, the Mississippi Arts Commission provides opportunities for cultural institutions and parents to participate in professional development experiences related to arts integration and the Whole Schools Initiative.

To support the implementation of the Whole Schools Initiative, the Mississippi Arts Commission provides a continuum of support and technical assistance to participating schools. Resources provided by MAC include:

- trained Field Advisors;
- assistance with integrated curriculum planning;
- assistance with strategic planning and implementation of WSI strategies;
- access to teaching artists and consultants for teachers' training;
- professional development programs for teachers, school principals, and administrators; and
- formal evaluation of the school's WSI.

MAC provides and coordinates the activities of Field Advisors at all participating WSI schools; each WSI school is assigned a Field Advisor who is an artist and educator trained in the WSI philosophy. Field Advisors work with schools to provide general support, and to identify additional resources. The Mississippi Arts Commission maintains a website that provides online access to lesson plans and arts-focused, interdisciplinary educational resources that weave the arts throughout the teaching and learning process. MAC maintains an Artists Roster and a Teaching Artist Roster. Teaching Artists are practicing professional artists and/or arts educators who teach their arts discipline, assist with arts

Teaching artists **are practicing professional artists and/or arts educators with the complementary skills and knowledge of an educator, who teach and integrate their art form, perspectives and skills into a wide range of settings, while effectively engaging and collaborating with diverse learning communities.**

Teaching artists assist with collaborative arts integration planning, partner in professional development experiences for educators, and seek to integrate the creative process into the classroom and the community.

The Mississippi Arts Commission maintains a *Teaching Artist Roster*. To be listed in the *Teaching Artist Roster*, applicants must demonstrate mastery of an artistic discipline, demonstrate the ability to make connections between the arts and other content areas, exhibit leadership and strong communication skills, and have a history of successful performances or presentations.

integration planning, and partner in professional development experiences for educators. To be listed on MAC's Teaching Artist Roster requires a thorough review process, including the submission of a formal application and evaluation by a panel of experts.

To support arts integration, the Mississippi Arts Commission provides extensive professional development and pre-service learning experiences, including the Whole Schools Initiative Summer Institute, the Whole Schools Initiative Fall Cluster Retreat and Spring Cluster Retreat. The WSI Summer Institute is a week-long professional development conference and learning experience that brings artists, school administrators, parents, and the community together with pre-Kindergarten through 12th grade teachers to learn and practice arts integration strategies. The WSI Fall and Spring Cluster Retreats bring together teams of teachers (pre-K through 12th grade), arts specialists, teaching artists, and school administrators to create, experience, and observe arts integrated lessons that use Common Core Standards and principles of Universal Design for Learning. The WSI Fall and Spring Retreats are offered regionally throughout the state of Mississippi.

In 2009, MAC began partnering with Mississippi's universities and community colleges to expand pre-service training for classroom teachers in the use of arts integration as a teaching tool. The Mississippi Arts Commission works continuously to assist WSI schools to identify and secure funding from additional sources in support of arts integrated learning.

The Whole Schools Initiative was Mississippi's first comprehensive statewide arts education program. Today, the Whole Schools Initiative is a nationally recognized model of education reform, using the arts to teach across the standard curriculum. The Whole Schools Initiative encompasses arts integrated learning for students from pre-Kindergarten through 12th grade. In the state of Mississippi, 20 schools are currently participating in the WSI and more than 50 Mississippi schools are prior participants in the Whole Schools Initiative or currently serve as WSI Model Schools. WSI Model Schools serve an important role as demonstration and teaching sites to facilitate the dissemination of information and knowledge about arts integrated learning.

The Mississippi Arts Commission's Whole Schools Initiative is designed to alter the organizational, cultural, and instructional patterns in participating schools by integrating arts into the curriculum with the intent of creating a diverse and meaningful educational experience for all students, particularly for students who have not previously thrived in school.

Whole Schools Initiative programming assists teachers in setting clear expectations for student work, encourages formative and summative assessments, involves community resources in and out of school, develops higher order thinking skills and problem solving, respects and encourages multiple solutions to problems, acknowledges and is sensitive to the diversity of learners and society and focuses thinking toward seeing patterns and connections at a conceptual level related to topics of broader studies.

These skills will be required by the 21st century workforce.

Source:
The Mississippi Arts Commission

Overview of Research on Arts Integrated Learning

Research places the importance of arts integration at the center of the current discussion and debate about the educational policies and practices that will most effectively bring about education reform, improved learning, and enhanced achievement for students. This section of the study provides the reader with an overview of research that examines the relationship between arts involvement and academic performance.

During the late 1980s and early 1990s, school reform trended towards a "*back to basics*" approach to education, stressing the academic areas of reading, writing, and arithmetic; this approach influenced curriculum decisions, teaching emphasis and funding allocation decisions. During this period, many decisions about budget allocations viewed the visual and performing arts as superfluous. In the later 1990s, thinking about the relationship between learning, education, and the arts had begun to change as research increasingly demonstrated the positive correlation between student participation in the arts and academic outcomes. However, with the passage of the No Child Left Behind Act (NCLB) in 2001, the federal government and states started assessing school districts by their students' scores on standardized tests that focused on language arts, math, and reading. Although NCLB legislation includes the arts as an essential core subject, no funding was specifically allocated to support arts education or related faculty positions, and no standardized assessment was mandated for learning in the arts. According to a study by the Center on Education Policy,[1] school districts across the United States increased the time and money they devoted to preparing students for standardized tests, while cutting spending and resources devoted to non–tested subjects such as theatre arts, visual arts, and music. The more poorly a school performed on standardized testing regimes, the more time and money was devoted to standardized testing and drilling students for these tests, with fewer resources going to the arts. The National Education Association reports that cuts to arts learning programs have been highest in schools with a large percentage of students from lower socio-economic backgrounds. During times of budget cuts to education and with increased emphasis on student performance on standardized tests, existing research and advancing knowledge on how the human brain develops and learning occurs provides strong evidence that the reduction and elimination of arts learning in schools is detrimental to student progress and academic learning.

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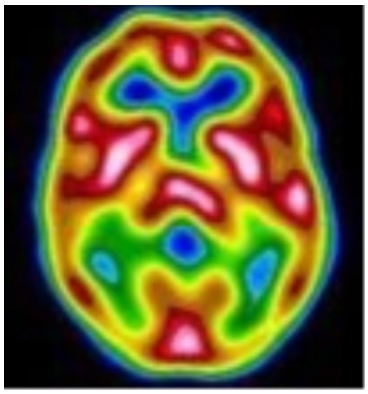
[1] Center on Educational Policy, Instructional Time in Elementary Schools: A Closer Look at Changes for Specific Subjects (Washington, DC: Center on Educational Policy) 2008.

Recent research in several scientific fields has demonstrated important linkages between arts education and student achievement. Scientists have been able to use sophisticated brain imaging techniques to examine how music, dance, theatre, and the visual arts might positively affect cognition and intelligence. In recent years, advances in brain-imaging technologies have significantly increased the ability of researchers and educators to gain a better understanding of the internal organization and working of the human brain. Advances in brain-imaging technologies enable researchers to create comprehensive maps of the brain and how it functions and to observe changes in the brain that are associated with learning. The research and maps of brain structure are typically based on 3D tomographic images to include magnetic resonance images (MRI), computerized axial tomography (CAT) scans, PET (positron-emission tomography) scans, and optimal intrinsic signal imaging (OIS), or electrophysiology. For example, by reading glucose or oxygen use and blood flow, PET and fMRI imaging identify activity in regions of the brain. Neuroimaging and electroencephalography brain mapping of subjects in the process of learning new information indicate that the somatosensory cortex areas of the brain are the most active when receiving new sensory information; input from each individual sense (hearing, touch, taste, vision, smell) is delivered to these areas and then matched with previously stored and related memories. These relational memories enhance the storage of new information in long-term memory.[2] New technologies enable researchers to chart brain growth in childhood, to visualize how genes and demographic factors affect the brain, to monitor the impact of stimuli on the brain, and to observe how the brain processes information. These advances allow scientists and researchers to understand how and where information is processed by the brain to enable learning.



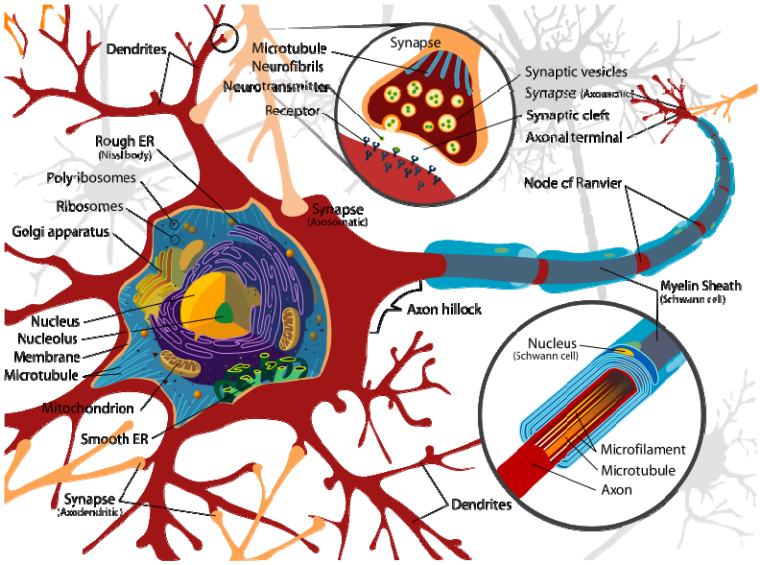
Drawing 1: Brain-Imaging

The brain connects to the outside world through the five senses: sight, hearing, touch, taste, and smell. Neuroplasticity is the brain's ability to grow and reorganize itself by forming new neural connections throughout life by axonal sprouting, which is the ability of axons to grow new nerve endings and connect to other nerve endings forming neural pathways through which learning, recall, and memory can be created.

[2] Willis, J. (2007). The Neuroscience of Joyful Education, *Educational Leadership*, Summer 2007, Volume 24.

Studies[3, 4, 5] show that the more stimulating experiences the brain receives, particularly before the age of ten, the greater the number of connections that brain cells can make, grow, and develop. Research has found that at birth, each neuron in the cerebral cortex has approximately 2,500 synapses; by the time a child is two to three years old, the number of synapses for each neuron is approximately 15,000.[6, 7, 8, 9] Through the process of apoptosis (synaptic pruning), neurons that do not receive stimulation will weaken and "die;" conversely, connections that are activated frequently will be preserved, strengthened, and multiplied.

Stimulating learning environments increase the number of brain cells and increase the number of thought processes and functions that the brain can perform. As the brain encounters more external stimuli and experience, it grows and develops. In contrast, without stimulation, the brain cells that are not used die off. Eric Jensen,[10] a professor and staff developer for the Society of Neuroscience, found that stimulation is essential for cognitive development. The research of neuroscientists, e.g., Dr. Michael Merzenich, indicates that selective attention and active focus can change the systematic functioning of the brain's neural circuitry and increase the brain's capacity to master new skills.



Drawing 2: Artist Rendition of Neuron Cell by Mariana Ruiz Villarreal

[3] Kotulak, R. (1997). *Inside the Brain: Revolutionary Discoveries of How the Mind Works*, Missouri: Andrews McMeel Publishing.
[4] Greenough, W. T, Neuroplasticity, Experience, and Mechanisms of Brain Information Storage, proceedings NIH Consensus Development Conference on Rehabilitation of Persons with Traumatic Brain Injury, October 1998.
[5] O'Shea, M. (2006). *The Brain: A Very Short Introduction* (Vol. 144). New York: Oxford University Press, USA.
[6] Gopnic, A., Meltzoff, A., & Kuhl, P. K. (1999). *The Scientist in the Crib: What Early Learning Tells Us About the Mind*, New York, NY: HarperCollins Publishers
[7] Tortora, G. & Grabowski, S. (1996). Principles of Anatomy and Physiology (8th Edition), New York: HarperCollins College Publishers.
[8] Drubach, D. (2000). The Brain Explained, Upper Saddle River, N.J.: Prentice-Hall, Inc.
[9] Jensen, E. (2001) Fragile Brains. *Educational Leadership*, November, Vol. 58 (3). 32-37.
[10] Ibid.

Never before have neuroscience and classroom instruction been so closely linked due to evidence based on neuro-imaging that can help determine the most effective ways to teach.[11] The extent of activation across the regions of the brain determines how factual knowledge will be remembered. Active learning increases long-term memory retention because it requires that students learn something using multiple pathways of the brain.[12] The brain's ability to parallel process means that it acquires information through multiple senses and organizes information with multiple activations across a network of neurons in the brain, not in a single linear fashion. The use of multiple senses requires multiple areas of the brain to activate, process, and create multiple paths of circuitry. An active learning experience, rather than a passive activity, allows for the body to incorporate more sensory memory pathways.[13] The more areas of the brain that are activated during learning, the more connection and more long-term memory possibilities exist. This supports the idea that active student learning impacts the prefrontal cortex and the hippocampus.[14, 15]

Preparation for, and student performance on, standardized tests requires the ability to memorize and recall information. New discoveries in brain research indicate that individuals utilize multiple semantic, episodic, procedural, automatic, and emotional neural pathways to search for, locate, and recall information stored in the brain. Scientists have identified multiple loci in the brain for memory storage and neuron activity.[16] Fahey and de los Santos' 2002 review of recent brain based research found that the integration of music and movement with student learning assists the brain to make learning connections and demonstrate new ways to increase memory.

Movement induces learning due to increased sensory awareness.[17] Other research has found that movement assists students in the learning process; real models and objects provide visuals and kinetic

[11] Willis, J. (2007). Brain-based Teaching Strategies for Improving Students' Memory, Learning, and Test-taking Scores. *Childhood Education*, *83*(5), 310-317.
[12] Ibid.
[13] Caine, G., & Caine, R. (2007). Natural Learning: the Basis for Raising and Sustaining High Standards of Real World Performance. Position Paper: Natural Learning Research Institute.
[14] Willis, J. (2007). Brain-based Teaching Strategies for Improving Students' Memory, Learning, and Test-taking Scores. *Childhood Education*, *83*(5), 310-317.
[15] Phillips, J. M. (2009). From neurons to brain power: Cognitive neuroscience and brain-based learning. Indiana University.
[16] Fahey, J. A., & de los Santos, G. (2002). Memory improvement and research related to the science of memory. *Education*, *123*(2), 380-385.
[17] Hannaford, C. (1995). *Smart Moves: Why Learning is Not All in Your Head.* Arlington, Virginia: Great Ocean Publishers, Inc.

hooks for learners; activity increases attention span; and movement makes visual, kinesthetic, and verbal learning less difficult.[18]

Current brain studies underscore the important role adults play in facilitating an early stimulating environment for children and the need for school curricula to include multiple sensory, cultural, and problem layers that stimulate the brain's neural networks. Brain research and recent findings regarding the multiple neural pathways utilized by individuals to learn, store, and retrieve information provides support for the *Theory of Multiple Intelligences* developed by Howard Gardner of Harvard University. Gardner's theory emerged from cognitive research and addresses the complexity and diversity of cognitive styles that exist between individuals and the identifiably distinctive learning styles of students.

Howard Gardner originally identified seven intelligences, including verbal-linguistic, spatial, musical, logical-mathematical, bodily-kinesthetic, interpersonal, and intrapersonal.[19] In 1997, he added an eighth intelligence entitled naturalist. Gardner defines these intelligences as follows:

- ***Verbal-Linguistic Intelligence.*** This intelligence involves sensitivity to spoken and written language, the ability to learn languages, and the capacity to use language to accomplish certain goals. This intelligence includes the ability to effectively use language to express oneself rhetorically or poetically, and uses language as a means to remember information.
- ***Spatial Intelligence***. This intelligence involves the potential to recognize patterns and space; individuals possessing this intelligence have the ability to create internal images and pictures. Visual/spatial intelligence is triggered by presenting the mind with colorful designs, patterns, shapes, and pictures.[20]
- ***Bodily/Kinesthetic Intelligence.*** This intelligence is related to physical movement and knowing the body. There is a profound mind/body connection, and the world is generally perceived through touch and movement.

[18] Schilling, T., McOmber, K., Mabe, K., Beasley, B., Funkhouser, S., & Martinez, L. (2006). Promoting language development through movement. *Teaching Elementary Physical Education*, *17*(6), 39-42.
[19] Gardner, H. E. (1985; 1993) *Frames of Mind: The Theory of Multiple Intelligences*, New York: Basic Books.
[20] Connell, J.D. (2005). Brain-based Strategies to Reach Every Learner. New York: Scholastic.

- ***Musical/Rhythmic Intelligence.*** This intelligence is based on the recognition and understanding of tonal patterns, musical pitch, and connection to rhythm and beats. Musical people feel, think, and process information primarily though sound. Gardner believes that musical intelligence should be used more in the classroom. Students in adolescence tend to relate to music which could increase motivation to learn.[21]
- ***Logical/Mathematic Intelligence.*** "*Scientific Thinking*" is a way to describe people who think in terms of cause and effect. This intelligence uses inductive and deductive thinking or reasoning and includes logical thought and problem solving through the use of numbers and equations.
- ***Interpersonal Intelligence.*** Interpersonal intelligence is based on communication and personal relationships. Interpersonal people are effective in verbal as well as non-verbal communication. These individuals are sensitive, cooperative, and work well in groups.
- ***Intrapersonal Intelligence.*** Individuals with a strong intrapersonal intelligence can easily access their own feelings and are able to use their self-understanding to guide their lives through feelings, ideas, and goals.[22] These individuals are introverted and often pensive. This intelligence relates to inner states of being, such as spirituality, intuition, and self-reflection.
- ***Naturalistic Intelligence.*** The "*naturalist*" enjoys

In ***Frames of Mind: the Theory of Multiple Intelligence***, Gardner states: "***Arts education ensures that students who learn through spatial, kinesthetic and musical intelligence who traditionally do not do well in the classroom have an opportunity to learn, especially in classes that are taught with an arts infused curriculum.***"

[21] Gardner, H. E. (2006). Multiple Intelligences: New Horizons. New York: Basic Books.
[22] Goldman, K.D., & Schmalz, K.J. (2003). MIT: Multiple Intelligences Tips for Tailored Teaching. *Health Promotion Practice*, 4(2), 87 – 90.

working in nature and is concerned about the well being of the environment. This intelligence pertains to an individual's desire to understand nature and the environment through exploration of living things, learning about plants, the animal kingdom, and natural events.[23]

Gardner's research suggests intelligence is centered in multiple different areas of the brain that are interconnected, rely upon one another, but also work independently as needed. Gardner concludes that educational institutions place too heavy an emphasis on learning that requires logical-mathematical and linguistic intelligence, and that students who have intelligence in other areas are disadvantaged by traditional educational systems. He suggests that most students who achieve academic success have done so because their strengths in linguistic and mathematical intelligence result in higher scores on standardized test instruments.

The important element of Gardner's *Theory of Multiple Intelligences* is that students have different cognitive processing and learning styles, and he emphasizes the need to provide all students with educational environments that allow the use of different cognitive styles and mental strengths to learn. Howard Gardner's *Theory of Multiple Intelligences* combined with other brain research, such as that of Eric Jensen, suggest the necessity for various types of instruction and assessment to ensure that all students' learning needs are met and to enable each student to maximize their potential for intellectual growth.

A compendium of studies, *Critical Links: Learning in the Arts and Student Academic and Social Development*,[24] examines the relationship between academic development and schools that incorporate the arts with academic learning. Studies of schools with arts integration programs have repeatedly shown student growth from the arts experience, and brain research provides further support for the importance of arts learning in the neurological development of children. Activities such as dance, dramatic play, music, and use of the visual arts can help to build new brain cells and help students improve their scores on various achievement tests.[25] Brain research also supports Harvard psychologist Howard Gardner's *Theory of Multiple Intelligences*, which in part claims that students are able to learn

[23] University of Vermont. (2007). Learning Styles: A Multiple Intelligences Approach. *The Education Digest*, 62 (7), 62 – 63.
[24] Deasy, R. J. (2002). Critical Links: Learning in the Arts and Student Achievement and Social Development. Washington, D.C.: The Arts Education Partnership.
[25] Jensen, E. (2001). *Arts with the Brain in Mind.* Association for Supervision & Curriculum Development.

and remember when various parts of the brain simultaneously make connections with each new learning experience.

In his article "*The Science of the Arts*," Eric Jensen discusses the role that physical stimulation plays in cognitive development. Jensen's research supports the work of Kotulak[26] on the role of physical activity (movement, drama, dance, and role-playing) in facilitating recall of information. Jensen's research offers evidence that the arts play an influential role in the neurological and cognitive development of children. In a study of 500 kindergarten students, Jensen studied the impact of visual arts on learning; this research found that drawing increased cognition, improved verbal skills, enabled students to visualize and plan, and enhanced creative thinking. In another study of preschool-aged children, the group that was given piano keyboard lessons scored the highest in spatial-temporal reasoning – a cognitive function that is used to understand proportions and fractions in mathematics. Research conducted by Hetland and Winner[27] agrees with Jensen's findings that music instruction, singing, playing musical games, learning musical notations, moving responsively to music, clapping, and playing instruments can increase spatial-temporal learning and that music instruction broadly enhances spatial reasoning.

The effect of musical training on the auditory cortex has been found to have a relationship with domains other than music. For example, learning to read involves auditory processing because in order to read, children must be able to break a word into its component phonemes (e.g. "cat" is composed of three phonemes (c/, a/, t/) and associate each with a written symbol. Studies have found that preschool children's phonemic awareness and early reading skill is correlated with their musical training. Multiple studies suggest that early musical training may enhance language and reading skills.[28, 29, 30, 31] Research

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[26] Kotulak, R. (1997). *Inside the Brain: Revolutionary Discoveries of How the Mind Works*, Missouri: Andrews McMeel Publishing.
[27] Hetland, L., & Winner, E. (2004). Cognitive Transfer from Arts Education to Non-arts Outcomes: Research Evidence and Policy Implications, in E. Eisner and M.Day (Eds.), Handbook on Research and Policy in Art Education. National Art Education Association.
[28] Anvari, S. H., Trainor, L. J., Woodside, J. & Levy, B. A. (2002). Relations among Musical Skills, Phonological Processing, and Early Reading Ability in Preschool Children. *Experimental Child Psychology*, 83(2). 111-130.
[29] Lamb, S. J. & Gregory, A. H. (1993). The Relationship between Music and Reading in Beginning Readers. *Journal of Educational Psychology,* 13(1). 13 – 27.
[30] Bultzlaff, R. (2000). Can music be used to teach reading? *Journal of Aesthetic Education,* 34. 167-178.
[31] Trainer, L. J. (2012). Musical experience, plasticity, and maturation: issues in measuring developmental change using EEG and MEG. *Annals of the New York Academy of Sciences*, *1252*(1), 25-36.

has also demonstrated that music training for children results in long-term enhancement of visual-spatial, verbal,[32, 33] mathematical performance,[34] and general intelligence.[35]

A compilation of the extensive research conducted by Dr. Nina Kraus, Director of the Auditory Neuroscience Laboratory at Northwestern University, finds that musical training has a profound impact on multiple skills to include speech and language, memory, and attention. These research findings indicate that: musical training develops new neural connections in the brain; working with musical sounds enhances neuroplasticity; and improved auditory processing of music can affect speech and reading.[36] Kraus argues that "*in fact music training may benefit academic achievement by improving learning skills and listening ability*."

Catterall, Chapleau, and Iwanaga[37] examined 7,440 students involved in arts performance from eighth-grade through high school; this study found that students who reported sustained involvement in theatre perfomed better on reading assessments. Vaughn and Winner [38] examined the correlation between self-reported years of direct experience in arts classes and high verbal and composite SAT scores; this research found the strength of the correlation increased as the number of years of direct-arts experience increased, with larger effects found in verbal scores.

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[32] Ho, Y. C., Cheung, M. C., & Chan, A. S. (2003). Music Training Improves Verbal but not Visual Memory: Cross-Sectional and Longitudinal Explorations in Children. *Neuropsychology*. 17, 439 -450.
[33] Fujioka, T., Ross, B., Kakigi, R., Pantev, C., & Trainor, L. J. (2006). One Year of Musical Training Affects Development of Auditory Cortical Evoked Fields in Young Children. *Brain*, 129 (10), 2593-2608.
[34] Cheek, J. M., & Smith, L. R. (1999). Music Training and Mathematics Achievement. *Adolescence*, 34, 759–761.
[35] Schellenberg, E. G. (2004). Music Lessons Enhance IQ. *Psychological Science,* 15(8), 511-514.
[36] Kraus, N., & Chandrasekaran, B. (2010). Music Training for the Development of Auditory Skills. *Nature Reviews Neuroscience,* 11(8), 599-604.
[37] Catterall, J., Chapleau, R., & Iwanaga, J. (1999). Involvement in the Arts and Human Development: General Involvement and Intensive Involvement in Music and Theatre Arts. *Champions of Change: The Impact of the Arts on Learning* (E.B. Fiske, Ed.) 1 -8.
[38] Vaughn, K, and W. Winner (2000), SAT Scores of Students Who Study the Arts: What We Can and Cannot Conclude about the Association. *Journal of Aesthetic Education*, Vol. 34(¾), 77-89.

***"Those students who take least well to the favored subjects, e.g., mathematics or English, not only are denied the best of their contents but are denied access to alternatives that possess great intrinsic value as well as the potential for holding some of them through the school years to graduation* (p. 199)."**

"A persistent failure of school curriculum to meet the needs of a large number of students, particularly those coming from poverty, is the low standing of the arts among the educational priorities, and the pervasive dominance of other subjects."

Source:

Goodlad, J.I. (1992). Toward a Place in the Curriculum for Arts. In B. Reimer & R.A. Smith (Eds.), *The Arts, Education and Aesthetic Knowing: 91st Yearbook of the National Society for the Study of Education* (pp. 192 -212).

In meta-analyses of thirty correlation and experimental studies including over 500,000 subjects, Butzlaff[39] found consistent and reliable positive correlation between the number of years of direct-music education experiences and standardized measures of reading performance.

Catterall[40] analyzed 25,000 eighth–- and tenth–graders participating in direct-arts education experiences and correlated their English standardized test scores over a ten-year period. The students who had direct-arts education experiences performed better on English standardized tests and earned higher grades in these subjects. When analyzing a sub-set of 6,500 low-socioeconomic status students, Catterall documented that correlations between the direct-arts experiences and language scores were more positive than for students who had little arts experiences.

Sobolew-Shubin[41] conducted a three-year study to examine the effects of the "*Opening Minds through the Arts*" program on student achievement. Using a mixed-methods approach to examine the effects of an arts integrated curriculum, this study found that participating students performed significantly better on Stanford Achievement Test measures of reading and language than did students in comparison schools.

In 2004, under the leadership of neuroscientist Michael S. Gazzaniga, the Dana Arts and Cognition Consortium convened neuroscientists and cognitive scientists from seven universities to study whether dance, music, theatre, and visual arts might affect other areas of learning.

[39] Butzlaff, R. (2000). Can Music Be Used to Teach Reading? *The Journal of Aesthetic Education*, 34(3 – 4), 167 – 178.
[40] Catterall, J. S. (1998). Does Experience in the Arts Boost Academic Achievement? A Response to Eisner. *Art Education*, 51(4), 6 – 11.
[41] Sobolew-Shubin, S. (2004). Evaluation of Opening Minds Through the Arts. Third Annual Report. San Francisco, CA: WestEd.

In 2008, the Consortium published the results of this $2.1 million three-year research project in "*Learning, Arts, and the Brain*." Many of the studies in this report suggest that arts learning may be related to student improvement in reading or in math. A Dana Consortium study by Elizabeth Spelke, a neuropsychologist at Harvard University, examined the effects of music training in children and adolescents and found children who had intensive music training did better on some geometry tasks and on map reading. Another study by a team of researchers from the University of Oregon, led by psychologist Michael Posner, observed the brain activity of children four to seven years old as they worked on computerized exercises intended to mimic the attention-focusing qualities of engaging in art; these researchers concluded that the arts can train children's attention, which in turn improves cognition.

Another Dana Consortium study, conducted by Stanford University psychologist Brian Wandell,[42] used brain–imaging techniques to examine how a certain part of the brain might be influenced by musical experiences. His findings indicate that students ages seven to twelve who received more musical training in the first year of the study showed greater improvements in reading fluency over the next two years. Wandell's research found the ability to distinguish between speech sounds (phonological awareness) — a predictor of early literacy—was correlated with music training and could be tracked with the development of a specific brain pathway. Wandell's research also found that visual art experience is positively correlated with math skills.

A large body of research[43,44,45,46,47] has found that many at-risk students tend to be highly tactual (tactile) learners, kinesthetic learners, or both. Research conducted at the National Reading Diagnostics Institute[48] found that tactile-oriented students absorb new information most readily through their sense of touch, and kinesthetic learners require body movement and action for optimal results.

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[42] Wandell, B., Dougherty, R. F., Ben-Shachar, M., Deutsch, G. K., & Tsang, J. (2008). Training in the Arts, Reading, and Brain Imaging. *Learning, Arts, and the Brain*, 51.

[43] Restak, R. M. (1979). The Other Difference between Boys and Girls. In Student Learning Styles: Diagnosing and Prescribing Programs, ed. National Association of Secondary School Principals, 75 – 80. Reston, VA: National Association of Secondary School Principals.

[44] Dunn, R., Griggs, S. A., Olson, J., Gorman, B., & Beasley, M. (1995). A Meta-Analytical Validation of the Dunn and Dunn Learning Styles Model. *Journal of Educational Research*, 88(6), 353 – 361.

[45] Caldwell, G. P., & Ginthier, D.W. (1996), Differences in Learning Styles of Low Socioeconomic Status for Low and High Achievers. *Education*, 117, 141-147.

[46] Klavas, A. (1993). Learning Style Program Boosts Achievement and Test Scores. *The Clearing House*, 67(3), 149 -151.

[47] Favre, L.R. (2007). Analysis of the Transformation of a Low-Socio-Economic Status African-American New Orleans Elementary Facility into Demonstration Learning-Style School of Excellence. *Journal of Urban Education: Focus on Enrichment*, 4(1), 79-90.

[48] Linksman, R., (2006). The Fine Line Between ADHD and Kinesthetic Learners. *Latitudes,* 1(6).

A case study of ten schools serving economically disadvantaged communities found that arts integrated curricula can transform the context for teaching and learning and introduce the "*possibility of benefits that are not as readily available in traditional instructional contexts*."

The "*third space*" refers to the transformation of the learning environment that occurs when classroom teachers partner with teaching artists and arts specialists to deliver arts-integrated instruction and the resulting deep learning that takes place during student interaction with the arts.

These schools were described as creating the learning environments to prepare students with the skills to succeed in school, life, and work in the 21st Century.

Source:

Third Space: When Learning Matters (Stevenson & Deasy, 2005).

Tactile-kinesthetic learners have the best chance of learning when they experience and **do** things that involve the use of the whole body; they remember what they experience with their hands or bodies through active participation. Learning experiences that engage students in demonstrations, dance, body-games, dressing in character, role-play, charades, pantomimes, plays, puppet shows, musical performances, science labs, and cut-and-paste tasks are kinesthetic experiences. Tactile experiences include modeling, artistic creations, dioramas, games, calculators, puzzles, sculptures, mobiles, and poster making. Students with tactile-kinesthetic learning traits remember what they **do** very well. They learn and remember best through getting physically involved in what is being learned; they enjoy acting out a situation that is relevant to a study topic, and they learn well when using computers.

Although all students can learn, tactile or kinesthetic learners frequently face poor academic achievement because they are least likely to receive appropriate teaching. For example, during the primary grades when reading is taught, instruction may focus primarily on the teacher talking. Using static displays with rote learning (seat

work) tends to predominate in the school environment and students are normally required to "sit and listen."

The benefits of arts education has been well documented in a myriad of academic and scientific studies. For example, Harvard University's *Project Zero* identified 188 studies and the Association for the Advancement of Arts identified approximately 400 studies that found a positive relationship between arts education and academic improvement.

The authors of *Champions of Change*,[49] *Critical Links*,[50] and the *Third Space: When Learning Matters,*[51] all report the positive effects of arts education on *economically disadvantaged* students and identify how involvement with the arts provides unparalleled learning opportunities to attain higher educational achievement. Research findings also suggest that academic achievement for at-risk students engaged in arts integrated programs is greater regardless of ethnicity. For example, Alo[52] conducted a causal-comparative study to focus on the effects of visual arts instruction on an English standardized test. Her study examined the test scores of 3,980 high school students and found a positive relationship between visual arts education and the test performance of at-risk students.

The positive effects of arts integrated learning on students, teachers, and communities have been extensively researched. As demonstrated in this brief overview of research on arts integrated learning, there is an extensive body of theoretical and empirical research providing evidence of the positive effects of arts integrated learning on students' academic and social development. Research has demonstrated that arts integrated learning presents an opportunity to create an educational environment that connects students to learning, enables students to be successful, and to master requisite skills in core content areas. These are the issues at the center of the current discussion and debate about the educational policies and practices that will most effectively bring about school reform, improve learning, and enhance achievement for students.

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[49] Fiske, E.B. (1999), Champions of Change: The Impact of the Arts on Learning. President's Committee on the Arts and Humanities, Washington, DC: Arts Education Partnership, Washington, DC.
[50] Deasy, R. J. & Stevenson, L. (2002) Critical Links: Learning in the Arts and Student Academic and Social Development, a compendium of research published by the *Arts in Education Partnership and the National Endowment for the Arts*.
[51] Deasy, R. J. & Stevenson, L. (2005). Third Space: When Learning Matters, *Washington, DC, Arts In Education Partnership*.
[52] Alo, T. (2010). *The Effect of Visual Arts Education on At-risk Students' Critical Thinking Skills and the Maryland English II High School Assessment* (doctoral dissertation, College of Notre Dame of Maryland, Baltimore, MD).

The body of scientific research on arts integrated learning identifies two primary categories of positive outcomes: positive social development and academic achievement.

Indicators of positive social development:

- **Increased student motivation**
- **Improved self-discipline**
- **Greater resistance to peer pressure**
- **Enhanced self-esteem**
- **Reduced truancy**

Indicators of positive academic achievement:

- **Improved reading comprehension**
- **Improved spatial-temporal reasoning**
- **Improved language skills**
- **Improved math ability**
- **Reduced school failure rates**
- **Higher high school graduation rates**

An unintended consequence of the No Child Left Behind Act has been to increase focus on student performance on standardized tests and a widespread focus on "*teaching the test*." Complicating the difficulties that teachers face in meeting standardized test performance requirements is the concurrent challenge of meeting the needs of a diverse student population that comes to the classroom from homes with widely varying levels of income, education, and culture. Within a classroom, students will have different interests, a variety of learning styles, and a wide range of academic readiness. Teaching styles and curriculum must serve the diverse learning needs of each student. Despite scientific advances in cognitive neuroscience and brain-based research in how learning occurs, the mainstays of the traditional classroom experience are lecture, rote learning, a focus on testing and related drills, and recitation. Teaching methods in the classroom frequently do not include novel, interactive educational experiences that integrate the dual processing which activates the brain. Arts integrated learning offers the potential to effectively prepare students to succeed in school, in life, and in work.

The literature review in this section of the report identified the range of positive outcomes associated with arts integrated learning in schools and programs across the nation. It is clear that student involvement in the arts has a positive relationship with improved student achievement at some significant level. School administrators and state policymakers would be well advised to consider the positive relationship between arts integration and student achievement when making decisions. This may be specifically true for Mississippi, a state that faces systemic educational challenges. The following section of this study examines outcomes associated with arts integrated learning in Mississippi's Whole Schools Initiative.

Prior Research on Mississippi's Whole Schools Initiative

To date, three academic research studies have investigated the impact of the Whole Schools Initiative in Mississippi. The first study in 2002, a dissertation by Charlotte Tabereaux, "*An Investigation of Arts-Infused Schools in Mississippi: the Whole Schools Initiative,"*[53] examined the implementation of the Whole Schools Initiative in 26 schools then participating in WSI. This study surveyed teachers to measure their attitudes and perceptions of the impact of the WSI; the primary findings include:

- Increased collaboration among teachers in planning lessons
- Teachers expressed enthusiasm about increased student interest in learning and improved student behavior
- 92 percent of teachers indicated that infusing the arts throughout the curriculum had a positive effect on student achievement

A four-year study[54] of the Whole Schools Initiative, *The Arts are an "R" Too*, completed in 2004 found that "***students in participating WSI schools achieved proficiency in literacy as well as – if not slightly better than – the state average for all Mississippi schools and a set of matched comparison schools***." This study also found that in addition to improvements in test scores, participants identified a broad range of academic, social, and personal benefits as a result of arts integration in the classroom. The arts not only helped schools to meet formal academic accountability requirements, it was also found to add considerable value to students' education. Academically, the integration of arts into math, language arts, science, and social studies was found to heighten students' comprehension and retention of content and sharpen their ability to think critically and creatively about academic material. Socially, the study found collaboration in arts experiences gave students increased opportunities to communicate with one another on school-related matters and enhanced students' respect for one another. Personally, students became more confident in school and in their own abilities. The key findings in the study include:

- Students in participating WSI schools had similar or greater literacy proficiency than the state average.

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[53] Tabereaux, C. (2002). *An Investigation of Arts-Infused Schools in Mississippi: the Whole Schools Initiative*. Mississippi State University.

[54] Corbett, D., Wilson, B., & Morse, D. (2004). The Arts Are An "R" Too; *Jackson, MS: Mississippi Arts Commission.*

…from "*Arts Integration in Action- A School Revitalized by the Arts*"

By Roma Morris, former Principal of Casey Elementary School
Published by the National Association of Elementary School Principals 2009

- **Each morning, the day started with the introduction of the musical artist of the week, and one minute of his or her music was played over the intercom.**
- **A visiting artist presented drum lessons that incorporated counting, as well as a history component connecting the music to a particular culture and region.**
- **Students created quilts connected to the story of Harriet Tubman and the runaway slaves she sheltered.**
- **Students illustrated story sequences with paper cut-outs in the style of Henri Matisse.**
- **Students made tissue-paper gardens in the style of Claude Monet while studying plants.**
- **Students dressed as insects and sang songs about ladybugs, fireflies, and other insects for their parents.**
- **A local artist helped children create a piece of pottery from clay in demonstrating the power of water as part of a science component.**
- **Students made self-portraits in the style of Joan Miro to illustrate stories about themselves.**
- **During Artist Night, students based presentations on an extended project that included choosing, researching, and writing a paper on a Mississippi artist, memorizing facts about the artist, and dressing as the artist.**
- **Fifth-grade students wrote an original opera in language class, made costumes, and created the set and the lighting.**
- **Children learned about Indian culture through food tasting, dance presentations/lessons, and art exposure. The students then created a piece of art related to Indian culture.**
- **Students read Charles Dickens' "A Christmas Carol" before watching a visiting theatrical group present a dramatic performance of the story.**
- **All children were involved in designing a poster, writing and delivering a speech, or delivering a dramatic performance of a poem they wrote about Martin Luther King Jr.**
- **Artists visited the school, brought storytelling to life, and excited the children about reading.**
- **Second-grade students and their teachers decorated ceilings, doors, and walls with visual art to illustrate what they had learned in social studies about rainforests.**

- Most high-implementing schools met the state standard for growth in student literacy proficiency compared to less than half of the lower implementing schools.
- Teachers and students reported improved academic, social, and personal outcomes associated with the initiative, such as improved student comprehension, retention of content, ability to think critically and creatively about the material, and enjoyment of the arts.

In 2009, Robert Mamrak, Ph.D. published "*An Investigation of a Mississippi Whole Schools Initiative Model School*;" [55] this doctoral dissertation investigated the process through which arts integration occurred in a Mississippi Whole Schools Initiative Model School. The focus of Mamrak's research was to provide depth of insight into the process through which arts integration takes place within a school. The findings of this research revealed the importance teachers place on having common planning time and found arts integration offers multiple opportunities to enhance parental and community involvement. Mamrak's key findings conclude "***arts integration naturally addressed students' different learning styles and multiple intelligences.***" His research strongly supports the need for professional development and participation in the WSI Summer Institute and in the WSI Fall and Spring Retreats sponsored by the Mississippi Arts Commission as critical to the success of arts integration. Mamrak states: "***school improvement through cross curricula arts infusion would not be effective without ongoing, high quality professional development. The continued input of techniques and instructional strategies provided at spring and fall retreats, summer institutes, and in house staff development are indispensable***."

[55] Mamrak, B. (2009). *An investigation of a Mississippi Whole Schools Initiative Model School*. Mississippi State University.

The term "*economically disadvantaged*" means a family or individual that is:

1. **Eligible for any of the following:**
   a) **The program for Aid to Families with Dependent Children under part A of Title IV of the Social Security Act (42 U.S.C. 601).**
   b) **Benefits under the Food Stamp Act of 1977 (7 U.S.C, 2011)**
   c) **To be counted for purposes of Section 1005 of Chapter 1 of Title I of the Elementary and Secondary Education Act of 1965, as amended (Chapter 1)(20 U.S.C. 2701)**
   d) **The free or reduced-price meals program under the National School Lunch Act (42 U.S.C. 1751)**
   e) **Participation in programs assisted under Title II of the JTPA.**
2. **Determined by the Secretary to be low-income according to the latest available data from the Department of Commerce or Department of Health and Human Services Poverty Guidelines**

Source:

34 CFR 400.4 (b) Title 34 – Education; Subtitle B – Regulations of the Department of Education

In addition to academic research that has been conducted on Mississippi's Whole Schools Initiative, evidence of WSI's success improving academic achievement through arts integration with the school curriculum was used during the 2005 testimony by Americans for the Arts to the House Labor, Health & Human Services, Education subcommittee to request an appropriation of $53 million to support the U.S. Department of Education's *Arts in Education* programs. During testimony, the following statement was made regarding Mississippi's Whole Schools Initiative: ***"Not only does the program improve the quality of arts education being offered in participating schools, it is often the only chance that Mississippi children, in poorly funded schools and from families living below the poverty level, will ever have to receive any formalized arts instruction. Most important, it means a better education for our children."***[56]

[56] Dr. Catherine Richmond-Cullen, Curriculum Specialist for Arts Education, NEIU, Pennsylvania Department of Education, Chair, Arts Education Council of Americans for the Arts; testimony before the House Labor, Health & Human Services, Education and Related Agencies Subcommittee on Appropriations, U.S. House of Representatives, Public Witness Hearing, April 28, 2005.

Analysis of the Impact of the Whole Schools Initiative on Student Academic Performance on Standardized Tests

To examine the relationship between arts integration and student performance on standardized tests, comparisons were made between the outcomes of students enrolled in schools participating in the Whole Schools Initiative and students enrolled in non-participating schools within Mississippi's public school system. The Whole Schools Initiative is a school-based strategy that engages all students, in every grade, enrolled in a participating school in an arts integrated curriculum. Hence, school-wide performance on statewide standardized tests is an appropriate measure of the impact that arts integrated learning may have on student performance, as all students within a specific WSI school are engaged in arts integrated learning experiences. Comparisons are made using data from the Mississippi Department of Education's *Mississippi Assessment and Accountability Reporting System* for student outcomes on Mississippi Curriculum Tests for Language Arts and Mathematics, the Writing 2 Assessment, and 5th Grade Science Tests; providing comparability across measures of school-level, district-level, and statewide performance on standardized tests.

A primary goal of the No Child Left Behind Act of 2001 (Public Law #107-110) was to close the education achievement gap for all students and to bring all students to "*Proficient*" on state standardized tests by the 2013/2014 school year. Analyses of Whole Schools Initiative schools' student performance on standardized tests contained in this section of the report examines the performance of students enrolled in WSI elementary schools on Language Arts and Mathematics on the Mississippi Curriculum Test, 2nd Edition, the Grade 4 Mississippi Writing Assessment Test, and the 5th Grade Mississippi Science Test for the 2010/2011 school year as compared to statewide performance and the performance of the school district within which the WSI school is located. The analysis compares schools based on the percentage of *all* students scoring "*Proficient or Above*" on standardized tests. Comparisons of standardized test performance across multiple grade levels and multiple subject areas and comparisons of the performance of *economically disadvantaged* students provide additional insight into the impact of arts integrated learning on students' academic achievement.

Multiple socioeconomic and personal student characteristics and factors that exist within their environments impact students' academic performance. Risk factors include: being retained in grade at least once, living in a one parent household, living in poverty, and parents' or guardians' employment status.

Many students experience multiple, concurrent risk factors that amplify the negative impact of these risk factors on students' performance in school. In areas with a high concentration of low-income families, the effects of poverty on student academic performance may be exacerbated.[57] Research has found that concentrated poverty in schools depresses students scores on standardized tests;[58] Olson and Jerald found that "***school poverty depresses the scores of all students in schools where at least half of the students are eligible for subsidized lunch, and seriously depresses scores when more than 75 percent of students live in low-income households***."[59] Comparisons of students' performance on standardized tests across schools, school districts, and statewide performance must be viewed within the context of the incidence of risk factors within a specific school or school district.

An overview of the Mississippi public schools participating in the Whole Schools Initiative and the school districts within which these schools are located is provided in Table 1 (page 34). Enrollment size, school poverty rates (as measured by the percentage of students receiving free lunch), grade levels served by each school, and the racial composition of each school is listed in Table 1. As shown, the size of the student body and the percentage rate of poverty for students vary by school and by school district; research has found these factors to affect student academic performance. Therefore, the outcomes associated with the performance of WSI schools must be viewed within this context.

Using student performance on standardized tests may fail to capture the multiple dimensions of learning, such as the ability to think critically or a student's motivation to learn; performance on standardized tests also fails to measure other elements of a student's well-being, such as imagination, inventiveness, or social competency. In many cases, student performance on standardized tests is a better measure of the student's socioeconomic status than it is a measure of student achievement. Caution needs to be used when comparing student performance on standardized tests due to the interplay of issues that range from the validity of the constructs that are used to test student learning, the accuracy of inferences that are made based on outcomes on standardized tests, and the reliability, validity, and accuracy of predictions made about student learning based on their performance on standardized tests. Test performance may be valid for some students but not for others. For example,

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[57] Simons, L.G., Simons, R., Conger, R., & Brody, G. (2004). *Collective Socialization and Child Conduct Problems*. Youth & Society, 35(3), 267 – 292.
[58] Orland, M.E. (1990). Demographics of Disadvantaged: Intensity of Childhood Poverty and Its Relationship to Educational Achievement. In J. I. Goodlad & P. Keating (Eds.), Access to Knowledge: An Agenda for Our Nation's Schools (pp. 43 – 58). New York: College Entrance Examination Board.
[59] Olson, L. & Jerald, C.D. (1998). Barriers to Success. *Education Week*, 17, 9 – 23.

on a mathematics test with a high reading requirement, fluent readers may test well, but students with poor reading skills may exhibit poor performance; in this case, the mathematics test is measuring the reading skills rather than the math skills of the poor reader. Furthermore, student performance on standardized tests does not fully measure of the achievement gap and the disparity in student performance between student groups based on income, race, gender, and other student characteristics. However, due to the heavy emphasis that is currently placed upon student performance on standardized tests as a result of No Child Left Behind, it has become an increasingly important measure of educational outcomes.

Eight Mississippi public schools, with a student enrollment of 4,275, that have adopted the Mississippi Arts Commission's Whole Schools Initiative are evaluated using student performance on standardized tests. In addition to these public schools, there are four Catholic elementary schools enrolled in the Whole Schools Initiative: Annunciation Catholic School, St. Richard Catholic School, St. Anthony Catholic School, and Sacred Heart Elementary School. Student performance on standardized tests in the four participating WSI Catholic schools is analyzed separately due to the absence of comparable data for students in Catholic schools and those in Mississippi public schools; in Catholic schools, students take a different battery of standardized tests (Stanford Achievement Tests) than do students in Mississippi public schools. A discussion of student academic performance in the four Mississippi Catholic WSI schools is presented in a separate section of this study (see *Student Academic Performance at Catholic Schools Participating in the Whole Schools Initiative*, page 106), using the limited data that is available.

Table 1: Overview of Schools Participating in the Whole Schools Initiative and Related School Districts

School Name	Public School District	Total Enrollment	Grades	Caucasian Students	Percent of Student Body	African American Students	Percent of Student Body	Students In Poverty	Percent Poverty of Student Body
Saltillo Elementary	**Lee County**	**768**	**3, 4, & 5**	**687**	**89%**	**70**	**9%**	**274**	**35%**
Lee County School District		6,887	Pre-K to 12	4,868	71%	1,869	27%	3,415	51%
Poplar Springs Elementary	**Meridian**	**537**	**1 to 5**	**255**	**47%**	**258**	**48%**	**205**	**39%**
Meridian School District		6,254	Pre-K to 12	721	12%	5,390	86%	4,684	77%
Pierce St. Elementary	**Tupelo**	**444**	**3, 4, & 5**	**214**	**48%**	**210**	**47%**	**198**	**47%**
Tupelo School District		7,569	Pre-K to 12	3,464	46%	3,699	49%	3,468	49%
Cook Elementary Fine Arts	**Columbus**	**832**	**1 to 5**	**157**	**19%**	**550**	**78%**	**517**	**80%**
Columbus School District		4,521	Pre-K to 12	426	9%	4,008	89%	3,459	80%
Casey Elementary	**Jackson Public**	**380**	**K to 5**	**61**	**16%**	**317**	**83%**	**168**	**48%**
Jackson Public		30,366	Pre-K to 12	463	2%	29,618	98%	23,865	82%
Nora Davis Magnet	**Laurel**	**395**	**Pre-K to 5**	**35**	**9%**	**351**	**89%**	**248**	**72%**
Mason Elementary	**Laurel**	**448**	**K - 5**	**22**	**5%**	**360**	**80%**	**424**	**90%**
Laurel School District		3,021	Pre-K to 12	122	4%	2,733	90%	2,529	86%
Quitman Upper Elementary	**Quitman**	**471**	**3 to 5**	**165**	**35%**	**302**	**64%**	**342**	**73%**
Quitman School District		2,034	K to 12	753	37%	1,267	62%	1,30	70%
State of Mississippi	***State***	***490,526***	***Pre-K to 12***	***227,015***	***46%***	***245,444***	***50%***	***294,430***	***62%***

Note: Student enrollment and the percentage of Hispanic, Asian, and Native American students are not included in this table due to enrollment of less than one percent across school districts and due to page size limitations for table legibility.

Saltillo Elementary School

Saltillo Elementary School is in the Lee County School District. In the 2010/2011 school year, there were 768 students enrolled in 3rd through 5th grade; there were 274 (35%) students living in poverty and 89 percent of the student body was Caucasian. Sixty-three percent (63%) of 4th grade students enrolled in Saltillo Elementary School scored *"Proficient or Above"* on Language Arts MCTs; 57 percent of students enrolled in Saltillo Elementary School scored *"Proficient or Above"* on the 4th grade Math MCT; and 85 percent of students scored two or above on Writing 2 Mississippi Curriculum Tests during the 2010/2011 school year. These scores compare favorably with the statewide performance and the Lee County School District performance of 4th grade students. The percentage of Saltillo Elementary students scoring *"Proficient or Above"* on the 4th grade Language Arts MCT was nine percentage points higher than the state average and five percentage points higher than the Lee County School District average (Figure 1) and the percent of Saltillo students scoring *"Proficient or Above"* on the 5th Grade Science Test was 17 percentage points higher as compared to their peers statewide during the 2010/2011 school year.

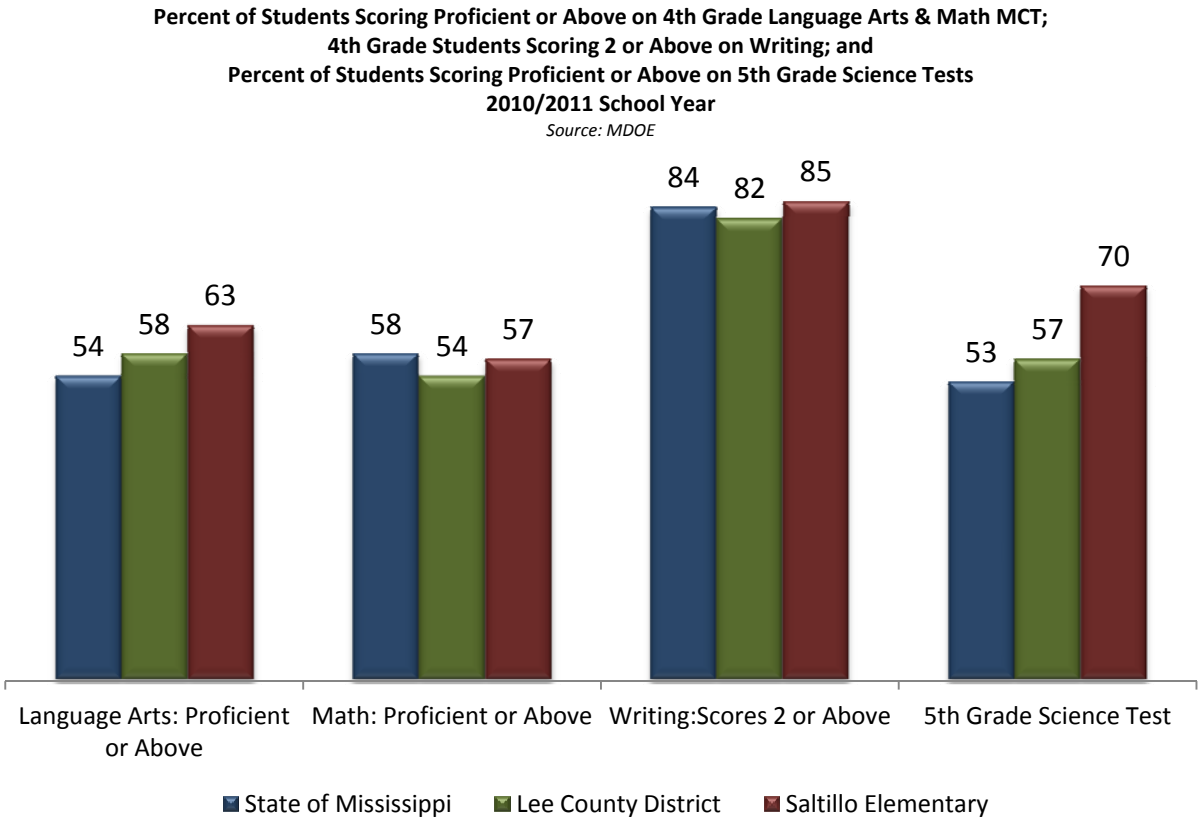


Figure 1: Saltillo Elementary School 4th Grade MCT Performance as Compared to State and Lee County School District Performance

The cumulative effect of the WSI on student performance as they transition to successive grades was examined by analyzing student performance at the WSI school and then comparing these outcomes to statewide student performance on standardized tests. At the state level, the percentage of *all* students scoring *"Proficient or Above"* on the Mathematics Mississippi Curriculum Test remained relatively constant as students graduated from 3rd grade, to 4th grade, and then to 5th grade. On the Mathematics MCT, the percentage of *all* students scoring *"Proficient or Above"* ranged between 57 and 59 percent at the state level (Figure 2). At Saltillo Elementary, the percentage of *all* students scoring *"Proficient or Above"* on Mathematics MCTs increased as students transitioned to successive grades (Figure 2). As shown in Figure 2, upon entry into the Saltillo Elementary School in 3rd grade, a lower percentage of students scored *"Proficient or Above"* on the Mathematics MCT as compared to their statewide peers (52% as compared to 57% statewide). As students transition to successive grade levels, the percentage of *all* students scoring *"Proficient or Above"* on the Mathematics MCT exhibits an increase across successive grade levels. By 5th grade, 74 percent of *all* students in Saltillo Elementary scored *"Proficient or Above;"* this compared to 58 percent of students statewide.

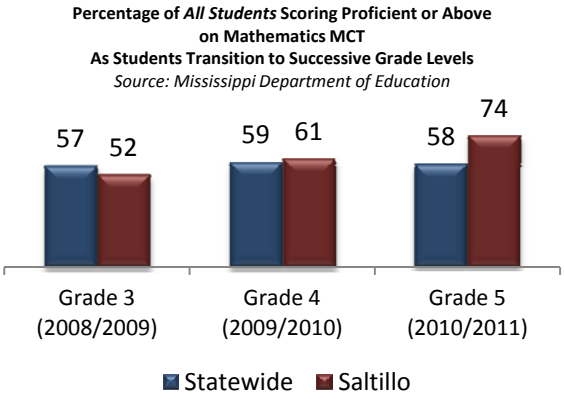


Figure 2: Comparison of Math Scores over Successive Grades

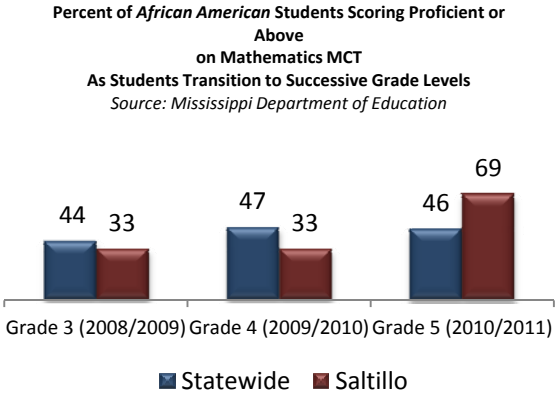


Figure 3: Comparison of African American Students' Math Scores over Successive Grades

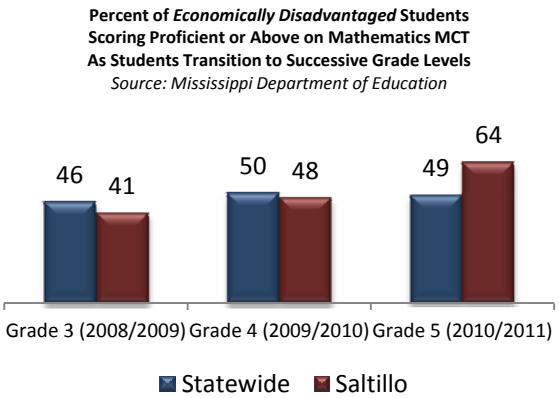


Figure 4: Comparison of Disadvantaged Students' Math Scores over Successive Grades

A comparison of African American students' academic performance on the Mathematics MCT at the state level, as students transition to successive grades, indicates that in the 3rd grade students at Saltillo Elementary exhibit an achievement gap that is similar to the statewide gap between African American students as compared to *all* students; the percentage of African American students scoring *"Proficient or Above"* on the Mathematics MCT in 3rd grade is approximately 19 percentage points lower as compared to *all* students. Analysis of the data indicates that as African American students in Saltillo Elementary transitioned to successive grades, their mathematics achievement gap increased in 4th grade. However, by the time these students reached 5th grade their mathematics achievement gap reduced to five percent, with 69 percent of the African American students at Saltillo Elementary scoring *"Proficient or Above"* as compared to 46 percent of African American students statewide. This indicates that 23 percent more African American students at Saltillo Elementary scored *"Proficient or Above"* on the 5th Grade Mathematics MCT in the 2010/2011 school year as compared to African American students statewide (Figure 3).

Third Grade *Economically disadvantaged* students enrolled in the Saltillo Elementary school exhibit an achievement gap of approximately 11 percent in their performance on Mathematics MCTs; statewide, disadvantaged students exhibit a similar achievement gap in mathematics (comparison of Figure 2 and Figure 4). This achievement gap tends to be persistent as *Economically disadvantaged* students transition to successive grades. Statewide, 46 percent of *economically disadvantaged* students scored *"Proficient or Above"* on the Mathematics MCT in the 2008/2009 school year; when these students transitioned to 4th grade, 50 percent scored *"Proficient or Above"* in Mathematics; and when these *economically disadvantaged* students reached 5th grade, 49 percent scored *"Proficient or Above"* on the Mathematics MCT in the 2010/2011 school year. Upon entry into Saltillo Elementary School, 41 percent of *economically disadvantaged* students in 3rd grade scored *"Proficient or Above"* in the Mathematics MCT administered in the 2008/2009 school year; the following year, 48 percent of these students scored *"Proficient or Above"* on the 4th Mathematics MCT. As compared to their counterparts statewide, *economically disadvantaged* students at Saltillo Elementary exhibit a slightly larger reduction in the achievement gap from 3rd grade to 4th grade (2%). In the 2010/2011 school year, 64 percent of economically *disadvantaged* students at Saltillo Elementary School scored *"Proficient or Above"* on the 5th grade Mathematics MCT as compared to 49 percent of *economically disadvantaged* students statewide. This indicates that 5th grade *economically disadvantaged* students enrolled in Saltillo Elementary School outperformed the statewide performance of *economically disadvantaged* students by 15 percentage points on the 5th grade Mathematics MCT in the 2010/2011 school year.

Poplar Springs Elementary School

Poplar Springs Elementary School is in the Meridian Public School District. In the 2010/2011 school year, there were 537 students enrolled in Pre-Kindergarten through 5th grade; there were 205 (39%) students living in poverty and 47 percent of the student body was Caucasian. Sixty-eight percent (68%) of 4th grade students enrolled in Poplar Springs Elementary School scored *"Proficient or Above"* on Language Arts MCTs; 80 percent of students enrolled in Poplar Springs Elementary scored *"Proficient or Above"* on the Math MCT; and 88 percent of students scored two or above on Writing 2 Mississippi Curriculum Tests during the 2010/2011 school year. These scores compare favorably with the statewide performance and the Meridian School District performance of 4th grade students on standardized tests. At Poplar Springs, the percentage of students scoring *"Proficient or Above"* on the 4th grade Language Arts MCT was 14 percent higher than the state average and 29 percent higher than the Meridian School District average (Figure 5); the percent of Poplar Springs Elementary students scoring *"Proficient or Above"* on the 5th Grade Science Test was 20 percent higher when compared to their peers statewide and 35 percent higher as compared to their peers within the school district during the 2010/2011 school year.

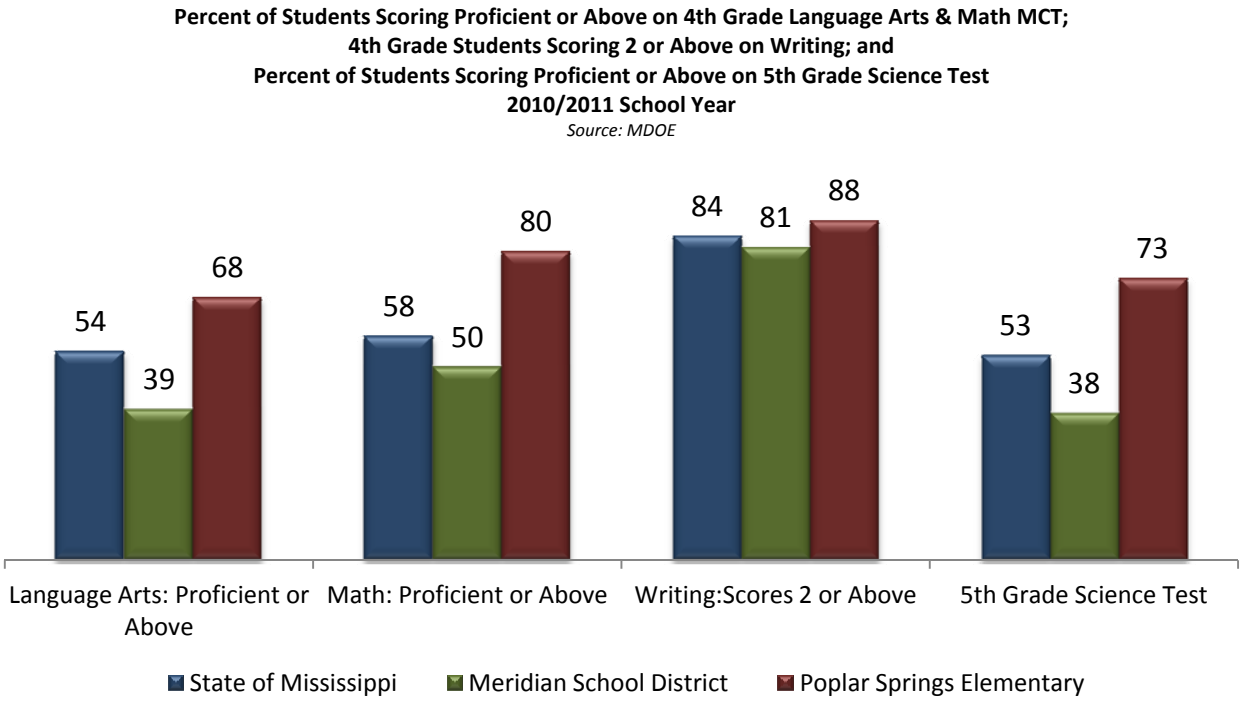


Figure 5: Poplar Springs Elementary School 4th Grade MCT Performance as Compared to State Level and Meridian School District Performance

Statewide, the percentage of *all* students scoring *"Proficient or Above"* on the Language Arts Mississippi Curriculum Test remained relatively constant as students graduated from 3rd grade, to 4th grade, and then to 5th grade, ranging between 48 and 53 percent (Figure 6). Upon entry into Poplar Springs Elementary School in 3rd grade, the percentage of *all* students scoring *"Proficient or Above"* on the Language Arts MCT was the same as the statewide rate of 48 percent. In 5th grade, 77 percent of *all* students at Poplar Springs Elementary scored *"Proficient or Above"* on the Language Arts MCT as compared to 51 percent of *all* students statewide; this indicates that the percentage of students scoring *"Proficient or Above"* at Poplar Springs Elementary is 26 percent higher than that of students statewide (Figure 6). This comparison of *all* students' performance at the Poplar Springs Elementary School with the performance of *all* students statewide illustrates the cumulative impact of arts integrated learning on students' achievement as they transition to successive grades.

In the 2008/2009 school year, 35 percent of African American Students scored *"Proficient or Above"* on the Language Arts MCT in 3rd grade statewide; this compared to 32 percent of African American students at Poplar Springs Elementary School. The achievement gap in language arts for African American students as

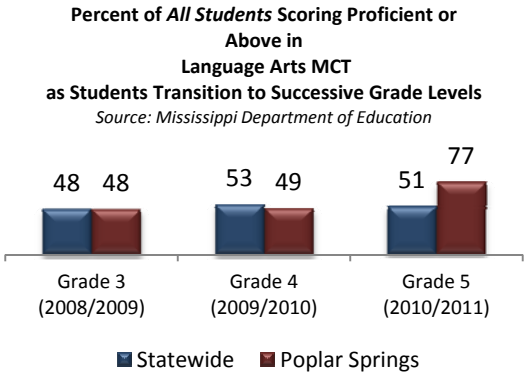


Figure 6: Comparison of Language Arts Scores over Successive Years

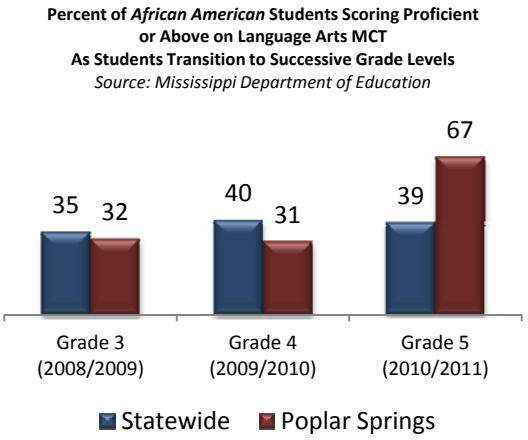


Figure 7: Comparison of Minority Scores over Successive Years

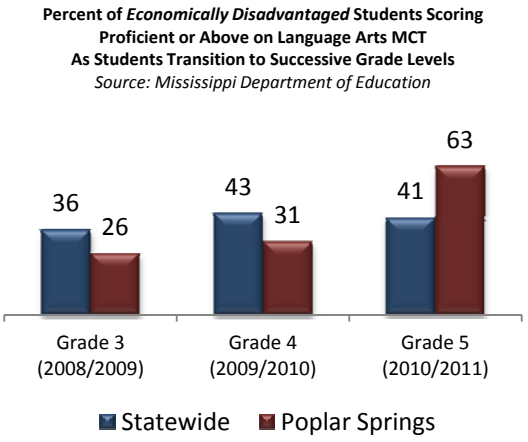


Figure 8: Comparison of Disadvantaged Scores over Successive Years

compared to the percentage of all students scoring *"Proficient or Above"*, was 13 percentage points for students statewide and 16 percentage points at Poplar Springs for 3rd grade students during the 2008/2009 school year. By 5th grade, the achievement gap between *all* students and African American students in language arts was 12 percentage points statewide and 10 percentage points at Poplar Springs Elementary School. The percentage of African American students who had entered 3rd grade in the 2008/2009 school year who scored *"Proficient or Above"* on the Language Arts MCT was 35 percent statewide; in 5th grade, 39 percent of these students scored "*Proficient or Above*" on the Language Arts MCT – a four percent increase over the three-year period. At Poplar Springs Elementary School, the percentage of African American students entering 3rd grade in the 2008/2009 school year who scored *"Proficient or Above"* on the Language Arts MCT was 32 percent; as 5th graders in the 2010/2011 school year, 67 percent of these African American students scored *"Proficient or Above"* on the Language Arts MCT – an increase of 35 percentage points (Figure 7 on page 39).

Statewide, 36 percent of *economically disadvantaged* students scored *"Proficient or Above"* on 3rd grade Language Arts MCT in the 2008/2009 school year; by the 2010/2011 school year, 41 percent of these students scored *"Proficient or Above"* on the 5th grade Language Arts MCT. Twenty-six percent (26%) of 3rd grade *economically disadvantaged* students enrolled at Popular Springs Elementary School scored *"Proficient or Above"* on the Language Arts MCT in the 2008/2009 school year; by the 2010/2011 school year, 63 percent of these students scored *"Proficient or Above"* on the 5th grade Language Arts MCT. As they transitioned to successive grades (from 3rd grade to 5th grade), the percentage of *economically disadvantaged* students scoring *"Proficient or Above"* statewide increased by five percentage points; at Poplar Springs Elementary School, the percentage of *economically disadvantaged* students scoring *"Proficient or Above"* on the Language Arts MCT increased by 37 points as students transitioned from 3rd grade to 5th grade (Figure 8, page 39).

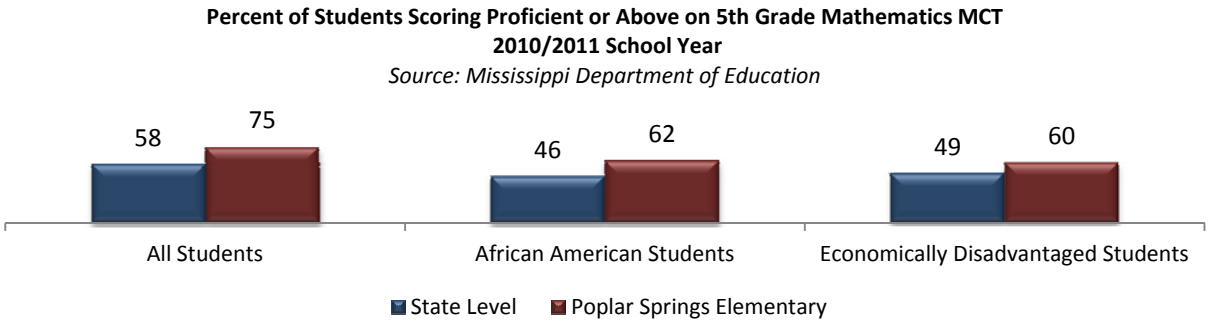


Figure 9: Poplar Springs Elementary and State Level Comparison of All Students, African American, and *Economically Disadvantaged* Students' Performance on 5th Grade Mathematics MCT

Pierce Street Elementary School

Pierce Street Elementary School is in the Tupelo Public School District. In the 2010/2011 school year, there were 444 students enrolled in 3rd through 5th grade; there were 198 (47%) students living in poverty and 47 percent of the student body was African American. Fifty-seven percent (57%) of 4th grade students enrolled in Pierce Street Elementary School scored *"Proficient or Above"* on Language Arts MCTs; 59 percent of students enrolled in Pierce Street Elementary School scored *"Proficient or Above"* on the Math MCT; and 93 percent of students scored 2 or above on the 4th grade Writing 2 Test during the 2010/2011 school year. These scores compare favorably with the statewide performance and Tupelo School District performance of 4th grade students. The percentage of students scoring *"Proficient or Above"* on the 4th grade Language Arts MCT was three percent higher than the state average and one percent higher than the Tupelo School District average (Figure 10). The percentage of Pierce Street Elementary students scoring *"Proficient or Above"* on the 5th Grade Science Test was one percent higher when compared to the statewide percentage rate during the 2010/2011 school year.

Percent of Students Scoring Proficient or Above on 4th Grade Language Arts & Math MCT;
4th Grade Students Scoring 2 or Above on Writing; and
Percent of Students Scoring Proficient or Above on 5th Grade Science Test
2010/2011 School Year
Source: MDOE

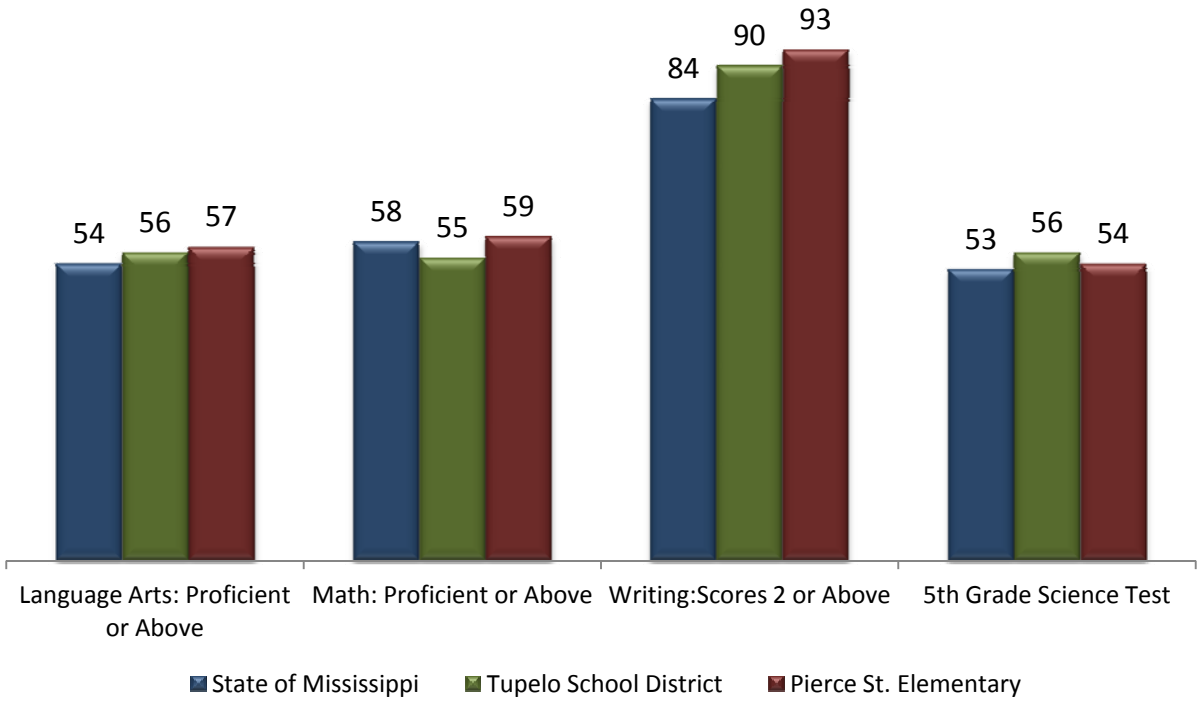


Figure 10: Pierce Street Elementary School 4th Grade MCT Performance as Compared to Statewide and Tupelo School District Performance

A comparison of student performance on the 4th grade Language Arts MCT indicates that a lower percent of students enrolled at Pierce Street Elementary School scored *Minimal* and a higher percent of students enrolled at Pierce Street Elementary scored *Proficient* when compared to 4th grade students statewide and when compared to Tupelo School District students (Figure 11). Approximately 56.9 percent of 4th grade students at Pierce Street Elementary School scored *"Proficient or Above"* on the Language Arts MCT during the 2010/2011 school year; this compared to 54.4 percent statewide and 56.1 percent of all 4th grade students in the Tupelo School District.

Student Performance on 4th Grade
Language Arts MCT
2010/2011 School Year
Source: Mississippi Department of Education

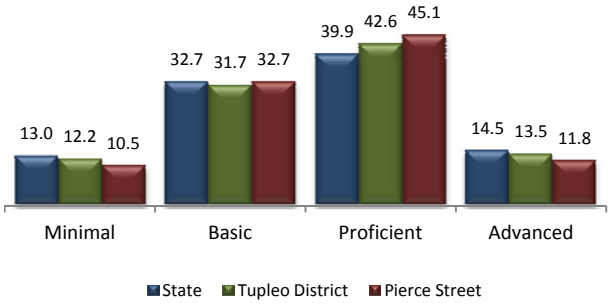


Figure 11: Distribution of 4th Grade Language Arts MCT Performance

A higher percentage of students (51.0%) enrolled in the Pierce Street Elementary School scored *Proficient* and a lower percentage (9.8%) of students scored *Minimal* on the 4th grade Mathematics MCT as compared to students state-wide and students across the Tupelo School District during the 2010/2011 school year (Figure 12). The percentage of students that scored *"Proficient or Above"* on the 4th grade Mathematics MCT during the 2010/2011 school year was 58.4 for students statewide, 55.4 percent for all students in the Tupelo School District, and 58.8 percent for students enrolled at the Pierce Street Elementary School.

Student Performance on 4th Grade Mathematics
MCT
2010/2011 School Year
Source: Mississippi Depeartment of Education

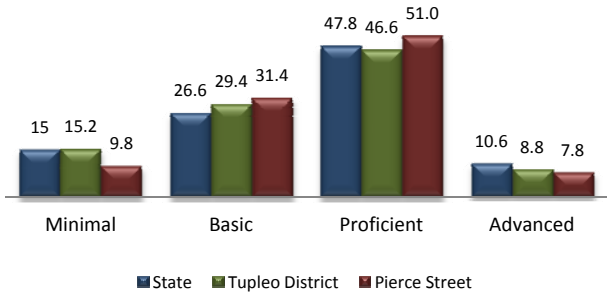


Figure 12: Distribution of 4th Grade Mathematics MCT Performance

During the 2008/2009 school year, Pierce Street

Percent of Students Scoring Proficient or Above
Language Arts MCT
As Students Transition to Successive Grade Levels
Source: Mississippi Department of Education

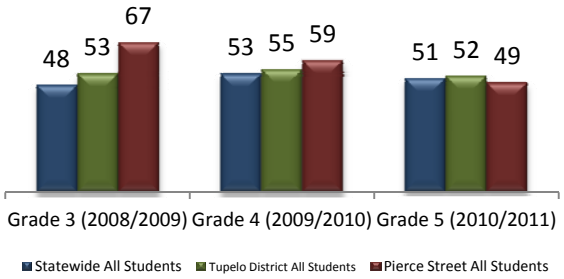


Figure 13: Comparison of Student Performance over Successive Grades

Elementary School enrolled 316 students in kindergarten through third grade; at that time, the student population was 52 percent African American and the poverty rate among students was 53.3 percent. In 2009/2010, a reorganization of Tupelo Schools occurred, and students in grades K through 2 were assigned to a different school and Pierce Street Elementary School enrolled students in grades 3 through 5; at this time, enrollment increased to 429 students, 44 percent of the student population was African American and the poverty rate among students at Pierce Street Elementary School was 47 percent.

A review of Pierce Street Elementary School's student performance on standardized tests shows a general decline in *all* students' performance on standardized tests in the period following the reorganization of Pierce Street Elementary School and a negative effect on the performance of *economically disadvantaged* students and African American students. Prior to school reorganization, students at Pierce Street Elementary school exhibited a higher percentage of students scoring *"Proficient or Above"* on the Language Arts and Mathematics MCTs, and exhibited a very small achievement gap for *economically disadvantaged* and African American Students (Figure 14).

During school reorganization (2009/2010), the percentage of *all* students scoring *"Proficient or Above"* declined and the achievement gap

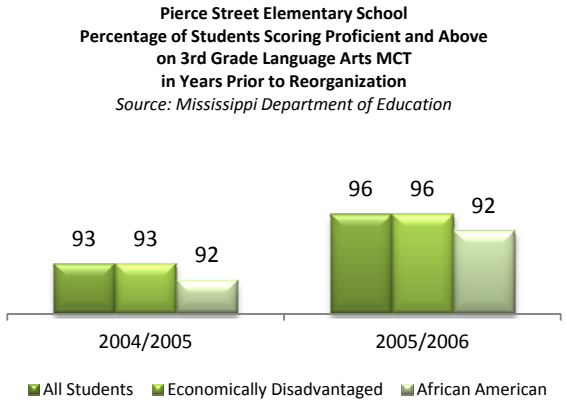


Figure 14: Comparison of Scores Prior to Reorganization

for African American students and *economically disadvantaged* students increased. Student achievement on standardized tests during the 2010/2011 school year exhibits recovery from the impact of school reorganization in the 2009/2010 school year. As shown in Figure 15 below, the percentage of all students scoring *"Proficient or Above"* on the 3rd Grade Language Arts MCT in 2010/2011 increased by 13 percentage points and the percentage of *economically disadvantaged* students scoring *"Proficient or Above"* increased by 17 percentage points as compared to the 2009/2010 school year.

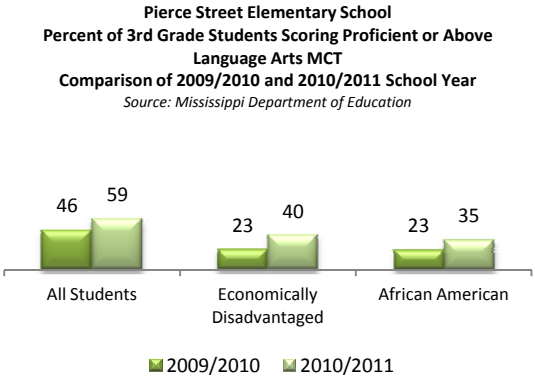


Figure 15: Comparison of Scores after Reorganization

Cook Elementary Fine Arts Magnet School

Cook Elementary Fine Arts Magnet School is in the Columbus Municipal School District. In the 2010/2011 school year, there were 832 students enrolled in kindergarten through 5th grade; there were 517 (80%) students living in poverty and 78 percent of the student body was African American. Fifty-seven percent (57%) of 4th grade students enrolled in Cook Elementary Fine Arts Magnet School scored *"Proficient or Above"* on Language Arts MCTs; 56 percent of students enrolled in Cook Elementary Fine Arts Magnet School scored *"Proficient or Above"* on the Math MCT; and 80 percent of students scored two or above on Writing 2 Mississippi Curriculum Tests during the 2010/2011 school year. These scores compare relatively favorably with the statewide performance and the Columbus Municipal School District performance of 4th grade students. The percentage of students scoring *"Proficient or Above"* on the 4th grade Language Arts MCT was three percent higher than the state average and five percent higher than the Columbus School District average (Figure 16); the percent of Cook Elementary Fine Arts Magnet School students scoring *"Proficient or Above"* on the 5th Grade Science Test was very low (21%) as compared to students statewide (53%) during the 2010/2011 school year.

Percent of Students Scoring Proficient or Above on 4th Grade Language Arts & Math MCT;
4th Grade Students Scoring 2 or Above on Writing;
and Percent of Students Scoring Proficient or Above on 5th Grade Science Test
2010/2011 School Year
Source: MDOE

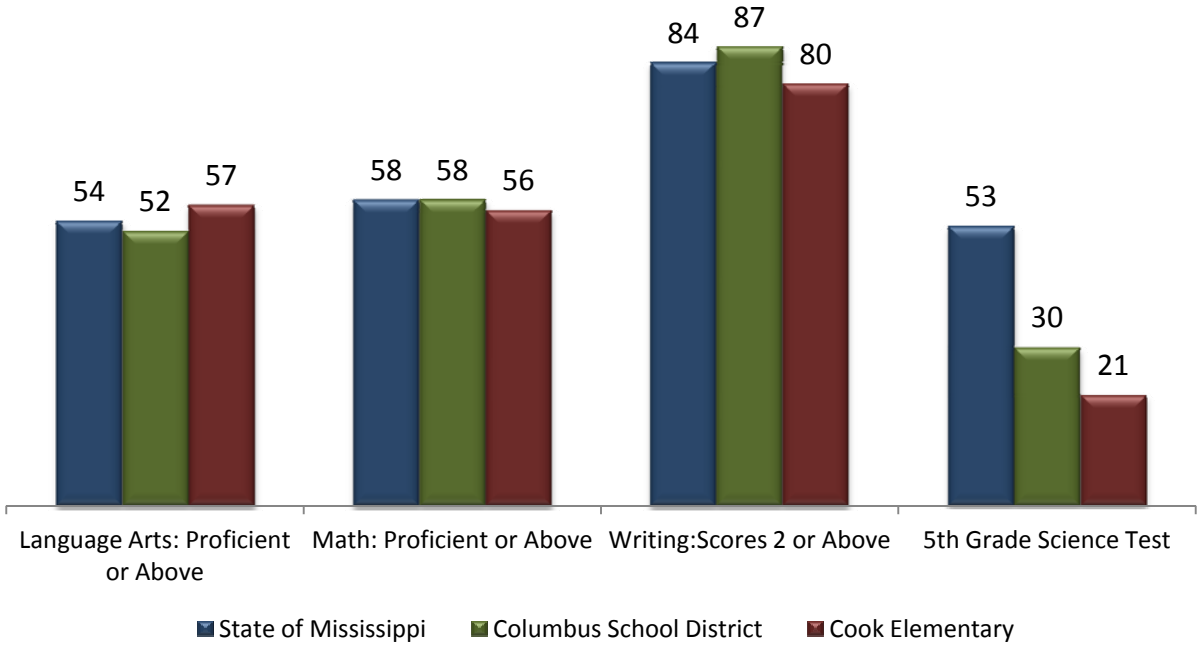


Figure 16: Cook Elementary School 4th Grade MCT Performance as Compared to Statewide and Columbus School District Performance

In the 2009/2010 school year, Cook Elementary School enrolled 658 students in kindergarten through 4th Grade; the poverty rate among students was 75 percent. In the 2009/2010 school year (prior to restructuring), Cook Elementary met NCLB Adequate Yearly Progress in Reading/Language, Mathematics, and Other Academic Indicators. In the 2010/2011 school year, Cook Elementary was impacted by the restructuring of the Columbus School District; the school added 5th grade students and enrollment increased to 832. Following restructuring, the poverty rate for students in the school increased by five percent to 80 percent, the school did not meet NCLB Adequate Yearly Progress in reading/language or math, and the school was on "*Academic Watch*" in the 2010/2011 school year.

Cook Elementary School became a WSI school in 2010. There is early indication that student performance has trended upward since entry into the WSI. At Cook Elementary, the percentage of *all* students scoring *"Proficient or Above"* on the Language Arts MCT increased by 15 percentage points from 3rd Grade to 4th grade, and the percentage of *Disadvantaged* students scoring *"Proficient or Above"* increased by 18 percentage points as they transitioned from 3rd grade to 4th grade (Figure 17). A similar pattern is exhibited in student performance on the Mathematics MCT.

The percentage of *all* students at Cook Elementary scoring *"Proficient or Above"* on the 4th grade Math MCT increased by four percentage points; over the same period, the percentage of *disadvantaged* students scoring *"Proficient or Above"* on the 4th grade Math MCT increased by five percentage points. The percentage of African American students and *economically disadvantaged* students at Cook Elementary scoring "*Proficient or Above*" on the 4th grade Language Arts MCT was higher than statewide and the Columbus School District student performance during the 2010/2011 school year (Figure 18).

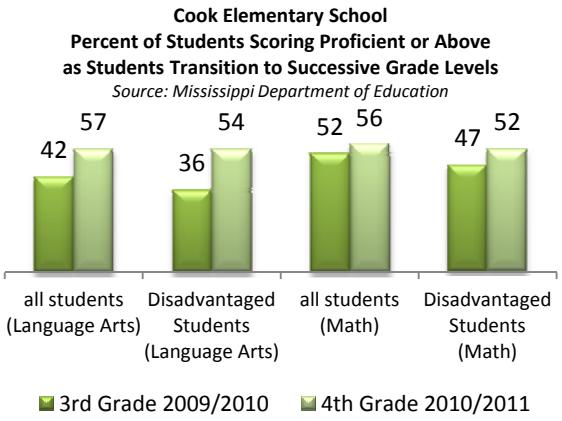


Figure 17: Comparison of Disadvantaged and Non-Disadvantaged Scores

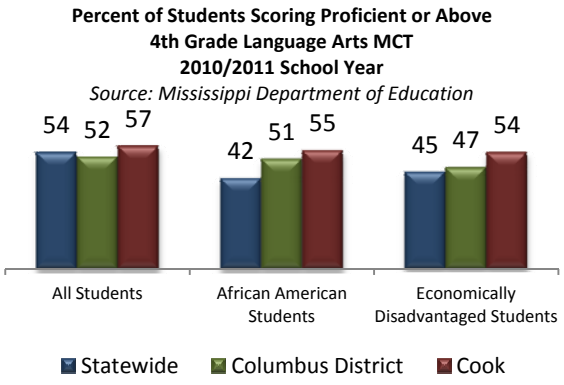


Figure 18: Cook Elementary Comparison of State and District Scores

Casey Elementary School

Casey Elementary School is in the City of Jackson School District. In the 2010/2011 school year, there were 380 students enrolled in kindergarten through 5th grade; there were 168 (48%) students living in poverty and 83 percent of the student body was African American. Sixty-seven percent (67%) of 4th grade students enrolled in Casey Elementary School scored *"Proficient or Above"* on the Language Arts MCT; 81 percent of students enrolled in Casey Elementary School scored *"Proficient or Above"* on the Math MCT; and 83 percent of students scored two or above on Writing 2 Mississippi Curriculum Tests during the 2010/2011 school year. These scores compare very favorably with statewide performance and the performance of 4th grade students in the Jackson Public School District. The percentage of Casey students scoring *"Proficient or Above"* on the 4th grade Language Arts MCT was 13 percentage points higher than the state average and 15 percentage points higher than the Jackson Public School District average (Figure 19). The percent of Casey Elementary students scoring *"Proficient or Above"* on the 5th Grade Science Test was 16 percent higher as compared to their peers statewide and 31 percent higher as compared to their peers in the school district during the 2010/2011 school year.

Percent of Students Scoring Proficient or Above on 4th Grade Language Arts & Math MCT;
4th Grade Students Scoring 2 or Above on Writing; and
Percent of Students Scoring Proficient or Above on 5th Grade Science Test
2010/2011 School Year
Source: MDOE

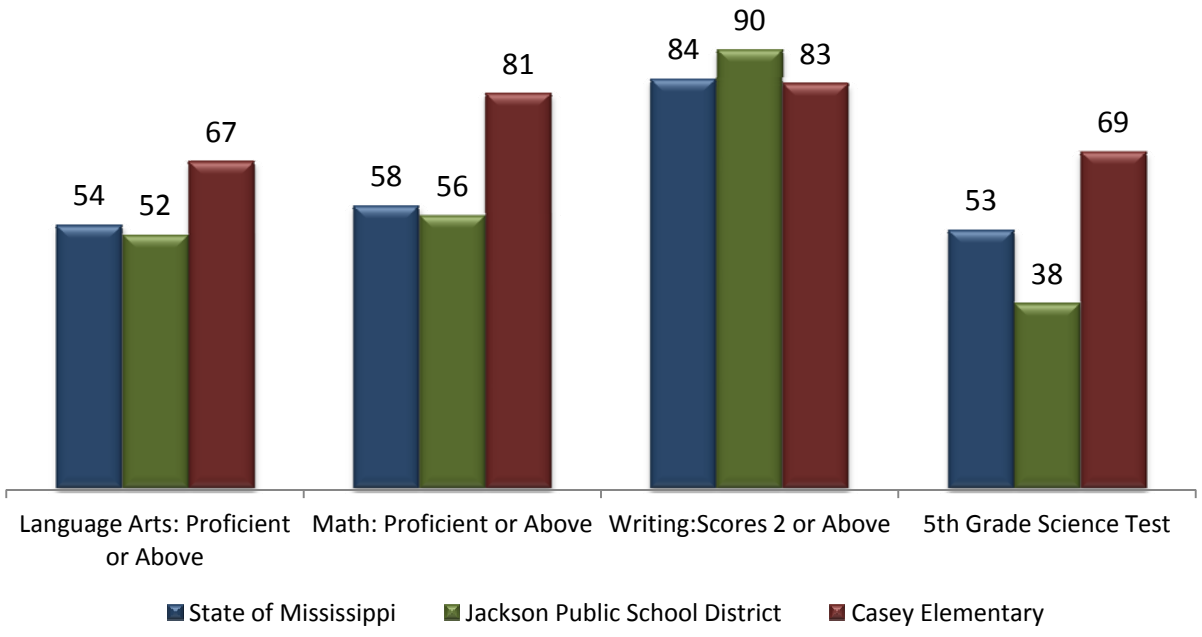


Figure 19: Casey Elementary School 4th Grade MCT Performance as Compared to Statewide and Jackson Public School District Performance

Casey Elementary School has been a part of the Mississippi Arts Commission's Whole Schools Initiative since the 1999/2000 school year and is currently a Model School. This school provides a longitudinal perspective of the impact of the WSI on student achievement.

The percentage of 3rd grade students at Casey Elementary that scored *"Proficient or Above"* on the Language Arts MCT was 23 percentage points higher than the statewide norm during the 2010/2011 school year. As shown in Figure 20 and Figure 21, the percentage of African American students and *economically disadvantaged* students scoring *"Proficient or Above"* on the 3rd grade Language Arts and Mathematics MCTs is impressive when compared to either statewide or Jackson Public district-wide levels. For example, the percentage of African American students at Casey Elementary that scored *"Proficient or Above"* on the 3rd grade Language Arts MCT was 37 percentage points higher than students statewide and 34 percentage points higher on the 3rd grade Math MCT than students statewide.

As African American students at Casey transition to successive grade levels, they exhibit increasingly positive performance, and by 5th grade, the percentage of students at Casey that are scoring *"Proficient or Above"* on the Mathematics MCT is 21 percentage points higher than the statewide norm (Figure 22).

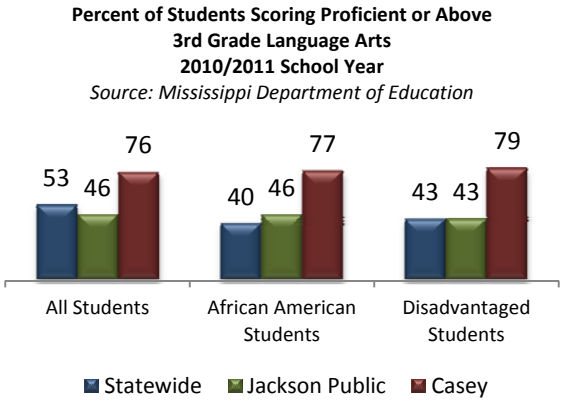


Figure 20: Comparison of State and District Scores on Language Arts

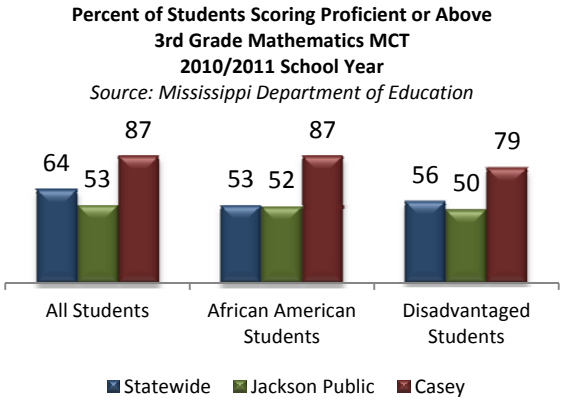


Figure 21: Comparison of State and District Scores on Math MCT

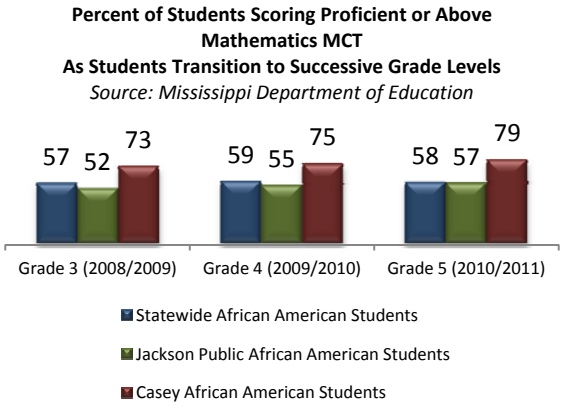


Figure 22: Comparison of State and District Scores over Successive Years

Percentage of Students Scoring Proficient or Above
Performance of All Students and Economically Disadvantaged Students
Comparison of Casey with Jackson Public and Statewide
3rd, 4th, and 5th Grade MCT Tests
2010/2011 School Year
Source: MDOE

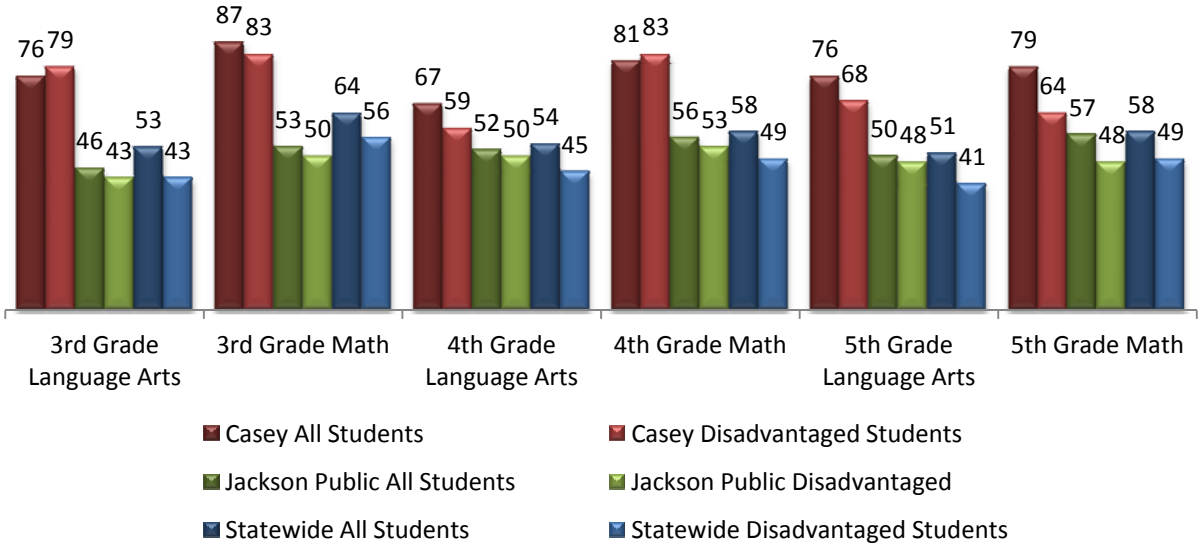


Figure 23: Casey Elementary School Comparison to Statewide and Jackson Public School District – Performance of *All* Students and *Economically Disadvantaged* Students Standardized Test Scores

Casey Elementary School has been a Whole Schools Initiative school since 1999 and is a Model WSI school. WSI schools may become Model Schools after participating in the Whole Schools Initiative for three years. The percentage of Casey students performing at *"Proficient or Above"* on the Language Arts and Mathematics MCT exceeds the performance of students statewide *and* that of the City of Jackson Public School District in the 3rd, 4th, and 5th grade (Figure 23).

The percentage of *economically disadvantaged* students at Casey Elementary School scoring *"Proficient or Above"* on standardized achievement tests is significant. A higher percentage of *economically disadvantaged* students at Casey Elementary scored *"Proficient or Above"* when compared to ***all*** students in the Jackson Public School District and as compared to ***all*** students statewide across all three grade levels on the Language Arts and Math MCT; in some grades and subject areas, the percentage of *economically disadvantaged* students at Casey Elementary scoring *"Proficient or Above"* on standardized tests was 26 percentage points higher than the statewide or district level performance for ***all*** students. On the 4th grade Math MCT, the percentage of *economically disadvantaged* students at Casey who scored *"Proficient or Above"* was 13 percentage points *higher* when compared to ***all*** students statewide (Figure 23).

Nora Davis Magnet School

Nora Davis Magnet School is in the Laurel School District. In the 2010/2011 school year, there were 395 students enrolled in pre-kindergarten through 5th grade; there were 248 (72%) students living in poverty and 89 percent of the student body was African American. Sixty-seven percent (67%) of 4th grade students enrolled in Nora Davis Magnet School scored *"Proficient or Above"* on the Language Arts MCT; 60 percent of students enrolled in Nora Davis Magnet School scored *"Proficient or Above"* on the Math MCT; and 86 percent of students scored two or above on Writing 2 Mississippi Curriculum Tests during the 2010/2011 school year. These scores compare favorably with the statewide performance and the Laurel School District performance of 4th grade students. The percentage of Nora Davis students scoring *"Proficient or Above"* on the 4th grade Language Arts MCT was 13 percentage points higher than the state average and 22 percentage points higher than the Laurel Public School District average (Figure 24); the percent of Nora Davis Magnet students scoring *"Proficient or Above"* on the 5th Grade Science Test was 63 percent as compared 53 percent statewide during the 2010/2011 school year (Figure 24) and 47 percent at the Laurel School District Level.

Percent of Students Scoring Proficient or Above on 4th Grade Language Arts & Math MCT;
4th Grade Students Scoring 2 or Above on Writing; and
Percent of Students Scoring Proficent or Above on 5th Grade Science Test
2010/2011 School Year
Source: MDOE

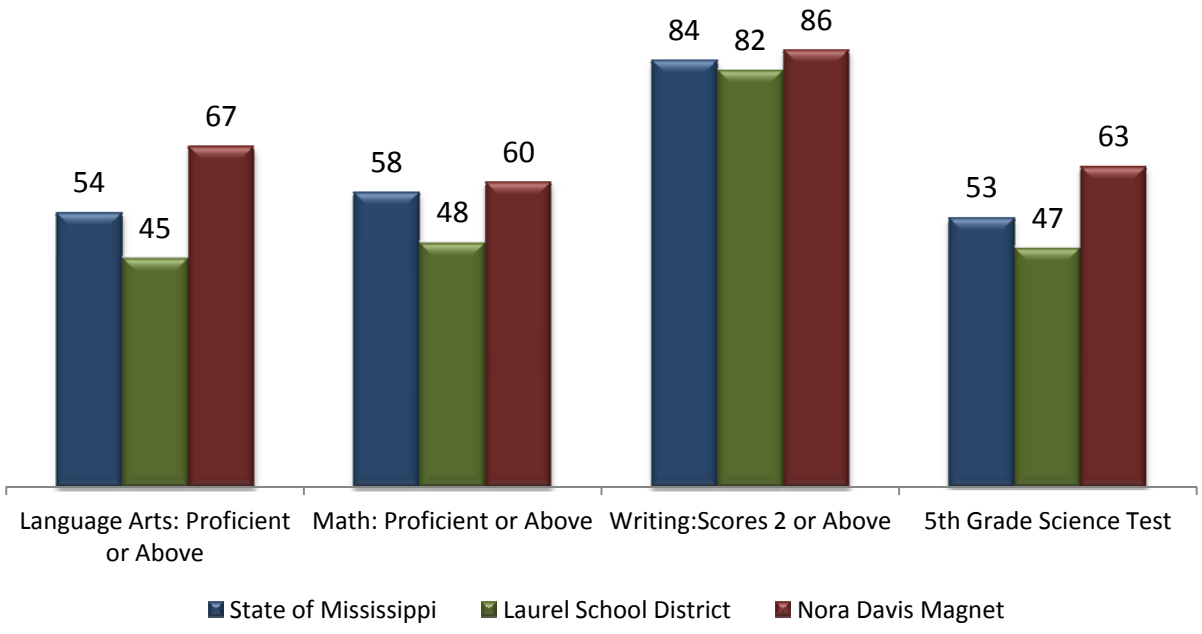


Figure 24: Nora Davis Magnet School 4th Grade MCT Performance as Compared to Statewide and Laurel School District Performance

Nora Davis Magnet School has participated in the Mississippi Arts Commission's Whole Schools Initiative since 1999 and is a WSI Model School.

The percentage of Nora Davis students that score *"Proficient or Above"* on standardized tests compares positively with statewide student performance on standardized tests and the performance of students in the Laurel School District. The percentage of Nora Davis students that scored *"Proficient or Above"* on the 3rd grade Language Arts MCT was 15 percentage points higher than students statewide and 30 percentage points higher than the Laurel School District percentage rate (Figure 25).

As students at Nora Davis transition from grade 3 to grade 5, their performance on standardized tests exceeds that of students statewide and in the Laurel School District in every subject. In the 2010/2011 school year, 57 percent of the students at Nora Davis Elementary School scored "*Proficient or Above"* on the 5th grade Language Arts MCT; this was 16 percentage points higher than students within the Laurel School District and six percentage points higher than the percentage of students statewide that scored *"Proficient or Above"* on the 5th grade Language Arts MCT.

A higher percentage of African American students at Nora Davis Magnet School scored *"Proficient or Above"* on the Mathematics MCT as they transitioned to successive grades when compared to African American students in the Laurel School District and statewide. During the 2008/2009 school year, the percentage of African American students scoring *"Proficient or Above"* on the 3rd grade Mathematics MCT was 21 percentage points higher for Nora Davis students as compared to statewide student performance and 32 percentage points higher as compared to African American students across the Laurel School District (Figure 26).

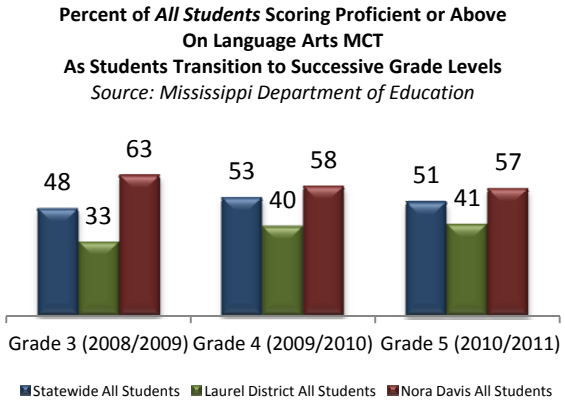


Figure 25: Comparison of State and Laurel Scores over Successive Years

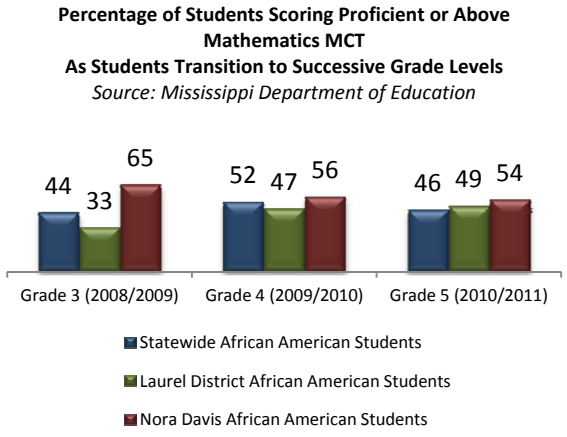


Figure 26: Comparison of African American Student Scores over Successive Years

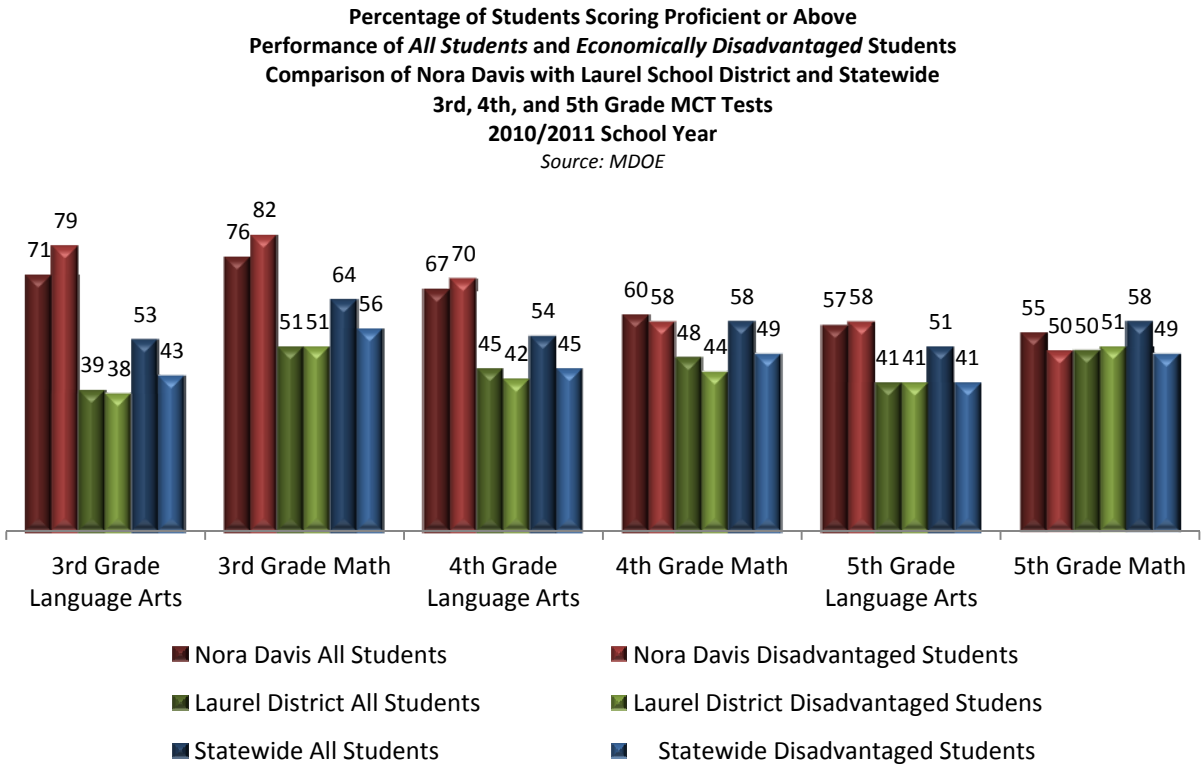


Figure 27: Nora Davis Magnet School, Statewide, and Laurel School District Scores for *!ff* and *Economically Disadvantaged* Students

Nora Davis Magnet School has been participating in the Whole Schools Initiative since the 1999/2000 school year; it is a Whole Schools Initiative Model School. Nora Davis Magnet School provides an exemplar for the potential longitudinal impact of arts integrated learning on the educational outcomes that may be associated with the Whole Schools Initiative. As shown in Figure 27, the percentage of *all* students at Nora Davis scoring *"Proficient or Above"* was higher than the Laurel School District percentage across 3rd through 5th grades on both Language Arts MCT and Math MCT during the 2010/2011 school year. This is also true when comparing the performance of students at Nora Davis with the percentage of students scoring *"Proficient or Above"* with the performance of students statewide, with the exception of 5th grade mathematics.

Figure 27 illustrates the notable performance of *economically disadvantaged* Nora Davis students on standardized Language Arts and Mathematics Mississippi Curriculum Tests across grades 3 through 5; and specifically the elimination of the achievement gap for *economically disadvantaged* students at Nora Davis Magnet School. Within the context of a poverty rate for students of 72 percent at Nora Davis Magnet School as compared to a poverty rate of 62 percent statewide, these student outcomes are significant.

Distribution of *All Student* Scores
4th Grade Language Arts MCT
2010/2011 School Year
Source: Mississippi Department of Education

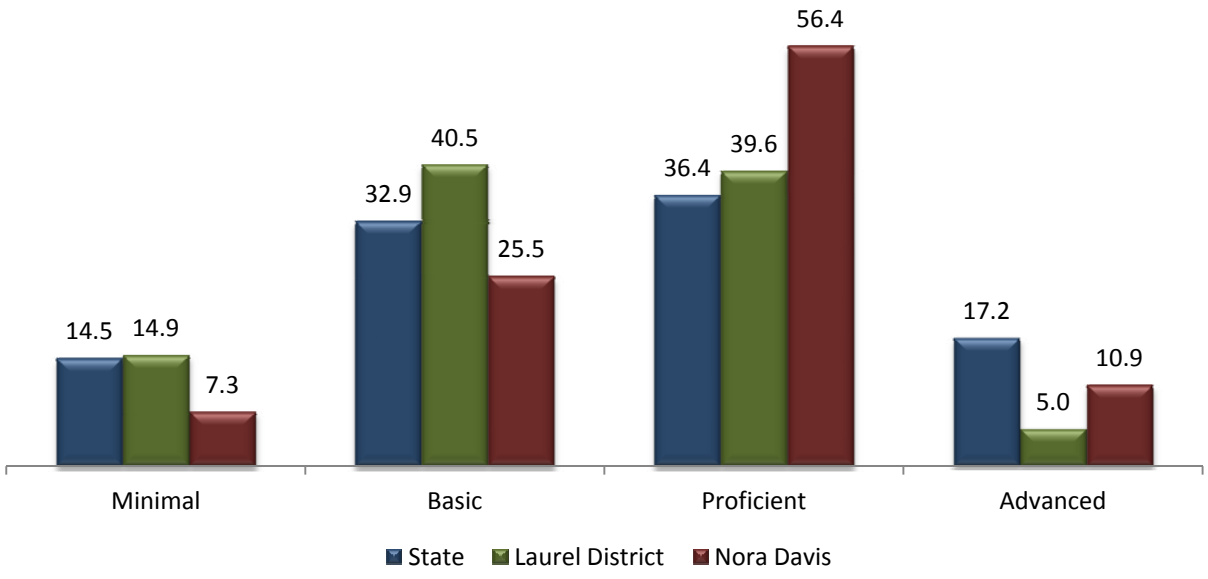


Figure 28: Nora Davis Magnet School, Statewide, and Laurel School District Distribution of Student Scores on 4th Grade Language Arts

Distribution of *All Student* Scores
4th Grade Mathematics MCT
2010/2011 School Year
Source: Mississippi Department of Education

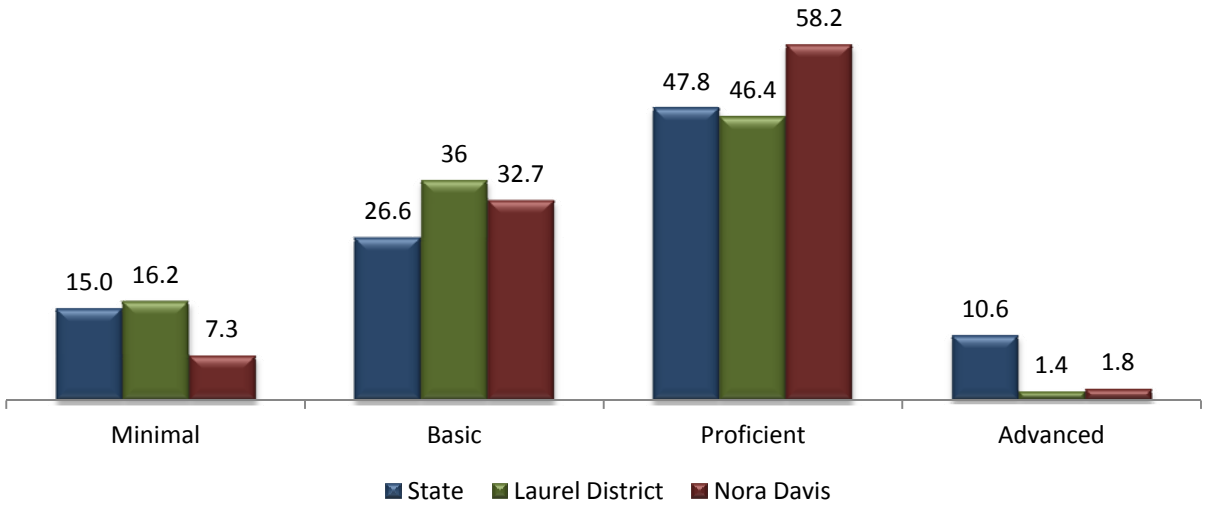


Figure 29: Nora Davis Magnet School, Statewide, and Laurel School District Distribution of Student Scores on 4th Grade Mathematics

Mason Elementary School

Mason Elementary School is in the Laurel School District. In the 2010/2011 school year, there were 448 students enrolled in kindergarten through 5th grade; there were 424 (90%) students living in poverty and 80 percent of the student body was African American. Fifty-one percent (51%) of 4th grade students enrolled in Mason Elementary School scored *"Proficient or Above"* on the Language Arts MCT; 39 percent of students enrolled in Mason Elementary School scored *"Proficient or Above"* on the Math MCT; and 90 percent of students scored two or above on Writing 2 Mississippi Curriculum Tests during the 2010/2011 school year. The scores of students enrolled at Mason Elementary School compare favorably with the performance of 4th grade students in the Laurel School District on the Language Arts and Writing 2 standardized tests; a lower percentage of students enrolled in Mason Elementary School scored *"Proficient or Above"* on the 4th grade Mathematics MCT and on the 5th Grade Science Test when compared to the District wide performance of students during the 2010/2011 school year. During the 2010/2011 school year, Mason Elementary School had a lower percentage of students scoring *"Proficient or Above"* on the 4th grade Language Arts MCT and the 4th Grade Mathematics MCT when compared to statewide performance on these standardized tests (Figure 30).

Percent of Students Scoring Proficient or Above on Language Arts and Math MCT;
4th Grade Students Scoring 2 or Above on Writing; and
Percent of Students Scoring Proficient or Above on 5th Grade Science Test
2010/2011 School Year
Source: MDOE

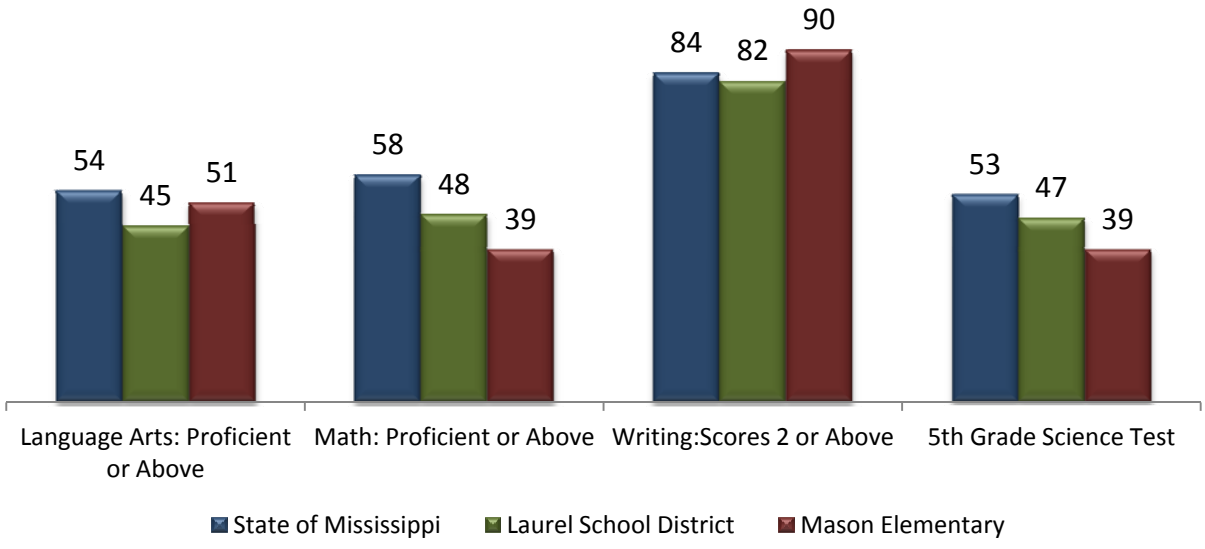


Figure 30: Mason Elementary School 4th Grade MCT Performance as Compared to Statewide and Laurel School District Performance

Mason Elementary School adopted the *Arts in the Classroom* Program during the 2008/2009 school year and then became part of the Whole Schools Initiative during the 2010/2011 school year. This school is too new to the Whole Schools Initiative to gauge the impact that the Whole Schools Initiative may have on student academic performance over time. There are early indicators that student performance on standardized tests has been improving at Mason Elementary School since the adoption of the *Arts in the Classroom* Program. As shown in Figure 31, the percentage of Mason Elementary School students scoring *"Proficient or Above"* on the Language Arts and Math MCT was 21 percent and 16 percent, respectively, during the 2008/2009 school year (the year Mason Elementary adopted the Arts in the Classroom program). The following year, as 3rd grade students transitioned to 4th grade, the percentage of students scoring "*Proficient and Above"* on the 4th grade Language Arts and Math MCT increased to 30 percent and 36 percent, respectively; this was an increase of 9 percentage points on the Language Arts MCT and a 20 percentage point increase on the Math MCT for Mason Elementary students over the one year period. The following year (2010/2011), the percentage of 5th grade Mason students who scored "*Proficient and Above*" on the Language Arts and Math MCT was 32 percent and 41 percent, respectively. From grade 3 to grade 5, the percentage of Mason students scoring *"Proficient or Above"* on the Language Arts MCT had increased by 11 percentage points, and the percent of students scoring *"Proficient or Above"* on the Math MCT had increased by 25 percentage points over the two year period from 3rd grade to 5th grade (Figure 31).

As students transition to successive grades, the percentage of students scoring *"Proficient or Above"* at Mason Elementary School exhibits a steeper upward slope as compared to the state level and Laurel School District level over the period 2008/2009 through 2010/2011 (Figure 32).

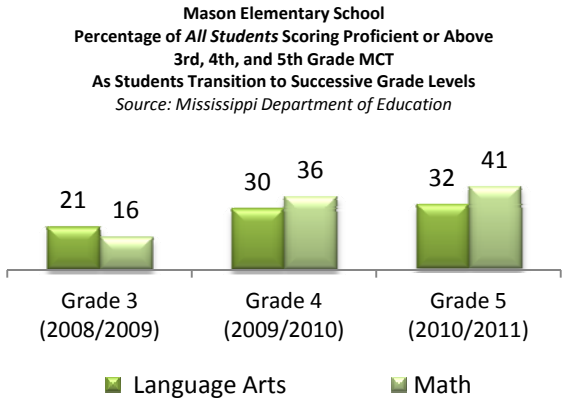


Figure 31: Mason Comparison of Scores over Successive Years

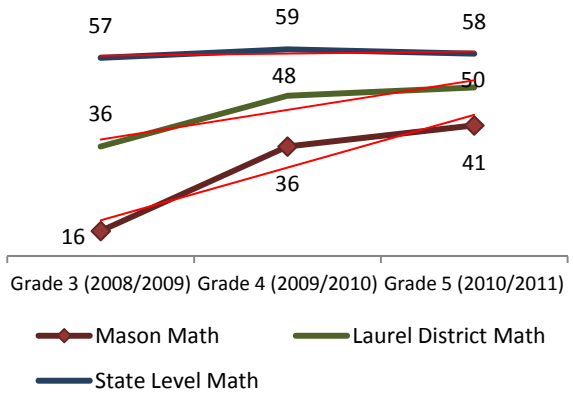


Figure 32: Comparison of State and Laurel Math Scores over Successive Years

Quitman Upper Elementary School

Quitman Upper Elementary School is in the Quitman School District. In the 2010/2011 school year, there were 471 students enrolled in 3rd through 5th grade; there were 342 (73%) students living in poverty and 64 percent of the student body was African American. Forty-six percent (46%) of 4th grade students enrolled in Quitman Upper Elementary School scored *"Proficient or Above"* on the Language Arts MCT; 29 percent of students enrolled in Quitman Upper Elementary School scored *"Proficient or Above"* on the Math MCT; and 77 percent of students scored two or above on Writing 2 Mississippi Curriculum Tests during the 2010/2011 school year. The scores of students enrolled at Quitman Upper Elementary School do not compare favorably with the performance of 4th grade students statewide (Figure 33). Quitman Upper Elementary School is the only school for students in grades 3 through 5 in the Quitman School District; no district level comparison of student performance is available. Quitman Upper Elementary School adopted the *Arts in the Classroom* Program in the 2008/2009 school year and became a Whole Schools Initiative School in the 2010/2011 school year. At the time of this report, the Quitman Upper Elementary School was relatively new to the WSI; analysis of student performance will need to be conducted during the 2012/2013 school year to determine the full impact of the Whole Schools Initiative on the performance of students at Quitman Upper Elementary School.

Percent of Students Scoring Proficient or Above on 4th Grade Language Arts and Math MCT;
4th Grade Students Scoring 2 or Above on Writing; and
Percent of Students Scoring Proficient or Above on 5th Grade Science Test
2010/2011 School Year
Source: MDOE

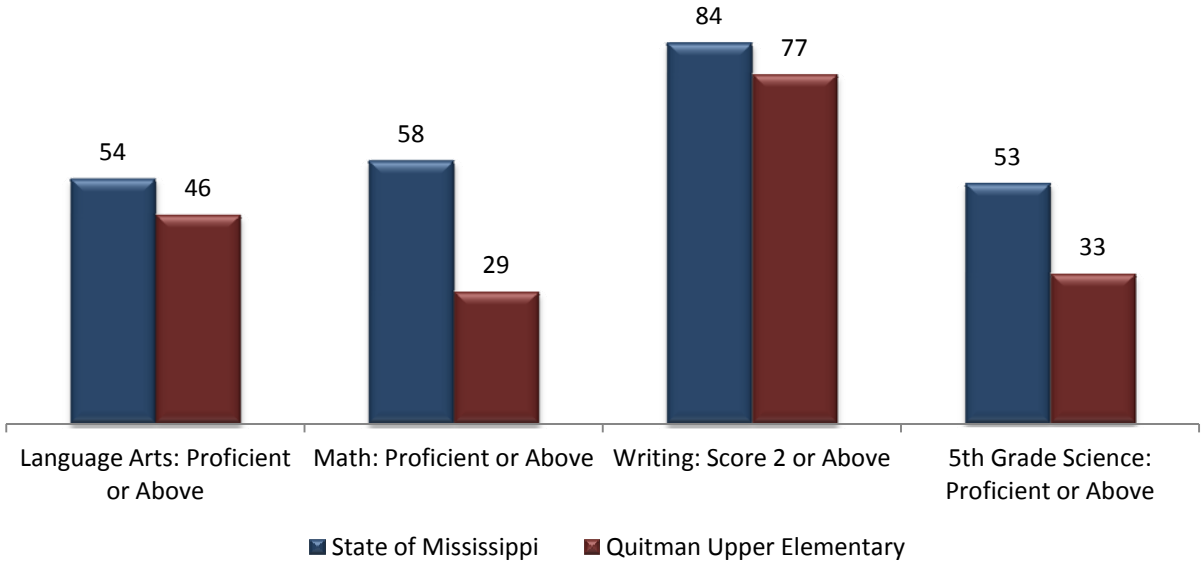


Figure 33: Quitman Upper Elementary School 4th Grade MCT Performance as Compared to Statewide Performance

As stated on page 55, the percentage of students at Quitman Upper Elementary School scoring *"Proficient or Above"* on 4th and 5th grade standardized tests does not compare favorably with statewide levels. To examine the impact the WSI model has on student performance within the Quitman Upper Elementary School, the distribution of *all* Quitman Upper Elementary School students on 3rd grade Language Arts MCT during the 2007/2008 school year (prior to the school's adoption of the *Arts in the Classroom* program and the adoption of the WSI) was compared to student performance on the 3rd grade Language Arts MCT during the 2010/2011 school year (after the adoption of the WSI). This analysis indicates that student performance on the 3rd grade Language Arts MCT showed improvement after the adoption of the WSI model; as shown in Figure 34, the percentage of Quitman Upper Elementary students scoring Minimal declined by 4.3 percent; the percent of students scoring Basic declined by 3.6 percent; the percentage of students scoring Proficient increased by 0.9 percent; and the percent of *all* students at Quitman Upper Elementary Schools scoring Advanced on the 3rd grade Language Arts MCT increased by 7.0 percent after the adoption of the Whole Schools Initiative.

Figure 35 shows the percentage of *all* Quitman Upper Elementary School students that scored "Proficient or Above" on the 3rd through 5th grade Language Arts and Math MCTs during the 2007/2008 school year (prior to Quitman Upper Elementary School adopting the Whole Schools Initiative) as compared to after the adoption of the WSI in the 2010/2011 school year. After the adoption of the Whole Schools Initiative, the percent of Quitman Upper Elementary School students scoring "*Proficient or Above*" increased on the Language Arts MCT across grade 3 through grade 5 and on the 3rd grade Math MCT, but declined on the grade 4 and grade 5 Mathematics MCT.

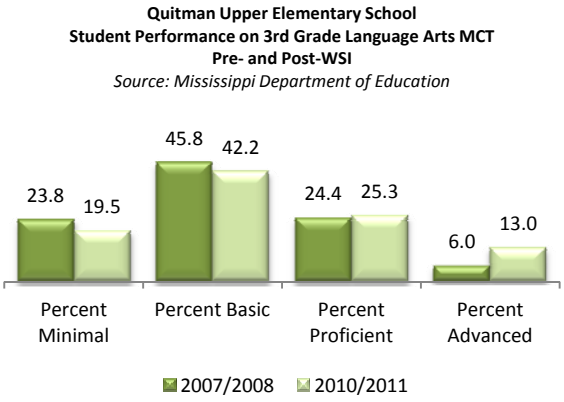


Figure 34: Scores Before and After WSI Implementation

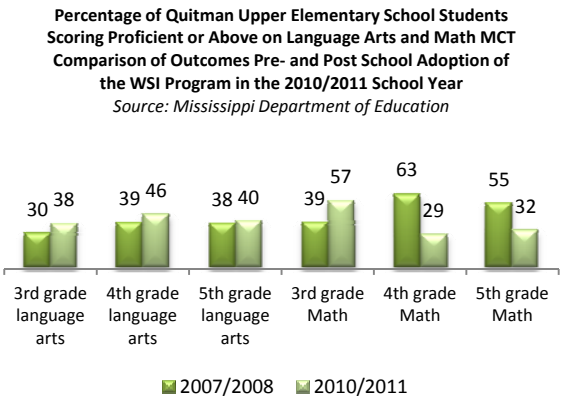


Figure 35: Scores Before and After WSI Implementation

To further investigate the impact of the Whole Schools Initiative on the performance of *economically disadvantaged* students, the percentage of *economically disadvantaged* Quitman Upper Elementary students scoring *"Proficient or Above"* on the 3rd through 5th grade Language Arts MCT was compared for the 2007/2008 school year (prior to the adoption of the WSI) with the performance of Quitman Upper Elementary students after the adoption of the WSI in the 2010/2011 school year. As shown in Figure 36, the percentage of *economically disadvantaged* students at Quitman Upper Elementary School scoring *"Proficient or Above"* increased across grades 3 through 5 after the adoption of the Whole Schools Initiative.

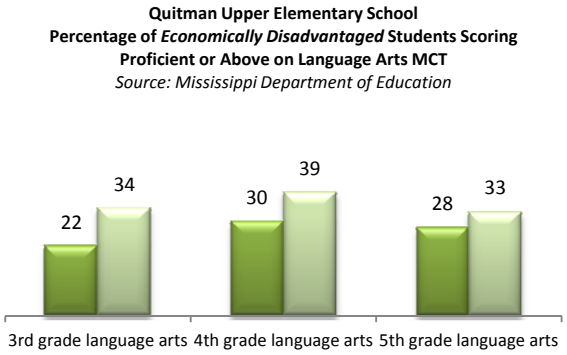


Figure 36: Disadvantaged Scores Before and After WSI Implementation

A sample of school districts with a poverty rate similar to that of students at Quitman Upper Elementary was drawn from the Mississippi Department of Education's database to compare the percentage of *all* students and *economically disadvantaged* students scoring *"Proficient or Above"* on the 4th grade Language Arts MCT during the 2010/2011 school year. The percentage of *all* students and *economically disadvantaged* students at Quitman Upper Elementary School scoring *"Proficient or Above"* was higher than seven of the 13 comparison schools with a poverty rate similar to that of Quitman Upper Elementary School (Figure 37).

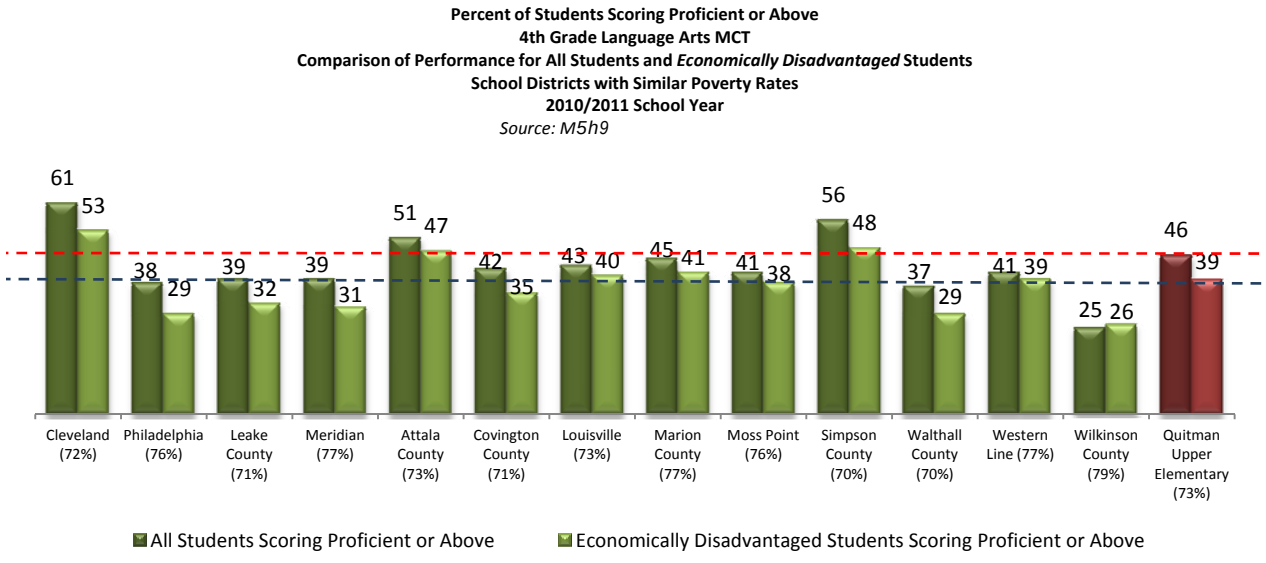


Figure 37: Quitman Comparison of *All* and *Economically Disadvantaged* Scores for Similar School Districts (School District Student Poverty Rates shown in Parentheses)

Economically disadvantaged **students enrolled in schools that have adopted the Whole Schools Initiative exhibit improved performance on standardized tests.**

WSI schools that have committed to the program over an extended period of time have significantly reduced or eliminated the achievement gap for *economically disadvantaged* students.

Review of the Findings on the Whole Schools Initiative and Student Performance on Standardized Tests

This research found a strong positive relationship between the percentage of students scoring *"Proficient or Above"* on standardized tests for students enrolled in schools participating in the Mississippi Arts Commission's Whole Schools Initiative as compared to the performance of the school districts within which the WSI is located, and as compared to statewide student performance on standardized tests across grade 3 through grade 5; these positive effects tend to increase in proportion to the length of time a school is enrolled in the Whole Schools Initiative.

The positive cumulative effects found in this research are most strongly exhibited in schools that have participated in the Whole Schools Initiative for a longer period of time. For example, Casey Elementary School and Nora Davis Magnet School adopted the Whole Schools Initiative during the 1999/2000 school year and have been using arts integration for over ten years. These schools exhibit superior student outcomes on standardized tests in all subjects and at every grade when compared to the school district within which the WSI school is located and as compared to statewide student performance. Generally, students enrolled in WSI schools were found to exhibit improved performance on standardized tests. In the majority of WSI schools that were included in this analysis, the percentage of students scoring "*Proficient or Above*" was higher for WSI schools as compared to the school district in which the WSI school was located and was higher than statewide scores. These outcomes were found

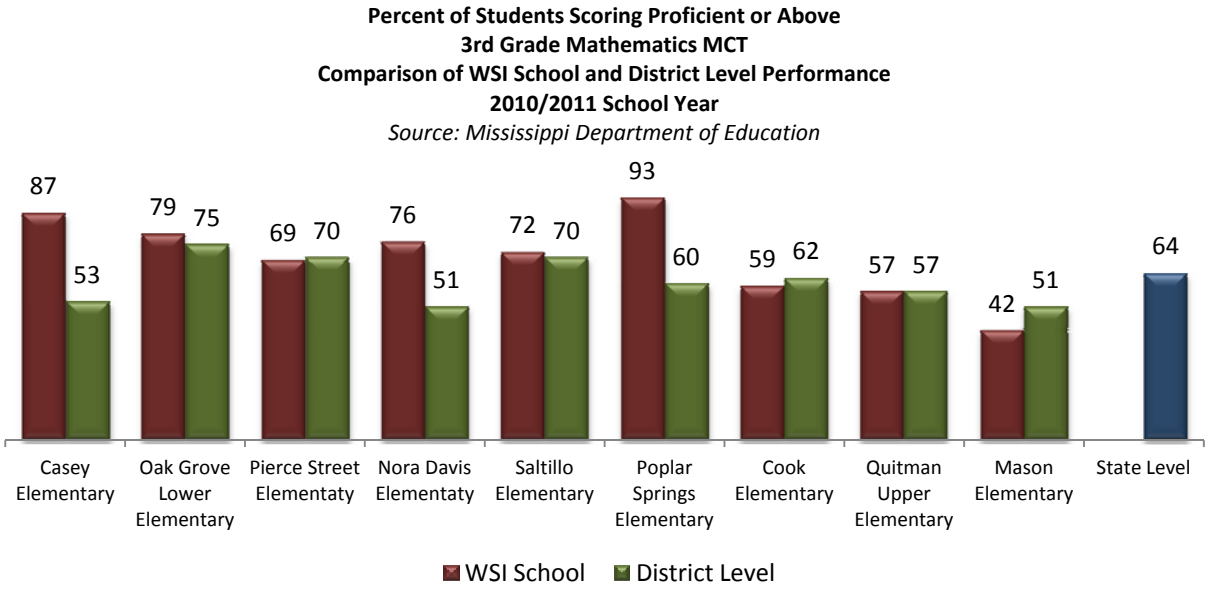


Figure 38: Comparison of Scores across All WSI Schools and School Districts

to vary across grade level and subject area for schools that have more recently adopted the WSI. For example, Mason Elementary School adopted *Arts in the Classroom* during the 2009/2010 school year; at that time, 16 percent of 3rd grade students were scoring *"Proficient or Above"* on the Math MCT; the following year (2009/2010) when this student group transitioned to 4th grade, 36 percent of Mason Elementary students scored *"Proficient or Above"* on the 4th grade Math MCT and the following year (2010/2011 — the year the school adopted the WSI), 41 percent of students scored *"Proficient or Above"* on the 5th grade Math MCT. This was an increase of 25 percentage points for students at Mason Elementary School; over the same period, the percentage of students statewide scoring *"Proficient or Above"* on the Math MCT increased by one percentage point (Figure 32, page 54). Therefore, the data indicates that an improvement is occurring in student performance on standardized tests at Mason Elementary, but more evidence is required to make assumptions regarding the impact of the WSI on these students' performance over time.

An important finding of the analysis of student outcomes on standardized tests was the positive effect of the WSI arts integration model on the test performance of *economically disadvantaged* students. These findings reflect a pattern of enhanced student performance on standardized tests that is similar to that found for *all* students enrolled in Whole Schools Initiative schools. Generally, *economically disadvantaged* students enrolled in schools that have participated in the Whole Schools Initiative over a longer time period exhibit greater and more consistent improvement in their performance on standardized tests. For example, at

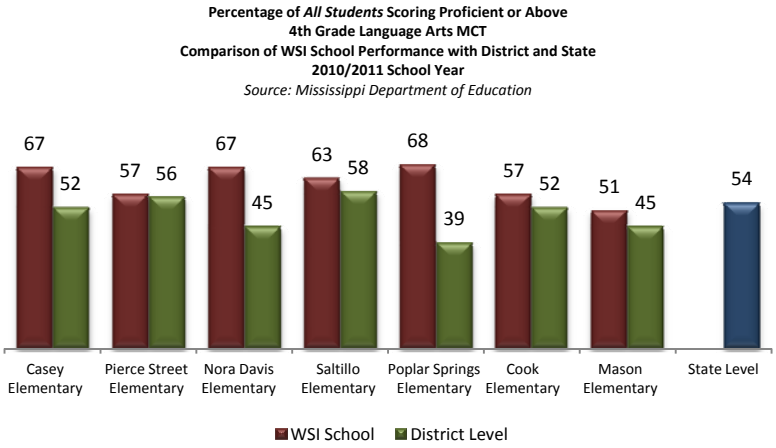


Figure 40: WSI School Scores Compared to State and District Levels

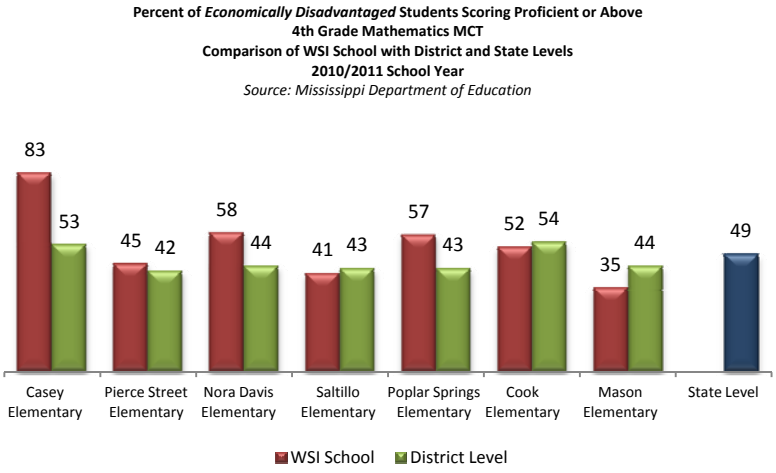


Figure 39: *Economically Disadvantaged* Student Scores in Comparison to District Levels

Casey Elementary, a participating Whole Schools Initiative School since 2000, a higher percentage of *economically disadvantaged* students scored *"Proficient or Above"* at every grade (grade 3 through grade 5) in Language Arts and Math MCTs when compared to *all* students in the Jackson Public School District and when compared to *all* students statewide (see Figure 23 on page 48). At Casey Elementary, *economically disadvantaged* students exceeded the performance of *all* students on the 3rd grade Language Arts MCT and on the 4th grade Mathematics MCT.

At Nora Davis Magnet, a school that adopted the Whole Schools Initiative in the 2000/2001 school year, a higher percentage of *economically disadvantaged* students scored *"Proficient or Above"* on the Language Arts MCT in the 3rd through 5th grade as compared to *all* students in the Laurel School District and all students statewide. Notably, the percentage *economically disadvantaged* students at Nora Davis that scored "*Proficient or Above"* on the Language Arts MCT was higher than the percentage of *all* students at Nora Davis that scored "*Proficient or Above*" on the Language Arts MCT at every grade level (Figure 27, page 51). The percentage of *economically disadvantaged* Nora Davis students scoring "*Proficient or Above"* on the 5th Grade Science Test is higher than that of *all* students within the seven school districts within which WSI schools are located and is higher than that of *all* students statewide. Statewide, 53 percent of *all* students scored "*Proficient or Above*" on the 5th Grade Science Test; in the Lee County School District, 57 percent of *all* students scored "Proficient or Above" on the 5th Grade Science Test (this was the highest percentage rate among the seven school districts within which WSI schools are located); and at Nora Davis, 60 percent of *economically disadvantaged* students scored "*Proficient or Above*" on the 5th Grade Science Test (a comparison of Figure 41 and Figure 42, page 62). These results are particularly impressive when viewed within the context of the comparative student poverty rates — 72 percent at Nora Davis, 51 percent in the Lee County School District, and 62 percent statewide.

In some cases, WSI schools have been part of a district wide school reorganization that confounds the consistency and reliability of student performance during a period of transition that may refocus the attention and resources of administrators and faculty. This appears to be the case at Cook Elementary Fine Arts Magnet School, in the Columbus School District and at Pierce Street Elementary School, in the Tupelo School District. Analysis of student performance on standardized tests for these two schools indicates that student performance is beginning to exhibit recovery subsequent to the school reorganizations. However, additional research is required to disaggregate the effects of arts integration

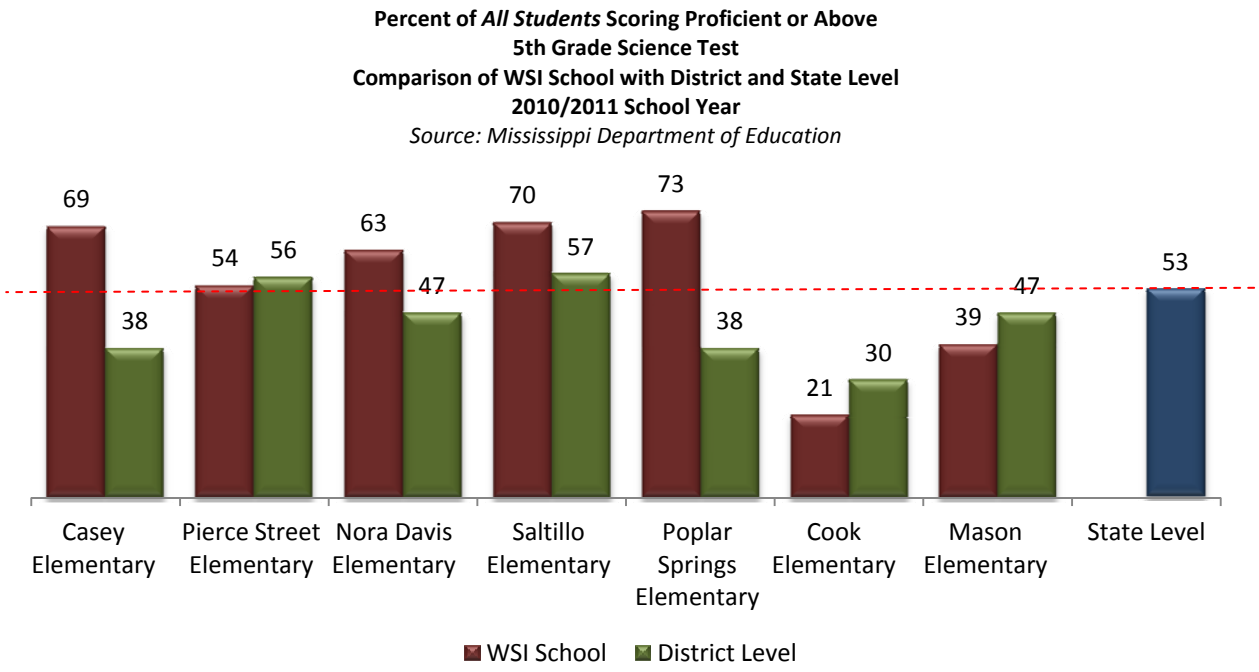


Figure 41: WSI School Scores for all Students as Compared to School District Scores for 5th Grade Science Test

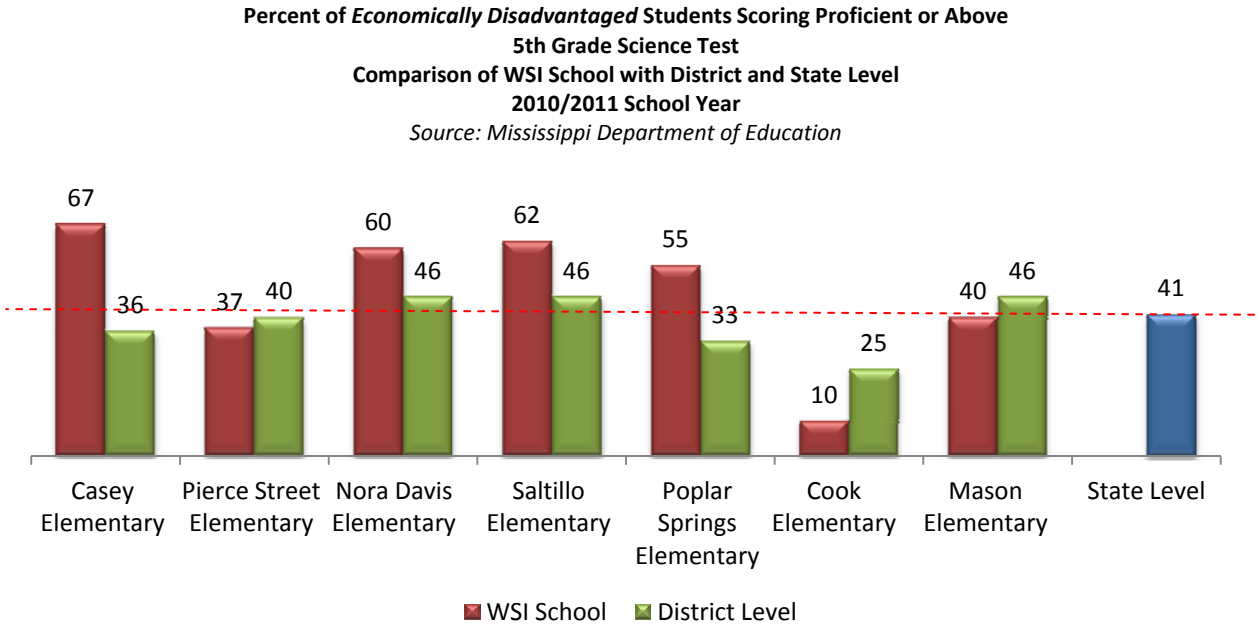


Figure 42: *Economically Disadvantaged* Student Scores for WSI Schools Compared to School Districts for 5th Grade Science Test

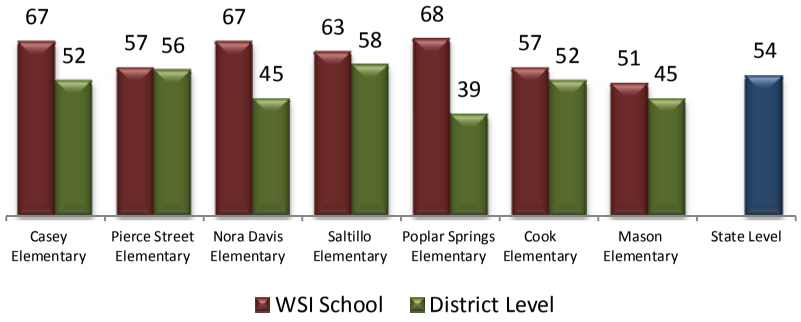
from the changes in: the size of the student population; the poverty rate of the student body; the faculty; the curriculum; and policy changes that occur as a result of school reorganization.

For schools that are relatively new to the Whole Schools Initiative, e.g., Quitman Upper Elementary School, the impact of the WSI's arts integrated approach to learning may require time prior to finding consistently improved student outcomes on standardized testing. At Quitman Elementary School, early positive indicators of a higher percentage of students scoring "*Proficient or Above"* were found for students on 3rd and 4th grade Language Arts MCT, and the 3rd grade Math MCT when pre– and post–WSI adoption standardized test scores were compared. For schools that are in the early stage of adopting the Whole Schools Initiative, the capability and competency of classroom teachers and administrators may not be fully developed. Prior research on the WSI has demonstrated the importance of professional development to the successful implementation of the Whole Schools Initiative. Upon adopting either *Arts in the Classroom* or the Whole Schools Initiative, the Mississippi Arts Commission provides a broad array of professional development resources and training to participating schools; participation in these WSI professional development experiences has been found to have a cumulative positive effect over time on teachers, school administrators, and students enrolled in participating WSI schools.

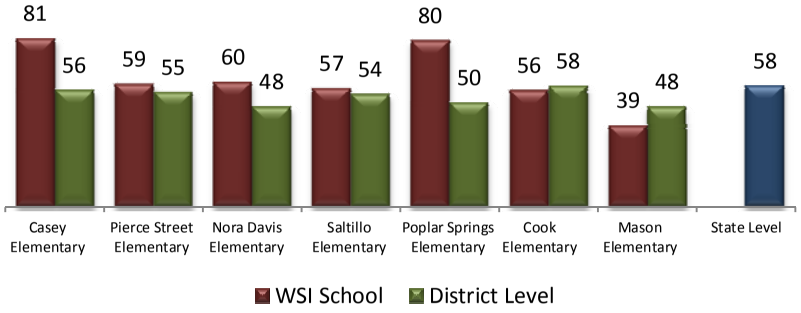
The analysis and comparison of between school differences of student performance on standardized tests, at multiple grade levels, and across a variety of subject areas found evidence that arts integrated learning at schools participating in the WSI has a positive effect on student outcomes. Between school and within school differences at varying grade levels raise additional questions related to the "*level*" of arts integration at WSI schools. Corbett (2004) found that WSI schools that exhibit a "*high*" level of implementation met NCLB state achievement and growth standards and performed better than WSI sites that were "*low*" implementing. Effective implementation of arts integration requires the arts to become an integral and essential element of learning and teaching, thereby providing students with multiple ways to acquire and process information, and to learn. This assumes that teachers use learning-connected arts experiences in every subject as part of daily instruction.

To further investigate the relationship between arts integration, student outcomes, and variables that impact this relationship, a survey of school administrators, principals, arts specialists, and classroom teachers was administered to participating WSI schools. The findings from this survey are discussed in the following section of this study.

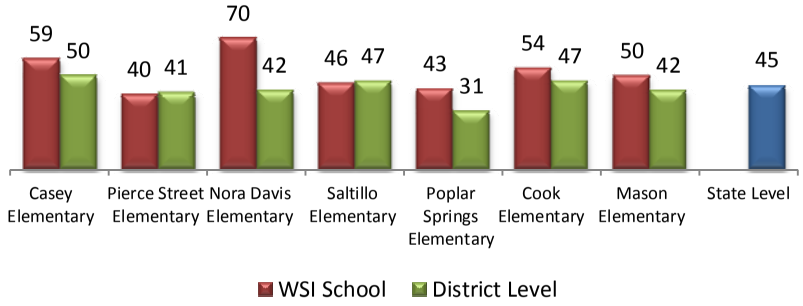
Percentage of *All Students* Scoring Proficient or Above
4th Grade Language Arts MCT
Comparison of WSI School Performance with District and State
2010/2011 School Year
Source: Mississippi Department of Education



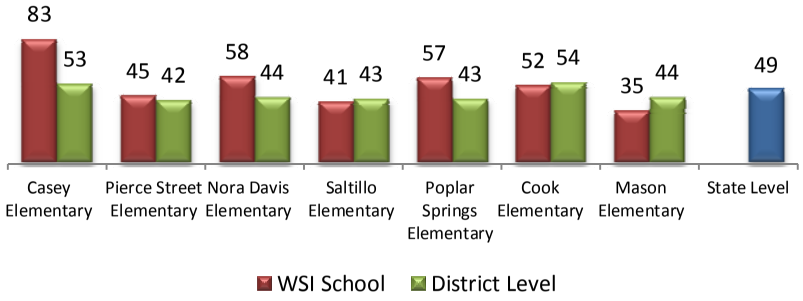
Percent of *All Students* Scoring Proficient or Above
4th Grade Mathematics MCT
Comparison of WSI School with District and State Level Performance
2010/2011 School Year
Source: Mississippi Department of Education



Percent of *Economically Disadvantaged* Students Scoring Proficient or Above
4th Grade Language Arts MCT
Comparison of WSI Schools to District and State Levels
2010/2011 School Year
Source: Mississippi Department of Education



Percent of *Economically Disadvantaged* Students Scoring Proficient or Above
4th Grade Mathematics MCT
Comparison of WSI School with District and State Levels
2010/2011 School Year
Source: Mississippi Department of Education



Survey of Schools Participating in the Whole Schools Initiative

Successful implementation of the Whole Schools Initiative requires leadership and support by school superintendents, principals, assistant principals, and other faculty. Research into arts integrated learning has found that arts integration with math, language arts, science, and social studies enhances students' comprehension and retention of content and augments their ability to think critically. The Whole Schools Initiative is an arts integrated conceptual approach to education reform that uses the arts as the platform for learning. The Whole Schools Initiative seeks to embed the arts into everyday instruction with the objective of providing students with multiple ways to acquire and process information and to learn. The expectation is for teachers to use learning-connected arts experiences in every subject as part of daily instruction. Prior research has found that effective implementation of the Whole Schools Initiative model requires adequate professional development and strong administrative support to achieve sustainable, systemic change.

The Mississippi Arts Commission's survey of schools participating in the Whole Schools Initiative was designed to measure administrative support, participation in professional development experiences, the frequency of student participation in arts integrated learning experiences, student outcomes related to arts integration, and the relationship between these variables and outcomes in WSI schools. This survey of classroom teachers, arts specialists, principals, and administrators at 16 elementary and middle schools participating in the Whole Schools Initiative was administered by the Mississippi Arts Commission, using the same battery of questions used by Corbett, et al. to conduct the 2004 study, and analyzed by the Stennis Institute of Government. A total of 268 responses were received from school superintendents, principals, arts specialists, and teachers at schools participating in the Whole Schools Initiative.[60]

Analysis of the survey found that 95.8 percent of respondents believe their school principal provides a consistent message of support for arts integration and 96.3 percent of respondents indicated that school administrators provide a consistent message of support for arts integration. The response rate to the survey by school principals, assistant principals, or school superintendents was 81 percent. This high

[60] Prior to analysis, surveys that were incomplete were removed from the database.

survey participation rate by principals and school superintendents is an indicator of support for arts integration and involvement in the Whole Schools Initiative by school leadership.

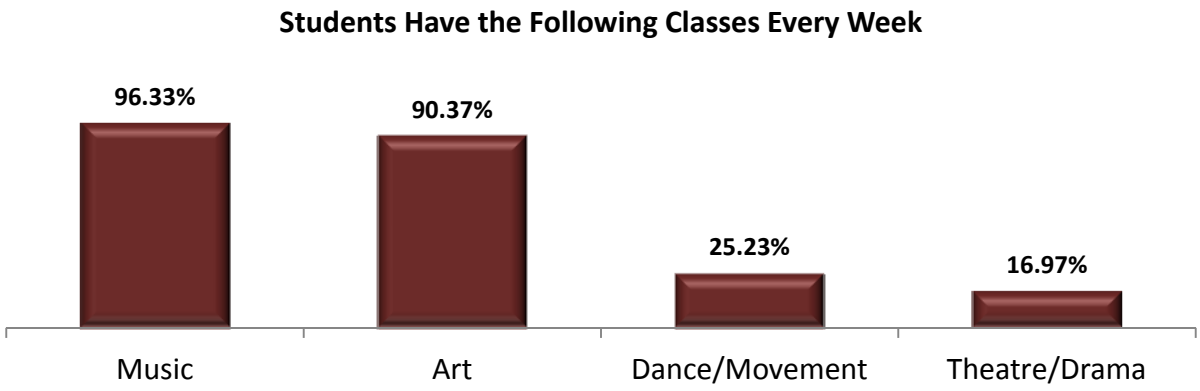


Figure 43: Weekly Arts Classes as a Separate Subject across all WSI Schools

Arts integrated learning activity was measured using a series of questions designed to examine how often (daily, weekly, frequently but less than once a week, or seldom) teachers practiced arts integration in the classroom, the arts discipline used (music, art, dance/movement,and theatre/drama), and the use of arts integration across the curriculum by subject area (math, language arts, science, and social studies). Among the respondents, 96.3 percent indicated that students have music classes every week, 90.4 percent indicated that students have art classes every week, 25.2 percent indicated that students have dance or movement classes every week, and approximately 17 percent indicated that students have theatre/drama classes every week (Figure 43).

The frequency with which arts integration occurs in the classroom was found to vary by subject area (Figure 44). A higher percentage of respondents reported the use of arts integration in math and language arts as compared to science or social studies.

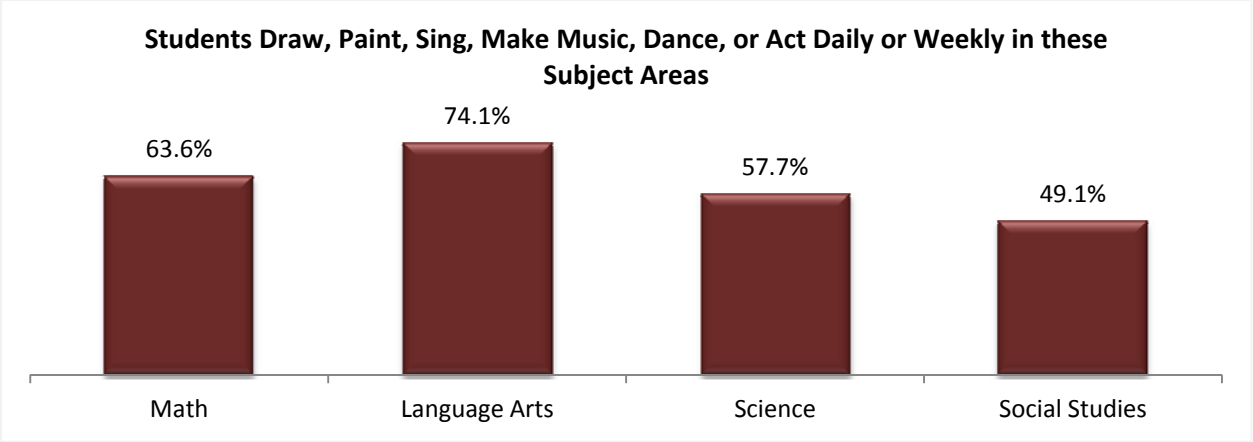


Figure 44: Daily or Weekly Arts Integration by Subject Area

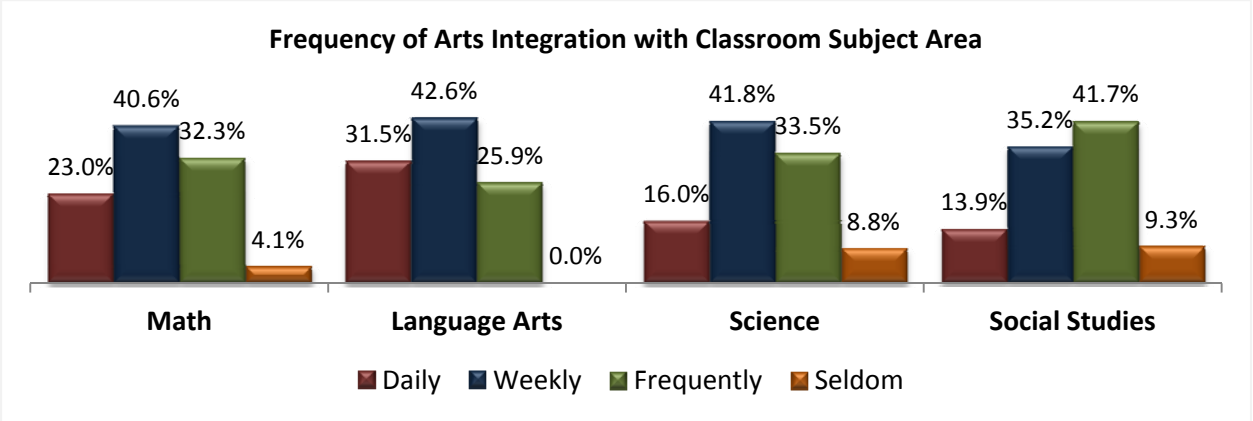


Figure 45: Frequency of Arts Integration by Academic Subject Area

Arts integration occurred daily or weekly in math and language arts, with 63.6 percent of respondents reporting arts integration with math on a daily or weekly basis and 74.1 percent of respondents reporting arts integration with language arts in their classrooms on a daily or weekly basis. The percentage of respondents who reported integrating the arts with social studies on a daily or weekly basis was the lowest across the four subject areas, with 49.1 percent of respondents indicating the arts were integrated into social studies on a daily or weekly basis (Figure 44 and 45).

Between school differences were found in the arts disciplines (e.g., music, art, dance/movement, theatre/drama) to which students had weekly exposure and in the frequency (daily, weekly, frequently, or seldom) of arts integration by subject matter (math, language arts, science, social studies). All schools (with the exception of one) reported a high occurrence of weekly exposure to music and art. For example, across all schools (with the exception of one) a minimum of 96 percent of respondents indicated that students at their school were exposed to music every week and a minimum of 88 percent

of respondents indicated that students at their school were exposed to art every week. The percentage of respondents indicating that students at their school were exposed to dance/movement or theatre/drama every week varied significantly by school and was significantly lower as compared to students' weekly exposure to music and art across all schools. For example, 75 percent of respondents from one school (School A) indicated that students were exposed to dance/movement every week and 62.5 percent indicated that students were exposed to theatre/drama every week. At a different school (School B), 14.3 percent of respondents reported that students were exposed to dance/movement every week and 3.57 percent indicated that students were exposed to theatre/drama every week. The frequency of arts integration by subject matter was also found to vary between schools.

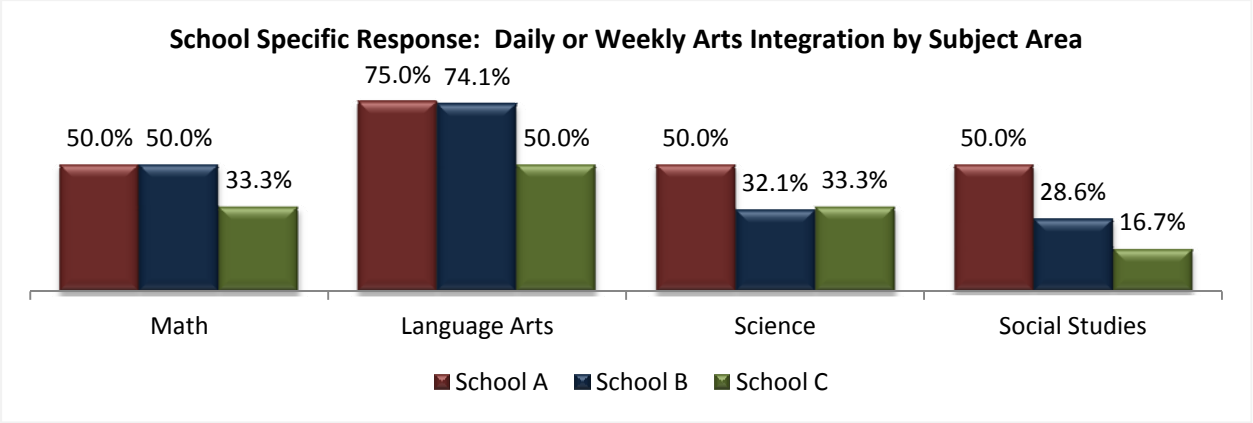


Figure 46: School Specific Daily or Weekly Arts Integration by Subject Area

As shown in Figure 46, School A exhibits a higher occurrence of arts integration with science and social studies as compared to School B and School C; School A exhibits a higher occurrence of arts integration across all subject areas as compared to School C. All schools (School A, B, and C) exhibit a higher occurrence of arts integration with language arts as compared to math, science, and social studies.

School differences in the depth of arts integration were found to be associated with student academic performance. For example, responses from School A indicate students were exposed to a broader range of arts disciplines (specifically dance/movement and theatre/drama) as compared to Schools B and C; responses from School A indicate daily or weekly arts integration was occurring more frequently across all subject areas and a higher percentage of respondents from School A reported student performance had "*improved significantly*" or had "*improved slightly*" as a result of arts integration (Figure 47). The relationship between the depth of arts integration and academic outcomes are further explored in the following section of this report.

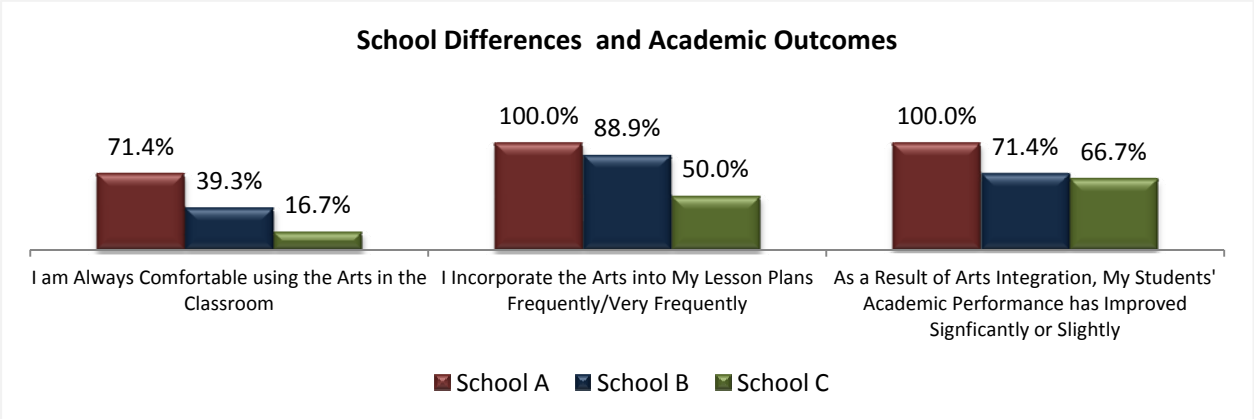


Figure 47: School Specific Difference and Academic Outcomes

Student Academic Performance

Respondents were queried regarding the impact of the Whole Schools Initiative and arts integration on student academic performance; approximately 88 percent of respondents indicated that student academic performance had "*improved significantly*" or had "*improved slightly;*" 11.3 percent of respondents indicated that student performance had "*remained the same*;" and less than one percent of respondents indicated that student academic performance had "*gotten somewhat worse*" or "*gotten much worse*." Among all respondents to the survey, one respondent indicated that their students' performance had "*gotten somewhat worse*" and one respondent indicated that their students' performance had "*gotten much worse*." The following discussion of survey results aggregates responses indicating that student performance had "*remained the same*," "*gotten somewhat worse*," and "*gotten much worse*" into one category entitled "*remained the same*."

All (100%) responding principals, assistant principals, and school superintendents reported that students' academic performance had either "*improved significantly*" or "*improved slightly*" as a result of arts integration. Principals, assistant principals, and school superintendents were more likely to report that students' academic performance had "*improved significantly*" as a result of arts integration (64.3%) when compared to classroom teachers (42.4%). One possible explanation for this difference may be that principals and superintendents are reporting for student outcomes across the entire school, whereas classroom teachers are reporting student outcomes specific to students in their classes.

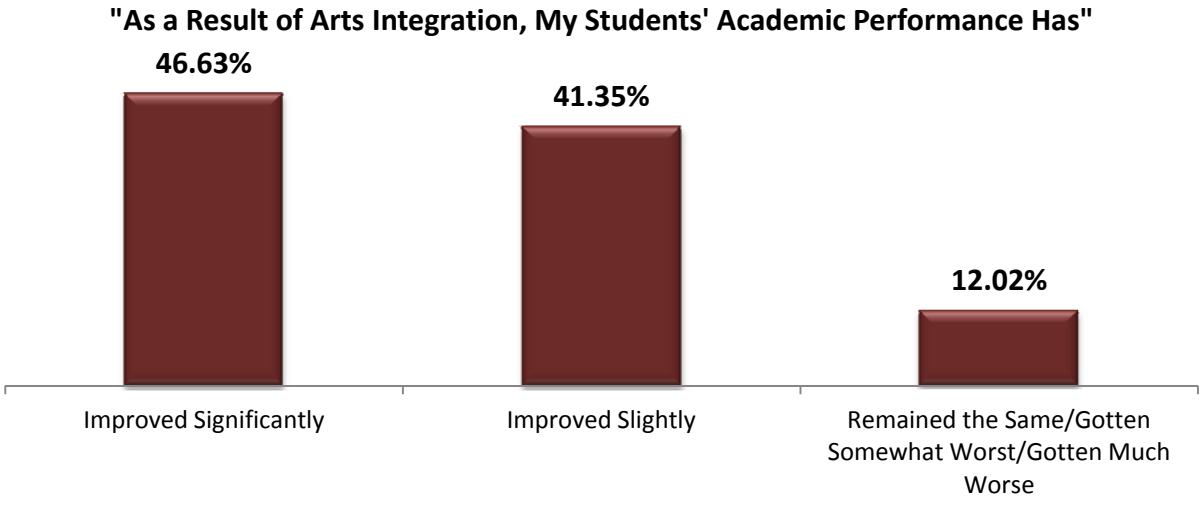


Figure 48: The Impact of Arts Integration on Students' Academic Performance

Table 2: The Eight WSI Schools with Respondents indicating that as a result of arts integration student academic performance had "*Remained the Same*;" and the Percent of Respondents within each School indicating Student Performance "*Remained the Same*"

School ID	Percent of Responses indicating that Academic Improvement has "*Remained the Same*" among 8 schools in "*Remained the Same*" Sample Subset	Percent of Respondents within each of 8 schools in Sample Subset Indicating Student Performance had "*Remained the Same*"
School 1	24.0%	50.0%
School 2	32.0%	28.6%
School 3	12.0%	17.6%
School 4	4.0%	16.7%
School 5	8.0%	5.9%
School 6	8.0%	15.4%
School 7	8.0%	8.0%
School 8	4.0%	4.8%

Among the schools included in the survey, respondents indicating that student academic improvement had "*remained the same*" were confined to eight schools (the sample subset); 68 percent of these responses (see Schools 1 through 3 in Table 2) came from three schools, and from within these three schools came the only two responses reporting a decline in student academic performance (School 1 and 2). As shown in Table 2, the percentage of respondents indicating that students' academic performance had "*remained the same*" as a result of arts integration varies widely between schools. For example, in School 1, approximately 50 percent of respondents indicate that student performance "*remained the same*" as compared to 4.8 percent of respondents in School 8. This indicates that there may be school-wide differences in the effective implementation of arts integration and individual differences in the ability of teachers to effectively implement arts integration. It is likely that the effective implementation of arts integration is a school-wide issue in schools that exhibit a relatively high percentage of respondents indicating that student performance has "*remained the same,*" e.g., School 1 or School 2 in Table 2. In schools with a relatively low percentage of respondents indicating that student performance has "*remained the same,*" the effective implementation of arts integration is more likely to be individualized, e.g., School 7 or School 8 in Table 2.

The positive impact of arts integration on student academic outcomes depends upon the effective implementation of arts integration. When there is limited implementation of arts integration school wide, the performance of all students may be impacted; when a single teacher cannot effectively implement arts integration, the positive impact of arts integration on student academic outcomes will be experienced by some students and not by others. The importance of effective implementation of arts integration to student academic outcomes required further examination.

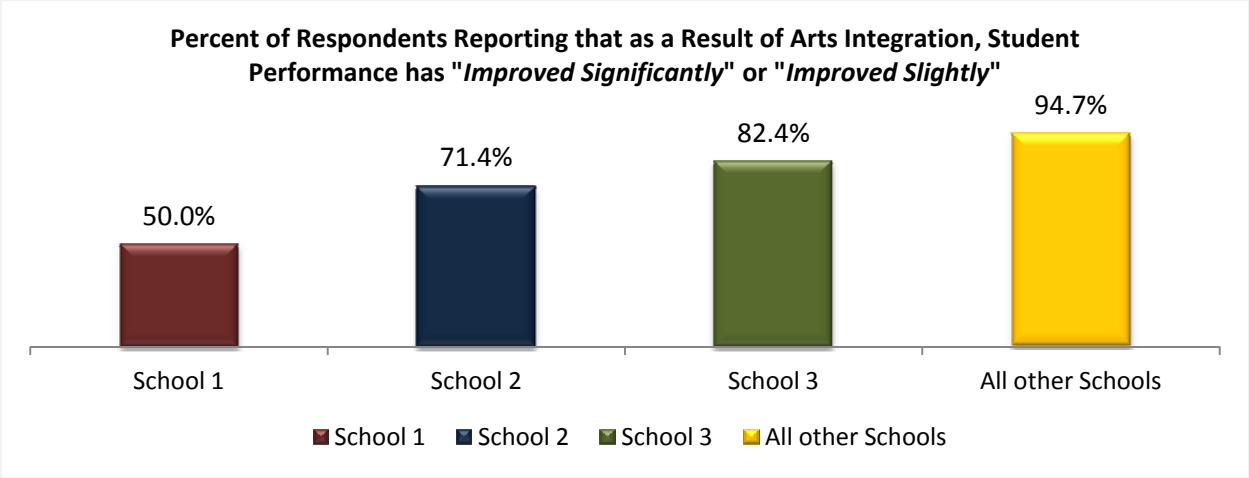


Figure 49: School Differences in Respondents indicating Student Performance improved "Significantly" or "Slightly

To further examine the potential relationship between effective versus limited arts integration implementation, responses from the three schools with the highest percentage of respondents who indicated that as a result of arts integration student performance had "*remained the same*" (Schools 1, 2, and 3 from Table 2) were disaggregated from the full survey. This created four new sub-samples: School 1, School 2, School 3, and "*All other Schools*." With the removal of the three schools, the percentage of all remaining respondents in the full sample that indicated student performance had "*Improved Significantly*" or "*Improved Slightly*" increased from approximately 88 percent to 94.7 percent (comparison of Figure 48, page 70 to Figure 49) for "*All other Schools.*"

As shown in Figure 49, the percentage of respondents at Schools 1 – 3 that reported a "*significant improvement*" or "*slight improvement*" in student academic performance as a result of arts integration is lower when compared to *all other schools,* more so for some schools than for others. A hypotheses test of the sample proportions confirmed that the percentage of respondents indicating an **improvement** (significant or slight) in students' academic performance at Schools 1 through 3 was statistically significantly different than that of "*All other Schools,*" and that a between school difference does exist. These differences may be school wide differences or individuals differences. These findings further reinforce the analysis of student performance on standardized tests, as presented in the prior section of this report.

To further examine the variables that may impact the relationship between arts integration and student academic performance, the survey responses were split into two groups; one group contained the responses from all survey respondents who indicated that student academic performance had

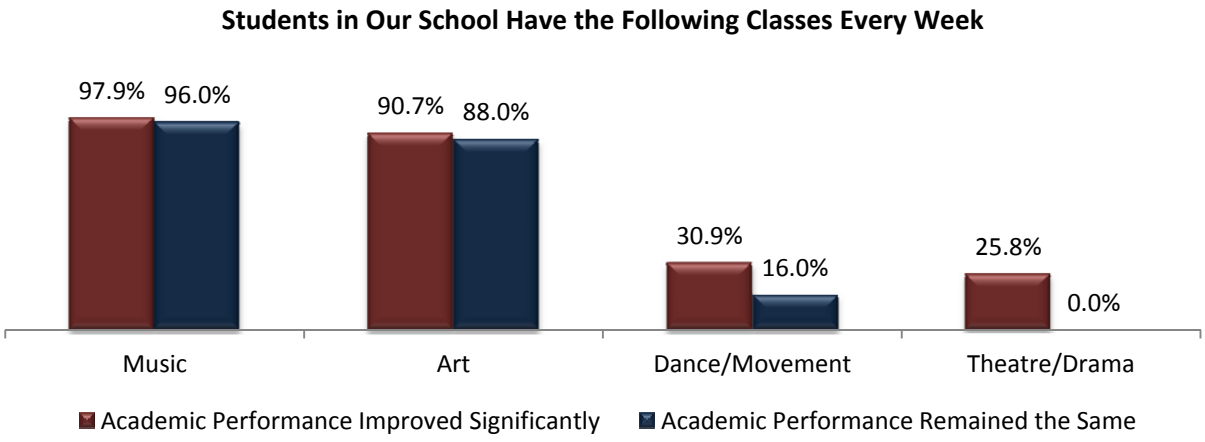


Figure 50: Frequency of Weekly Arts Classes

"*remained the same,*" and the other group contained the responses from respondents who indicated student performance had "*improved significantly*" as a result of arts integration. The survey results from these two groups were then analyzed and the findings are presented in the following paragraphs.

Respondents were asked to respond to the query "*students in our school have the following classes every week*;" there were four selections (music, art, dance/movement, and theatre/drama) plus an open–ended choice of "other." In response to the open–ended question regarding student weekly exposure to the arts, respondents in the "*significantly improved educational performance*" group made additional comments, such as: "*movement and drama are incorporated within the classroom*," "d*ance and theatrŜ are inűegraűed in thŜ classroƨm along with music and art daӀly, anŘ we also offer after school classes in both*," or "*we offer a significant amount of dance instruction in music class*." Respondents in the "*remained the same*" group offered no responses to open-ended questions.

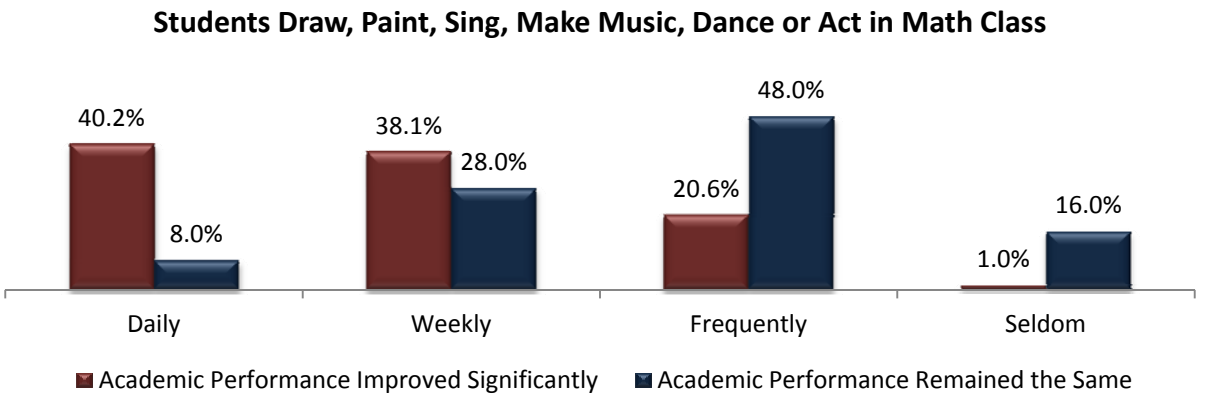


Figure 51: Frequency of Arts Integration in Math

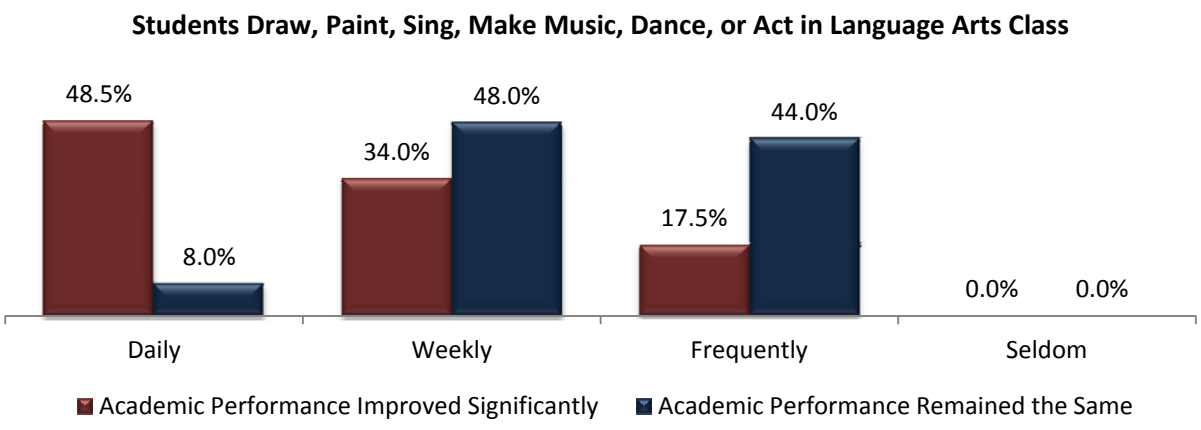


Figure 52: Frequency of Arts Integration in Language Arts

The percentage of respondents indicating that students in their schools had music or art classes on a weekly basis was approximately the same for the "*improved significantly"* and "*remained the same*" groups (approximately 96% for music and approximately 90% for art), see Figure 50. Among respondents who stated that their students' academic performance "*improved significantly*" as a result of arts integration, approximately 31 percent indicated that students at their schools had dance/movement classes on a weekly basis and 25.8 percent indicated that students at their schools had theatre/drama classes on a weekly basis. These percentage rates were significantly higher when compared to respondents who indicated that student academic performance had "*remained the same*" as a result of arts integration (Figure 50).

Survey respondents who indicated that student academic performance had "*improved significantly*" as a result of arts integration exhibit more effective arts integration across the curriculum (all subject areas)

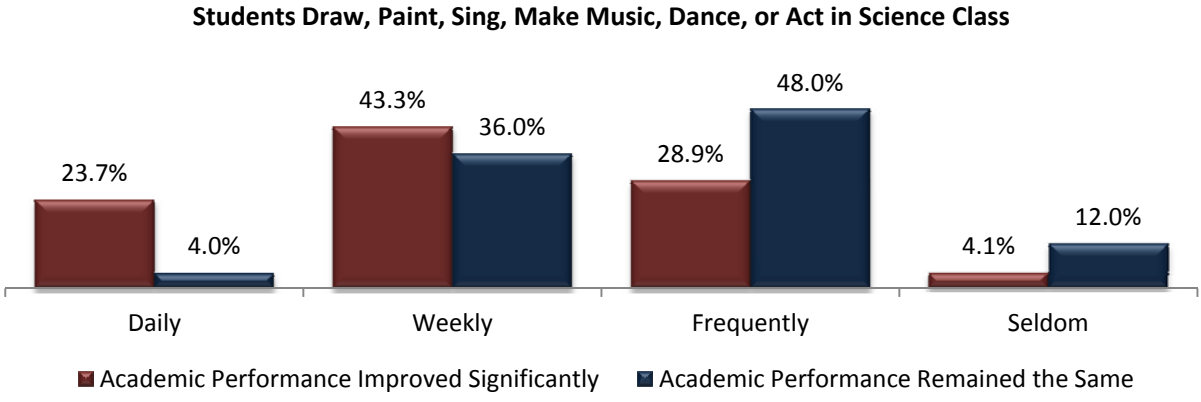


Figure 53: Frequency of Arts Integration in Science Class

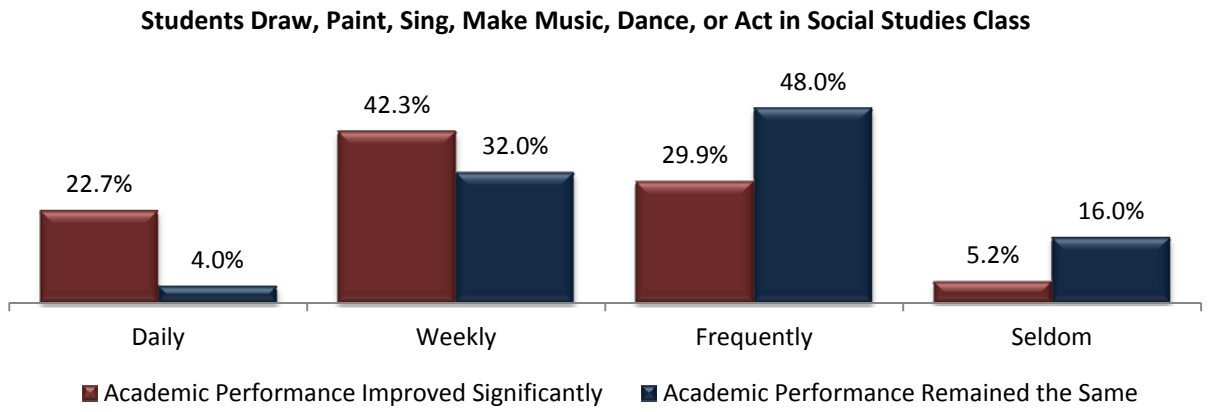


Figure 54: Frequency of Arts Integration in Social Studies Class

when compared to respondents indicating that students' academic performance had "*remained the same*"(see Figure 51 through Figure 55). For example, 78.4 percent of respondents in the "*improved significantly*" group indicate that students draw, paint, sing, make music, dance or act *daily* or *weekly* in math classes as compared to 36 percent of respondents in the students' performance *"remained the same*" group (Figure 55). In science classes, 67 percent of respondents in the "*improved significantly*" group indicate that the arts are integrated on either a daily or weekly basis as compared to 40 percent of respondents in the "*performance remained the same"* group.

These findings comport with research in the field of neuroscience, cognitive development, and Gardner's *Theory of Multiple Intelligences* regarding different learning styles and the linkage between effective implementation of arts integration across the curriculum and improved student academic

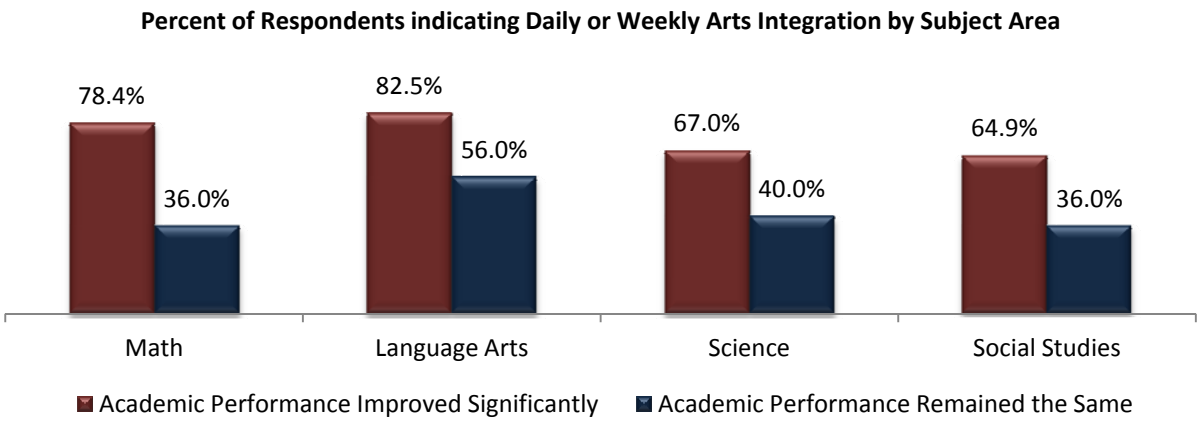


Figure 55: Daily or Weekly Arts Integration across the Curriculum

outcomes.[61] As shown in Figure 50, respondents who reported a "*significant improvement*" in students' academic performance and those who report that student academic performance "*remained the same*" do not demonstrate a significant difference in student exposure to arts when the arts are treated as separate subjects. However, there is a significant difference between these respondents in the rate of occurrence with which they integrate the arts within the curriculum (Figures 51 through 54). For example, among respondents who reported "*significant Improvement*" in their students' academic performance, 78.4 percent reported integrating arts content with math daily or weekly; this means that 21.6 percent integrated arts content with math less than weekly (Figure 55). Among respondents reporting students' academic performance "*remained the same*," 36 percent reported daily or weekly use of arts content to teach math; this means that 64 percent integrated arts content with math less than weekly. Arts integration is a teaching approach that requires the integration of the content and skills from the arts (dance, music, theatre, visual arts) with other subject areas. With arts integration, arts skills and processes provide an entry point for students to approach content in other subject areas (math, language arts, science, or social studies). It is the content and skills of the arts that act as the key to stimulating learning experiences that unlock the door to a new dimension of learning. Arts integration does not treat the arts as an "add on"subject; rather it seamlessly blends the content and skill of an arts discipline within the curriculum. Effective implementation of arts integration represents a fundamental transformation in teaching, across the entire school; it requires time to build understanding and commitment by teachers, principals, and administrators. One measure of the effective implementation of arts integration is the rate of occurrence with which the arts are integrated across the curriculum.

Analysis of survey responses found a higher rate of occurrence of arts integration in language arts classes as compared to math, science, and social studies. To increase the rate of occurrence of arts integration across the curriculum requires teachers to learn how to use the content and skills of the arts to enhance student learning in all subject areas. In response to open–ended questions, many classroom teachers indicated a need for increased professional development that focuses on arts integration with science, math, and social studies.

[61] Fiske, E.B. (1999) *Champions of Change: the Impact of the Arts on Learning*. Washington, D.C.: The Arts Education Partnership and the President's Committee on Arts and Humanities.

Administration and Principal Support

Arts integration and the Whole Schools Initiative is a model for education reform. Extant research on school reform and administrative leadership has found that principals and school administrators can play a key role in establishing clear school goals; the design and implementation of curriculum, instruction, and assessment practices; providing teachers with materials and professional development; recognition and motivation of teachers; monitoring the effectiveness of school practices; or developing learning communities around instructional practices.

Academic research on leadership has identified different leadership styles (transactional, transformational, or distributed leadership); some research in the field has focused on the scope of leadership efforts rather than on practices, styles, or process. Scope is defined as the extent to which leadership targets reform efforts on a subset of teachers rather than on the entire faculty – a continuum that ranges from broad influence (school wide change) to specifically targeted influence (focusing on a small number of teachers). Therefore, individual and school differences may exist due to personal leadership styles, time and resource constraints, and the scope of leadership activities. For example, a principal may engage in a targeted scope of reform by focusing their efforts on individual teachers rather than on the entire faculty; due to time and resource constraints, principals may find that targeted interactions with receptive teachers may be more productive than broad-based activities. Open ended responses by principals and administrators provide some insight into the implementation obstacles faced within participating WSI schools, these responses included: "T*eachers apathy and/or resistance to arts integration;*" "G*etting all teachers to buy into arts integration in a large school like ours;*" "G*etting the WHOLE staff to truly BELIEVE in and UNDERSTAND arts integration;*" or "G*etting teachers who are set in their ways to practice arts integration*."

To measure the perception of administrative support for the Whole Schools Initiative and arts integration in their school; respondents were requested to respond "*yes*" or "*no*" to the two following questions:

1. At your school, does the principal provide a consistent message of support for arts integration?

2. At your school, do administrators provide a consistent message of support for arts integration?

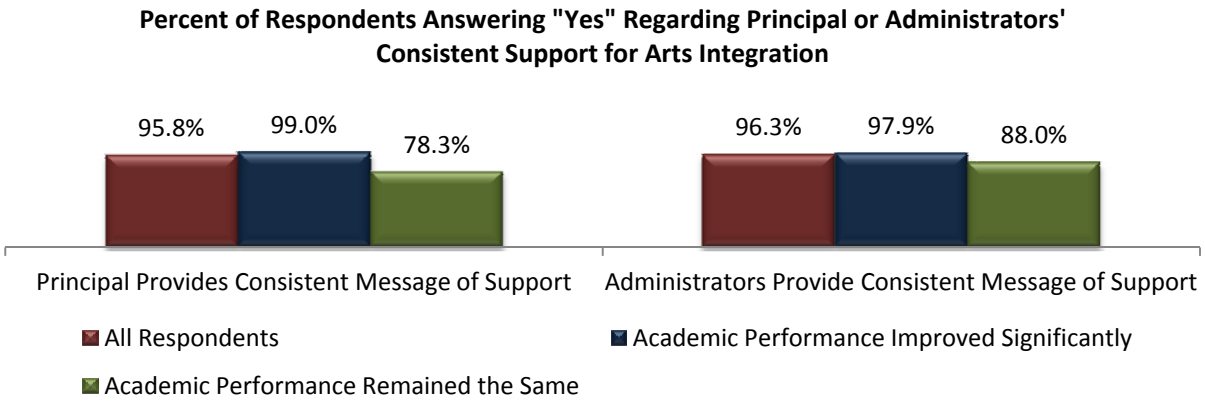


Figure 56: Perception of Administrative and Principal Support for Arts Integration

Across all respondents to the survey, 95.8 percent indicated consistent support from their school principal, and 96.3 percent of respondents indicated consistent support from school administrators (Figure 56). Analysis of the segment of the sample that included only school principals, assistant principals, or school superintendents indicated that among this group, 7.1 percent replied "*no*" to the question regarding the principal's consistent message of support for arts integration, and 100 percent of respondents in this group indicated that a consistent message of support for arts integration was provided by the school's administration. Analysis of the segment of the sample that included only classroom teachers found that in this group, approximately 4.1 percent indicated that there *was not* a consistent message of support for arts integration by the school principal and 2.9 percent indicated that there "*was not"* a consistent message of support for arts integration by school administrators.

Among arts specialists, 100 percent indicated that there was a consistent message of support for arts integration by their school's principal, and 80 percent indicated that there was a consistent message of support for arts integration by their school's administrators. The internal inconsistency of the findings between the three groups of respondents (principals and superintendents, classroom teachers, and arts specialists) requires further assessment due to the multiple potential factors that may explain these findings. Some factors may be school specific or individual factors, and other factors may be related to impression management by respondents. One possible explanation may be that principals or administrators are not clearly communicating their support for arts integration. A second explanation may be that arts specialists are more aware of and sensitive to support for arts integration. A third explanation may be related to impression management response bias. In some cases, the perception of lack of support for arts integration by principals or school administrators may be accurate, and in other

cases, this perception may be inaccurate; and, these circumstances may be school specific or specific to the perceptions of one or a few individuals.

To further examine the differences that may exist between schools and between respondents, the survey sample was split between respondents who indicated their students' academic achievement had "*improved significantly*" and those respondents who indicated student academic performance "*had remained the same*." As shown in Figure 56, the percentage of respondents who indicate principals and administrators at their schools exhibit consistent support for arts integration was higher among respondents who indicate their students' academic performance "*improved significantly"* as a result of arts integration (99% and 97.9%, respectively) when compared to respondents who indicate students' academic performance "*remained the same*" as a result of art integration (78.3% and 88%, respectively).

Analysis of the survey responses found that approximately 50 percent of the respondents who indicated that principals and administrators at their school "*did not*" provide a consistent message of support for arts integration came from schools with a higher percentage of respondents who also indicated their students' academic performance had "*remained the same*" as a result of arts integration. Under the assumption that consistent support from principals and administrators is critical to the effective implementation of arts integration and the success of the Whole Schools Initiative as a model for education reform, the survey sample was analyzed by splitting the sample between respondents who indicated that students' academic performance had "*improved significantly*" and respondents who indicated that students' academic performance had "*remained the same*" as a result of arts integration. As noted in the prior paragraph, among respondents who indicated that students' academic performance had "*improved significantly,*" only one percent of respondents indicated that principals at their schools "*did not"* provide a consistent message of support for arts integration, and 2.1 percent indicated that administrators at their school "*did not"* provide a consistent message of support for arts integration. Among respondents who reported their students' academic performance "*remained the same,*" 21.7 percent reported that principals at their schools "*did not"* provide a consistent message of support for arts integration and 12.0 percent indicated that administrators at their school "*did not"* provide a consistent message of support for arts integration. This split sample was then analyzed from the perspective of respondents' participation in arts integration professional development experiences; the results of this analysis are provided in the following section.

Participation in Arts Integration Professional Development Activities

Ongoing professional development is an essential component that enables teachers to develop skills in the arts disciplines, enables them to identify the connections between the arts and the curricula of other subject areas, and to create lessons and units of instruction that integrate the arts. Collaboration between classroom teachers and arts specialists, with adequate planning time, is essential. Schools that are highly successful with arts integration provide ongoing professional development for teachers to deepen their capacity in arts integration. Collaboration with arts organizations and teaching artists can facilitate arts integration experiences for students and provide professional development experiences for teachers.

To measure participation in arts integration professional development experiences, the following questions were contained in the survey:

1. Have you attended the Mississippi Arts Commission's Whole Schools Initiative Summer Institute? (yes/no)

2. Do you attend the Mississippi Arts Commission's Whole Schools Initiative Summer Institute every year? (yes/no)

3. Have you attended Fall or Spring Retreats sponsored by the Whole Schools Initiative and the Mississippi Arts Commission? (yes/no)

4. Do you attend Fall or Spring Winter Retreat sponsored by the Whole Schools Initiative every year? (yes/no)

5. Teachers in your school receive the level of professional development support that is required to effectively integrate arts into teaching? (Strongly Agree/Agree/Disagree/Strongly Disagree)

6. At your school, how frequently do you have the opportunity to work with a teaching artist? (Every other month/more than twice a year/twice a year/once a year/never)

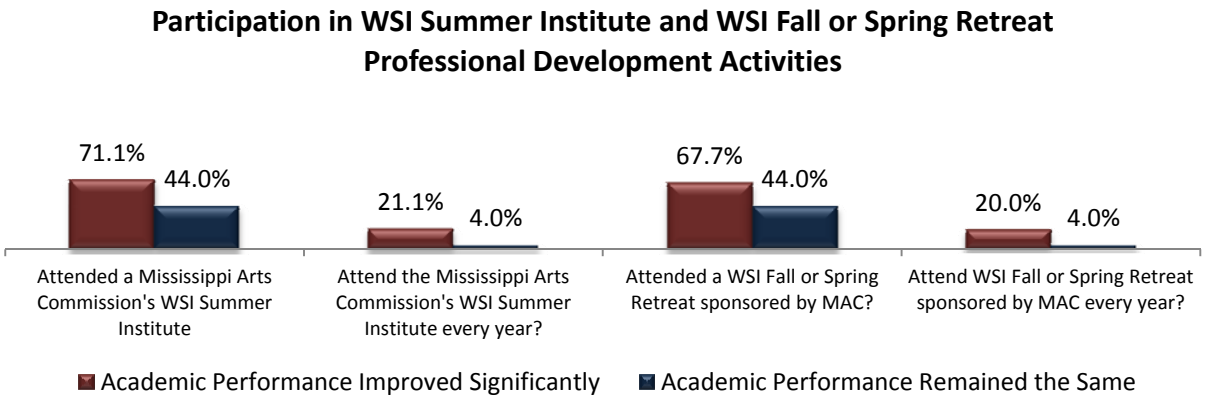


Figure 57: Split Sample Participation in WSI Professional Development Activities

Among respondents whose students' academic performance had '*improved significantly*" as a result of arts integration, 71.1 percent indicated that they had attended a Whole Schools Initiative Summer Institute as compared to 44.0 percent of respondents who indicated their students' academic performance had "*remained the same"* (Figure 57*).* Respondents who indicated their students' academic performance "*improved significantly*" were also found to be more likely to attend the WSI Summer Institute every year. The percentage of respondents indicating academic performance had "*improved significantly*" attending WSI Fall or Spring Retreats was higher as compared to respondents indicating student performance "*remained the same;*" 67.7 percent and 44.0 percent, respectively. The findings also indicate that respondents whose students' academic performance has "*improved significantly*" were more likely to participate in a WSI Fall or Spring Retreat every year.

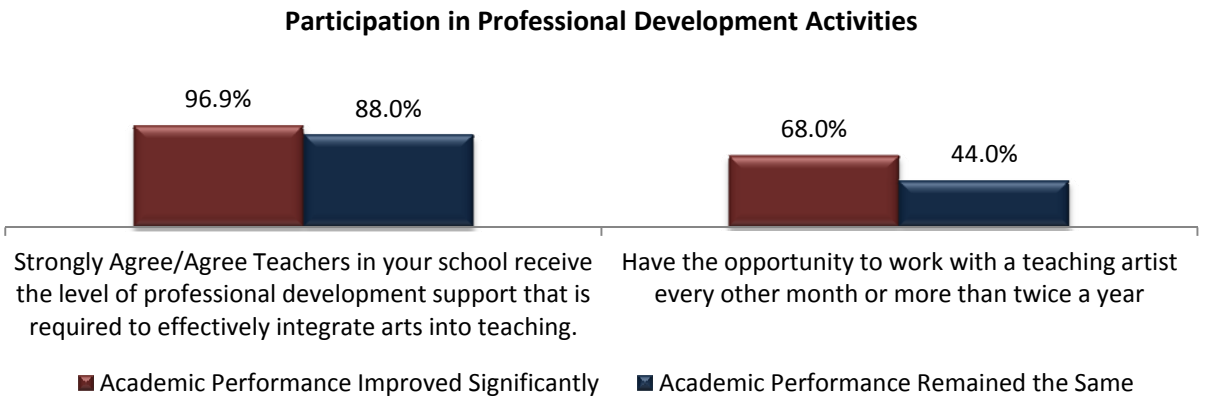


Figure 58: Participation in Professional Development Activities

Among respondents who indicated their students' academic performance had "*remained the same*" as a result of arts integration, 56 percent had never attended a WSI Summer Institute or a WSI Fall or Spring Retreat to receive arts integration professional development.

Among respondents whose students' academic performance has "improved significantly," 68 percent indicated that they had the opportunity to work with a teaching artist more than twice a year (Figure 58); only 2.1 percent of this group reported having "*never*" worked with a visiting artist. Among respondents whose students' academic performance "*remained the same*," 44 percent indicated that they had the opportunity to work with a visiting artist more than twice a year (Figure 58); in this group, 20 percent of respondents reported that they had "*never*" worked with a visiting artist.

Among respondents reporting that student academic performance "*improved significantly*" as a result of arts integration, 96.9 percent "*agreed*" or "*strongly agreed*" with the statement: "*teachers in your school receive the level of professional development support that is required to effectively integrate arts into teaching;*" among respondents reporting that academic performance had "*remained the same*," 88 percent "*agreed*" or "*strongly agreed*" with this statement.

The survey results indicate that respondents reporting their students' academic performance "*remained the same*" were more likely to indicate that principals and administrators in their schools "*do not"* provide a consistent message of support for arts integration (Figure 56, page 78), and they are less likely to "*agree*" or "*strongly agree*" that teachers at their school are receiving the level of professional development that is required for them to effectively integrate arts into their teaching (Figure 58). Given the lower percentage rate of participation in WSI Summer Institutes and WSI Fall or Spring Retreats, combined with the lower percentage rate of opportunities to work with visiting artists by respondents in the "*remained the same*" segment of the survey, it would be anticipated that the percentage of respondents in this group that reported to "*strongly agree*" or "*agree*" with the statement "*teachers in your school receive the level of professional development support that is required to effectively integrate arts into teaching*" would be even lower than the 88 percent reported (Figure 58). Personal factors that motivate participation in professional development experiences may be a moderating factor in these responses; for example, it is possible that the value these respondents attach to arts integration is lower as compared to respondents who reported a "*significant improvement*" in students' academic performance.

Multiple factors can affect teachers' participation in professional learning activities; generally, these factors can be identified as either work environment factors or personal factors. Work environment factors may include a school culture that is supportive of and intentionally stimulates teachers' participation in professional development activities, including management support and collegial support. Personal factors may include appraisal of the meaningfulness of specific professional development activities; evaluation of the feasibility of accomplishing education reform goals and the amount of personal responsibility that a teacher is willing to accept to attain those goals; the degree of accomplishment and feelings of competence that teachers attach to specific professional development experiences; the work pressures and the workload of teachers; the incidence of emotional exhaustion experienced by classroom teachers; or the extent of input that teachers have in designing professional development activities (self-empowerment). Work environment factors and personal factors interact, and the weight given to each of these factors varies between individuals. Analysis of the data indicates that a relationship exists between support by principals and administrators and the prevalence of participation in arts integration professional development experiences; the analysis also indicates a relationship between student academic performance and prevalence of respondents' participation in arts integration professional development experiences. Causality cannot be determined from the analysis of the survey results. For example, if respondents do not perceive consistent support for arts integration by principals or administrators, they may place a lower value on arts integration professional development, particularly if there is not management support to motivate participation in arts integration professional development activities or if sufficient funding is not made available to provide resources for arts integration professional development opportunities. Alternatively, respondents who see no improvement in students' academic performance may not perceive arts integration as meaningful to improving students' performance or may not identify arts integration as an effective method for accomplishing education reform goals, and as a result, may not attach importance to participation in arts integration professional development. Therefore, even if opportunities exist for professional development, teachers who do not value these activities may not avail themselves of those opportunities.

To further examine the relationship between participation in professional development experiences and educational outcomes, the sample was split into two groups. One group represented respondents who attended neither a WSI Summer Institute nor a WSI Fall or Spring Retreat; this group is referred to as "*non-attending*" respondents. The "*non-attending*" respondents represented approximately 15.6 percent of all survey respondents. Within this "*non-attending*" group, only one respondent "*disagreed*"

with the statement that "*teachers in your school receive the level of professional development support that is required to effectively integrate arts into teaching,"* the remainder either *"strongly agreed"* or *"agreed"* with this statement. Among "*non-attending*" respondents, 5.8 percent of respondents indicated that school principals and administrators "*did not*" provide a consistent message of support for arts integration. The other group represented respondents who indicated they had attended a WSI Summer Institute *and* had also attended a WSI Fall or Spring Retreat, this group is referred to as "*attending*" respondents. "*Attending*" respondents represented 45 percent of all survey participants. Within the "*attending*" group, three percent indicated that their school principal "*did not*" provide a consistent message of support for arts integration, and two percent indicated that their school administrators "*did not*" provide a consistent message of support for arts integration. The responses by these two groups ("*attending and non-attending*") were then compared with the survey responses by respondents who indicated their students' academic performance had "*improved significantly*" and the survey respondents who indicated that students' academic performance "*had remained the same*." The result of this comparison provides insight into the impact that participation in professional development experiences may have on educational activities and outcomes.

A higher percentage of respondents who indicated students' academic performance had "*improved significantly*" were "*always*" comfortable using the arts in the classroom (78.9%) and "*very frequently*" incorporated the arts into their lesson plans (64.9%) when compared to respondents who reported students' academic performance "*had remained the same.*" Among "*attending*" respondents, 70.4 percent of respondents indicated they were "*always*" comfortable using the arts in the classroom and

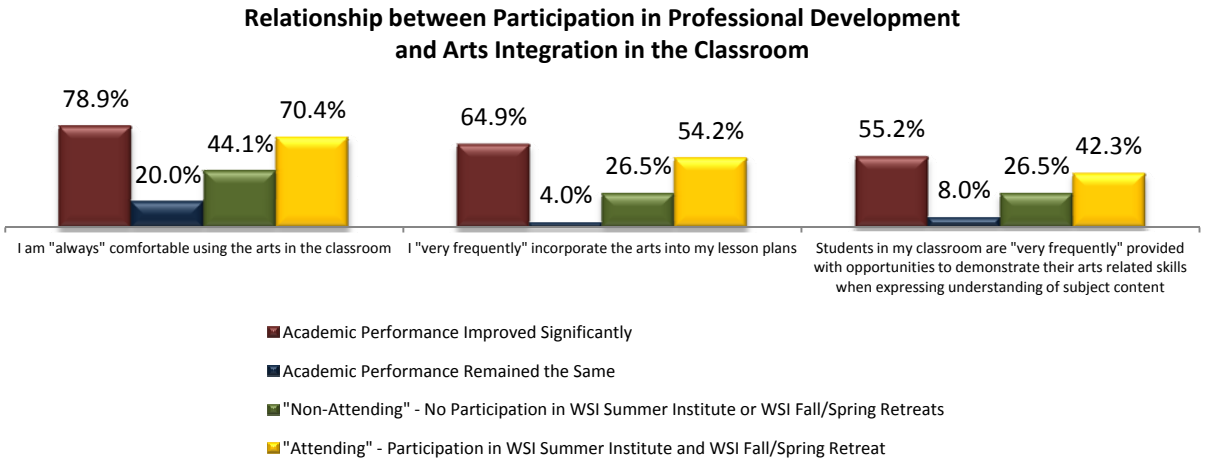


Figure 59: Participation in Professional Development and Arts Integration in the Classroom

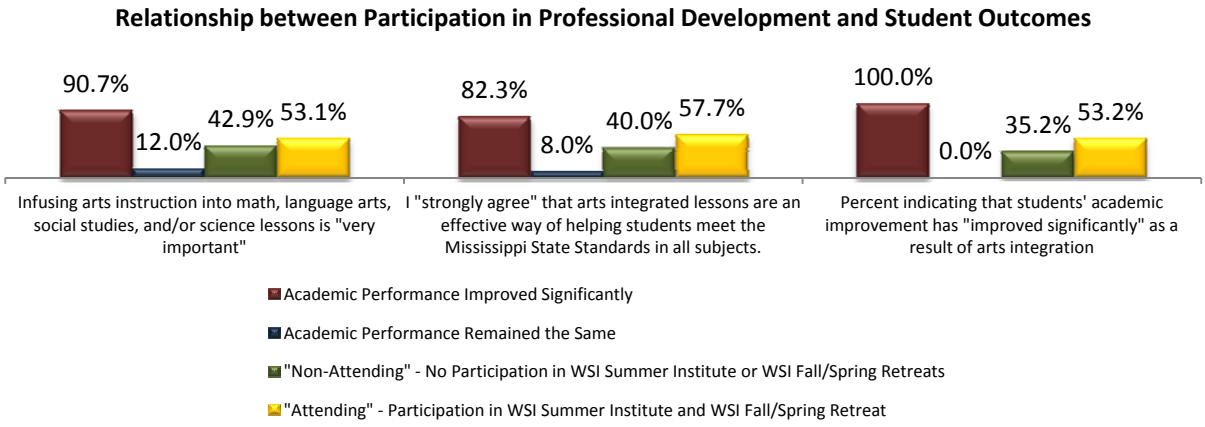


Figure 60: Participation in Professional Development and Student Outcomes

54.2 percent indicated they "*very frequently*" incorporate the arts into their lesson plans. Among "non-attending" respondents, 44.1 percent indicated they were "*always*" comfortable using the arts in the classroom and 26.5 percent indicated they "*very frequently*" incorporate the arts into their lesson plans (Figure 59).

Respondents whose students' academic performance "*improved significantly*" as a result of arts integration were more likely to "*very frequently*" provide students with opportunities to demonstrate their arts related skills when expressing understanding of subject content as compared to respondents who indicated students' academic performance "*remained the same*." The percentage of respondents who reported that students in their classroom were "*very frequently*" provided with opportunities to demonstrate their arts related skills when expressing understanding of subject matter was higher for respondents in the "*attending*" group (42.3 %) as compared to the "*non-attending*" group (26.5%).

A higher percentage of respondents who reported their students' academic performance had "*improved significantly*" believe that arts integration is "*very important*" and a higher percentage "*strongly agreed*" that arts integration is an effective way of helping students meet the Mississippi State Standards in *all* subjects when compared to respondents whose students' academic performance "*remained the same*." (Figure 60). Among those that observed "*significant improvement*" in their students' academic performance, 90.7 percent believed that arts integration was "*very important*" and 82.3 percent "*strongly agreed*" that arts integration was an effective way for students to meet state standards in *all* subjects. "*Attending"* respondents were more likely to believe that arts integration was *"very important"* and were more likely to "*strongly agree"* that arts integrated lessons are an effective way of helping students meet state standards in *all* subjects as compared to "*non-attending*" respondents (Figure 60).

The Mississippi Arts Commission maintains a Teaching Artist Roster to assist WSI schools to identify qualified teaching artists; it is the responsibility of each participating WSI school to include teaching artists as a component of professional development. Teaching artists are practicing professional artists with complementary skills as educators who engage teachers and students in learning experiences in, through, and about the arts. Teaching artists may perform for students and teachers, lead a subject-focused arts integration learning activity, or assist schools to link arts integrated teaching practices with state curriculum standards.

The WSI Summer Institute and WSI Fall and Spring Retreats are professional development experiences that take place outside the context of the school. In addition to participation in these experiences, professional development may occur within the context of the school or classroom. To achieve substantial change and improvements in student learning, professional development must be integrated with classroom practices in a meaningful and concrete manner to develop teachers' expertise. Within the context of the school or classroom, teachers may learn in and from practice through collegial support and collaboration with other teachers, school administrators, teaching artists, or arts specialists.[62, 63] Research has found that effective professional development and successful education reform require teachers to have shared planning time with colleagues and opportunities for coaching and mentoring (e.g. from teaching artists or arts specialists).[64, 65, 66, 67] Systemic, collaborative professional development involving classroom teachers, school administrators, teaching artists, arts professionals, parents, and the community creates the framework to establish, grow, and sustain an arts integrated professional learning community.

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[62] Ball, D. L. & Cohen, D. K. (1999). Developing Practice, Developing Practitioners: Toward a Practice-based Theory of Professional Education. In G. Sykes and L. Darling-Hammond (Eds.), Teaching as the Learning Profession: Handbook of Policy and Practice (pp.3-32). San Francisco: Jossey Bass

[63] Garet, M., Porter, A., Desimone, L., Birman, B., & Yoon, K.S. (2001). What Makes Professional Development Effective? Results from a National Sample of Teachers. *American Educational Research Journal*, 38 (4), 915 – 945.

[64] Fishman, B., Marx, R., Best, S., & Tal, R. (2003). Linking Teacher and Student Learning to Improve Professional Development in Systemic Reform. *Teaching and Teacher Education*, 19 (6), 643 – 658.

[65] Purnam, R., & Borko, H. (2000). What do New Views of Knowledge and Thinking Have to Say About Research on Teacher Learning? *Educational Researcher*, 29 (1), 4 – 15.

[66] Saxe, G., Gearhart, M., & Nasir, N. S. (2001). Enhancing Students' Understanding of Mathematics: A Study of Three Contrasting Approaches to Professional Support. *Journal of Mathematics Teacher Education*, (4), 55 – 79.

[67] Yoon, K. S., Duncan, T., Lee, S. W., Scarloss, B., & Shapley, K.L. (2007). Reviewing the Evidence on how Teacher Professional Development Affects Student Achievement. (Issues & Answers Report, REL 2007 – No. 033). Washington, D.C.: U.S. Department of Education, Institute of Education *Sciences*, National Center for Education Evaluation and Regional Assistance, Regional Education Laboratory Southwest.

To measure opinions regarding support for professional development, to measure in-school context collegial professional development opportunities, and to measure whether sufficient physical resources were being provided to support arts integration, respondents were asked the following questions:

1. Teachers at your school receive the level of professional development support that is required to effectively integrate arts into teaching (strongly agree, agree, disagree, strongly disagree)

2. Teachers at your school are provided with adequate time to work with other faculty members to design detailed lesson plans that embed specific arts activities with grade-level thematic units? (strongly agree, agree, disagree, strongly disagree)

3. I discuss my work in arts integration with other colleagues. (very frequently, frequently, occasionally, rarely, never)

4. At your school, how frequently do you have the opportunity to work with a teaching artist? (every other month, more than twice a year, twice a year, once a year, never)

5. Sufficient physical resources (e.g. supplies/posters/art work) are available to support arts integration at your school. (strongly agree, agree, disagree, strongly disagree)

Among all respondents to the survey, 96.3 percent either "*strongly agreed*" or "*agreed*" with the statement that teachers were receiving the level of professional development support that is required to effectively integrate arts into teaching (Figure 61); 67.3 percent either "*strongly agreed*" or "*agreed*" with the statement that teachers were provided with adequate time to work with other faculty members to design detailed lesson plans that embed specific arts experiences with grade-level thematic units (Figure 62).

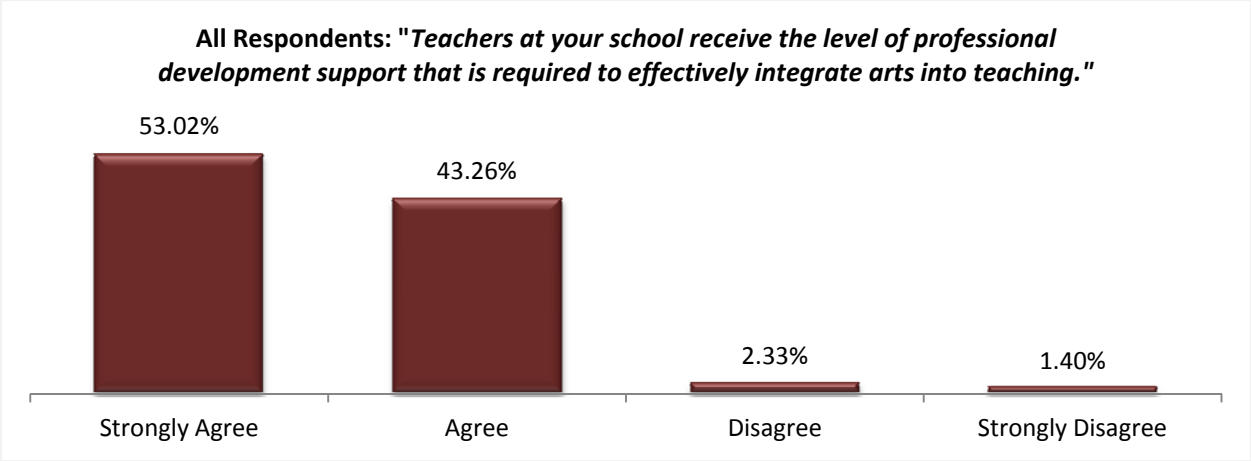

Figure 61: Responses to Level of Professional Development Support

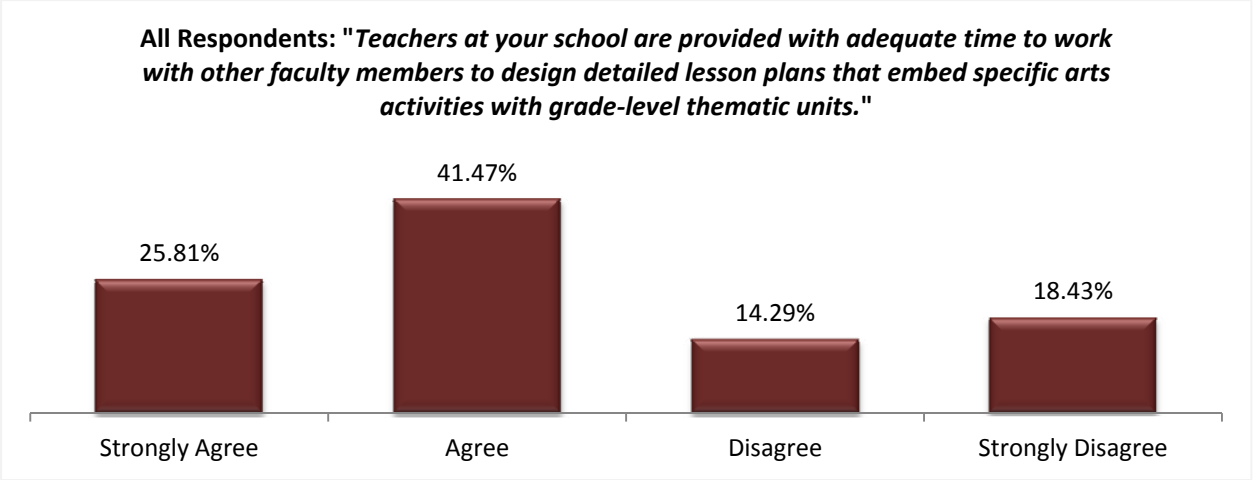

Figure 62: Responses to Adequate Time Provided for Arts Integration Collegial Planning

Among all respondents, 79.1 percent discussed their work in arts integration with other colleagues "*very frequently*" or "*frequently"* (Figure 63); respondents were provided with the option of "never" for this query, this option was not selected by any respondents.

Among all respondents, 79 percent "*strongly agreed*" or "*agreed*" with the statement that sufficient physical resources were available to support arts integration at their school (Figure 64, page 89); approximately 21 percent of respondents "*disagreed*" or "*strongly disagreed*" with this statement.

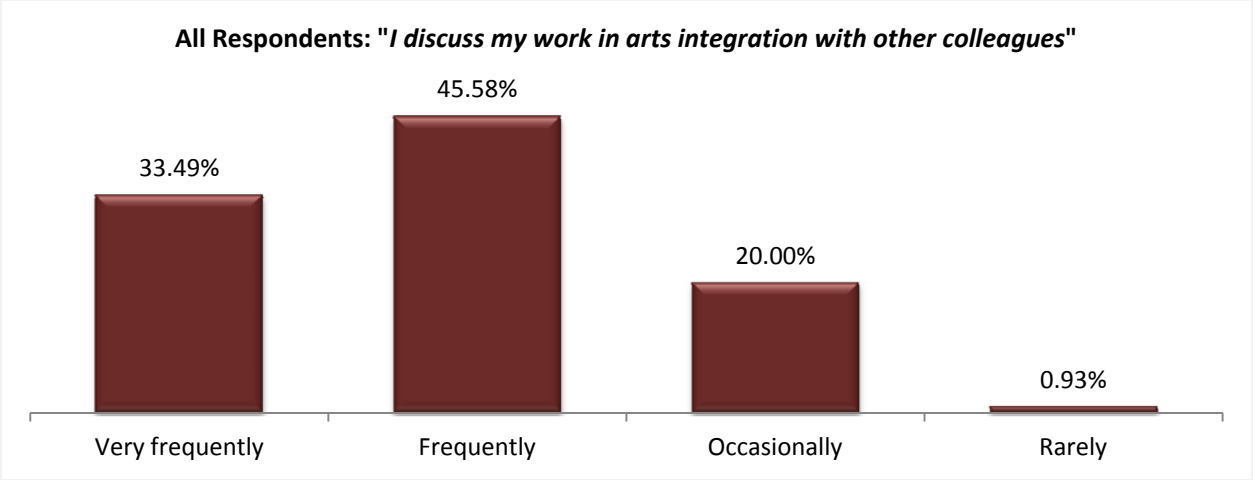

Figure 63: Response to Discussion with Other Colleagues

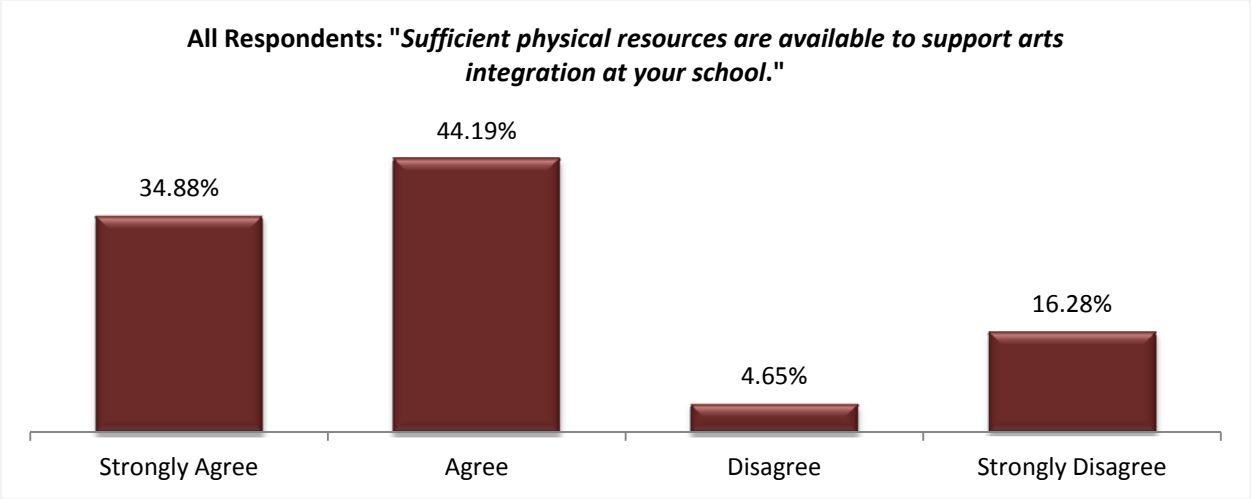

Figure 64: Response to Sufficient Physical Resource to Support Arts Integration

In response to the frequency with which they had an opportunity to work with a teaching artist, 56.9 percent of respondents indicated having the opportunity to work with a teaching artist "*every other month*" or "*more than twice a year*" (Figure 65); 7.4 percent of respondents indicated they "*never*" had a chance to work with a teaching artist; and 12 percent indicated they had a chance to work with a teaching artist "*once a year*." Respondents were also asked a question regarding whether they believed teaching artists made a significant contribution towards helping them to integrate arts in the classroom, 94.8 percent of all respondents either "*strongly agreed*" (49.3%) or "*agreed*" (45.5%) that teaching artists made a significant contribution to arts integration in the classroom.

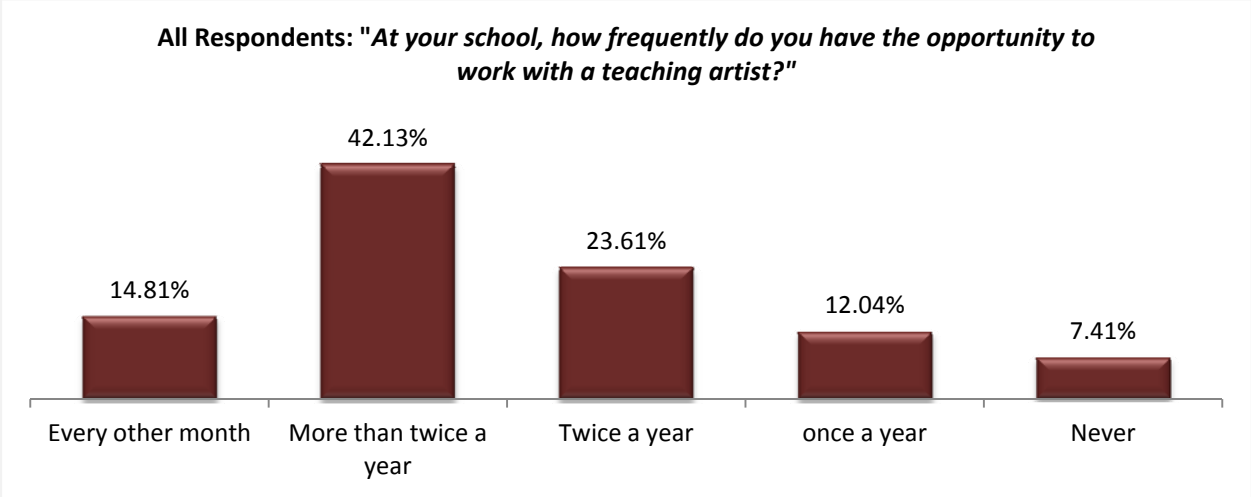

Figure 65: Response to Frequency of Working with a Teaching Artist

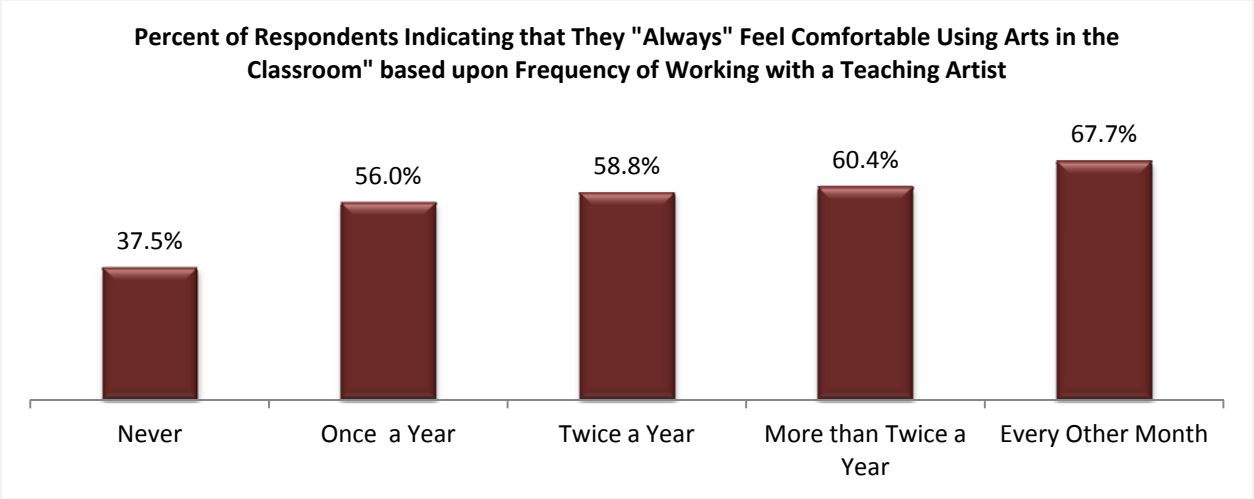

Figure 66: Relationship between Working with a Teaching Artists and Comfort using Arts in the Classroom

To examine how working with teaching artists may impact respondents' "*comfort*" with using arts in the classroom, the frequency with which they incorporate the arts into their lesson plans, and the relationship between working with visiting artists and educational outcomes in the classroom, the sample was split based upon the frequency of opportunity that respondents had to work with a teaching artist. This analysis found that as the frequency of interaction with a teaching artist increased, so did the respondents' "*comfort*" using arts in the classroom (Figure 66). Among respondents that reported "*never*" having had the opportunity to work with a teaching artist, 37.5 percent reported that they "*always*" felt comfortable using arts in the classroom; among respondents that reported working with a teaching artist every other month, 67.7 percent reported that they "*always*" felt comfortable using arts in the classroom.

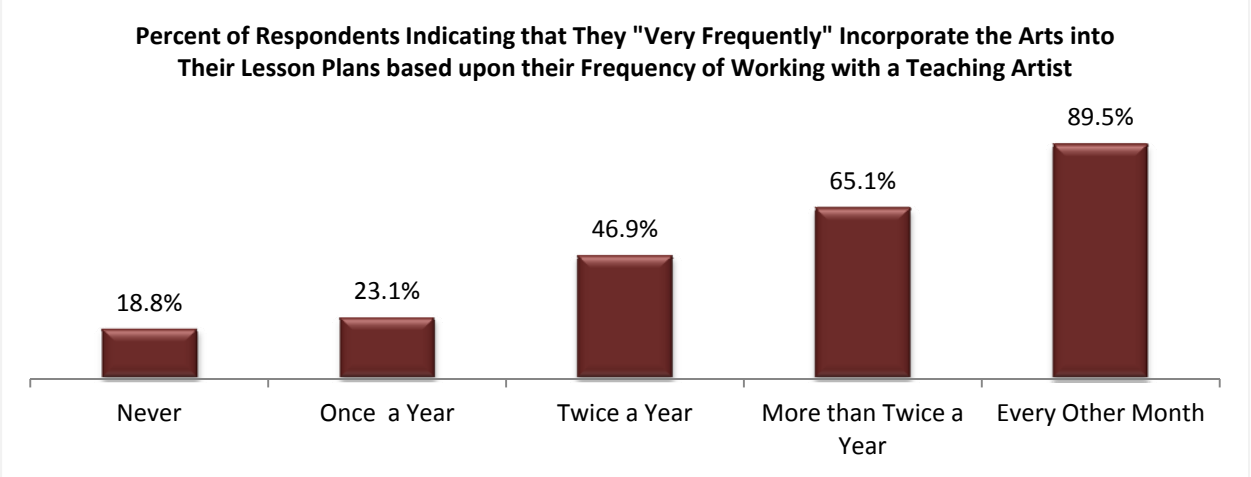

Figure 67: Relationship between Frequency of Working with Teaching Artist and Effective Arts Integration

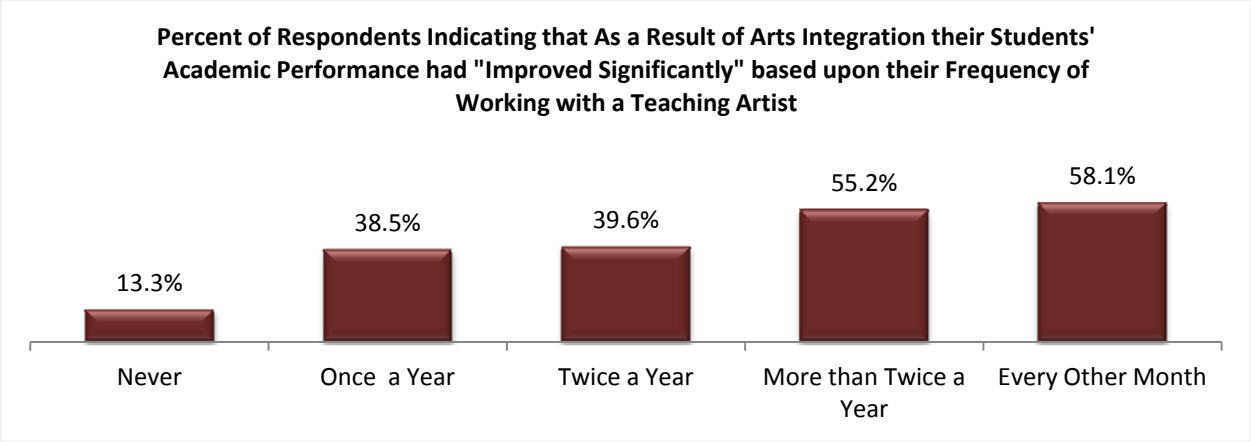

Figure 68: The Relationship between the Frequency of Working with a Teaching Artist and Significant Academic Performance

The frequency of working with a visiting artist is also associated with the frequency with which teachers incorporate the arts into their lesson plans (Figure 67, page 90). Among Respondents who indicated that they "*never*" had the opportunity to work with a visiting or teaching artist, 18.8 percent reported that they "*very frequently*" incorporate the arts in their lesson plans, as compared to 89.5 percent among respondents who indicated that they had the opportunity to work with a visiting or teaching artist every other month (Figure 67).

A positive relationship was found between the frequency of working with a teaching artist and academic performance. Among respondents who reported they "*never*" had the opportunity to work with a teaching artist, 13.3 percent reported that as a result of arts integration their students' academic performance had "*improved significantly.*" Among respondents reporting they had the opportunity to work with a teaching artist more than twice a year, 55.2 percent indicated that their students' academic performance had "*improved significantly*" as a result of arts integration (Figure 68). For respondents that worked with a teaching artist every other month, 58.1 percent indicated that as a result of arts integration, their students' academic performance had "*improved significantly*."

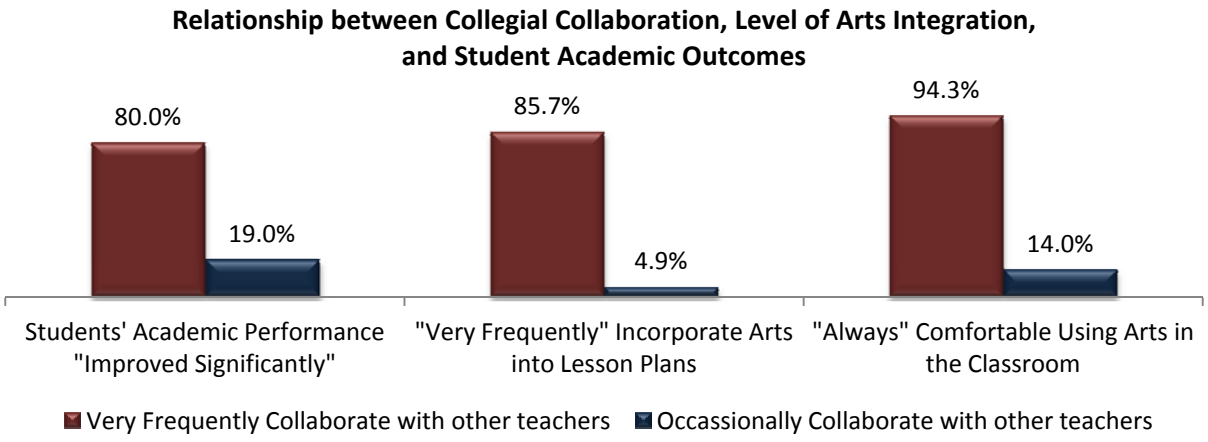

Figure 69: Relationship between Collegial Collaboration, Prevalence of Arts Integration, and Academic Outcomes

Respondents who reported "*very frequent*" collaboration with other teachers were more likely to "*always*" feel comfortable using arts in the classroom, were more likely to "*very frequently*" incorporate arts in lesson plans, and were more likely to report that as a result of arts integration, their students' academic performance had "*improved significantly*" when compared to respondents who indicated that they collaborated with other teachers "*occasionally*" (Figure 69). Among respondents who indicated "*very frequent*" collaboration with other teachers, 80 percent reported that their students' academic performance had "*improved significantly.*" Among respondents who reported "*occasional*" collaboration with other teachers, 19 percent indicated that their students' academic performance "*improved significantly*" as a result of arts integration (Figure 69).

Teacher Comfort with Using the Arts in the Classroom

To explore the variables that are related to teachers' comfort with using the arts in the classroom, the survey responses were split. One sample included all responses that indicated "*always*" being comfortable using the arts in the classroom; the other sample included all responses that indicated "*sometimes*" or "*seldom*" being comfortable using the arts in the classroom. The responses from these two samples were then analyzed from the perspective of the relationship between engagement in professional development and teacher "*comfort*" with using arts integration and the relationship between teacher "*comfort*" with using arts integration and classroom practices.

Classroom teachers who "*always*" feel comfortable using arts integration in the classroom were more likely to have attended a WSI Summer Institute and to have attended WSI Fall or Spring Retreats sponsored by the Mississippi Arts Commission. They were more likely to "*very frequently*" discuss their work in arts integration with their colleagues, and their frequency of contact with teaching artists was higher as compared to classroom teachers that "*sometimes*" or "*seldom*" feel comfortable using arts integration in the classroom (Figure 70).

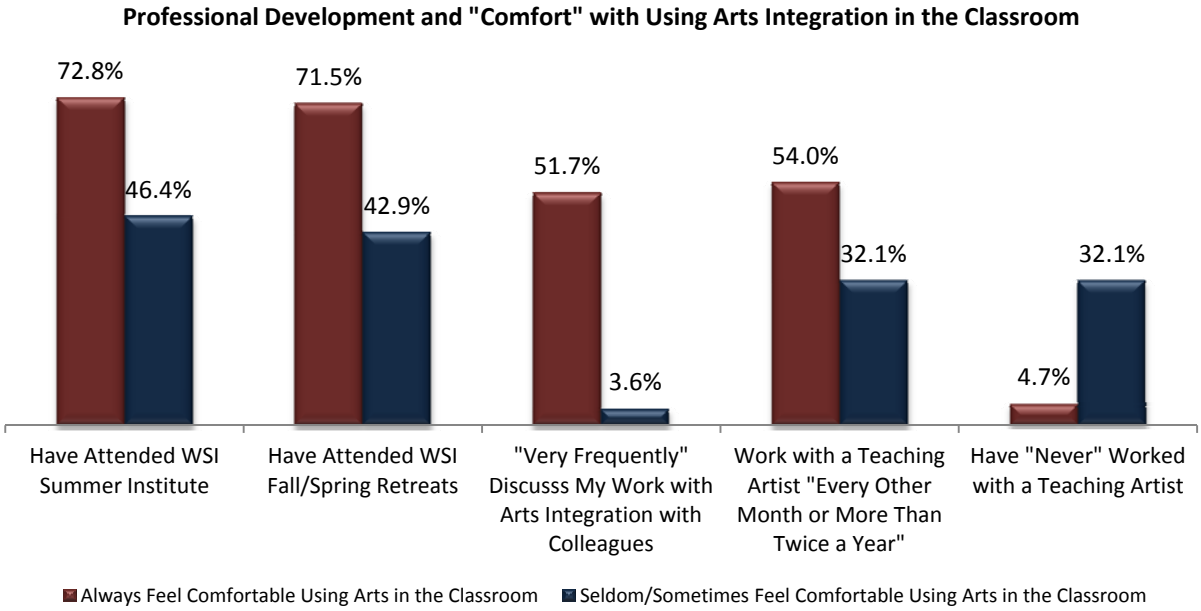

Figure 70: The Relationship between "Comfort" using Arts Integration and Participation in Professional Development

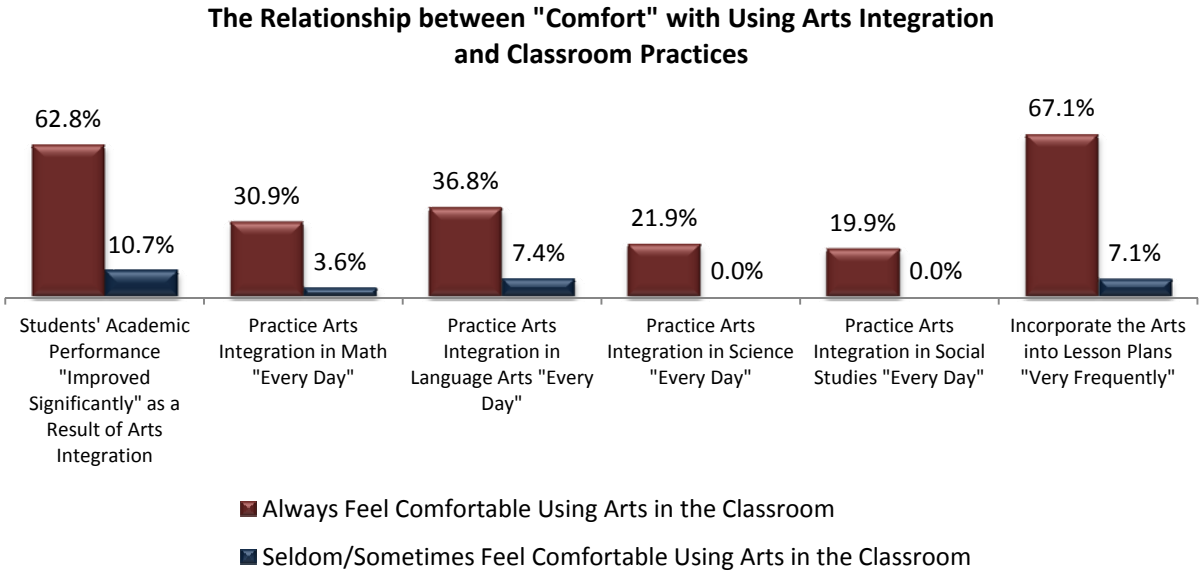

Figure 71: The Relationship between Comfort Using Arts Integration and the Frequency of Practicing Arts Integration

Classroom teachers who "*always*" feel comfortable using arts in the classroom were more likely to integrate arts into the curriculum on a "*daily*" basis across all subject areas (math, language arts, science, and social studies) and were more likely to "*very frequently*" incorporate the arts into their lesson plans as compared to teachers that "*sometimes*" or "*seldom*" feel comfortable using arts in the classroom (Figure 71).

Among classroom teachers who reported "*always*" feeling comfortable using arts in the classroom, 62.8 percent responded that students' academic performance had "*improved significantly.*" This compared to 10.7 percent of respondents who "*sometimes*" or "*seldom*" feel comfortable using the arts in the classroom (Figure 71).

The survey contained an open-ended question: "What are the biggest obstacles to arts integration at your school?" Responses to this question provide greater insight into the level of comfort that teachers feel with arts integration. Examples of these responses include: "*Helping teachers who are not artistic by nature realize their ability to infuse arts into everyday instruction*;" "*Some teachers' feelings of inadequacy due to lack of prior knowledge of artists*;" "*Getting over the fear of art*;" "*My own lack of knowledge holds me back sometimes, as well as not knowing how to use all my resources*;" "*Not being an artsy person*;" or "*Just not knowing how to get it started*." These responses demonstrate the importance of professional development for removing barriers to the effective implementation of arts integration.

Parental Engagement and Business Participation

An important goal of the Whole Schools Initiative is to use the arts to increase parental and community involvement in schools and to build a sustainable community infrastructure that supports arts integrated learning. When parents and community members develop an increased awareness of the importance of arts integrated learning and become invested in the WSI school through increased involvement, these partnerships encourage the development of a community of learning to support sustainable, lifelong learning experiences within the community.

To measure participation by parents and community members, respondents were asked to respond "*yes*" or "*no*" to the following questions:

1. Does your school do an effective job of engaging parental participation in arts demonstrations, student exhibits, or other arts related activities at your school?

2. Do businesses in your community attend arts demonstrations, student exhibits, performances, and other arts related activities at your school?

3. Do businesses in your community provide financial support for demonstrations, exhibits, performances, or other arts related activities at your school?

Initial analysis of the full sample found that 97.2 percent of all respondents indicated that their school did an effective job of engaging parental participation in arts demonstrations, student exhibits, and other arts related experiences at their school. Across all respondents, 76.4 percent indicated that businesses in their community attend arts demonstrations, student exhibits, performances, and other arts related experiences at their school.

To examine differences that may exist between WSI schools in parental engagement and business participation, the survey sample was split. One sample included all respondents who indicated they had observed a "*significant improvement*" in students' academic performance as a result of arts integration; the other sample contained respondents who indicated students' academic performance "*remained the same*."

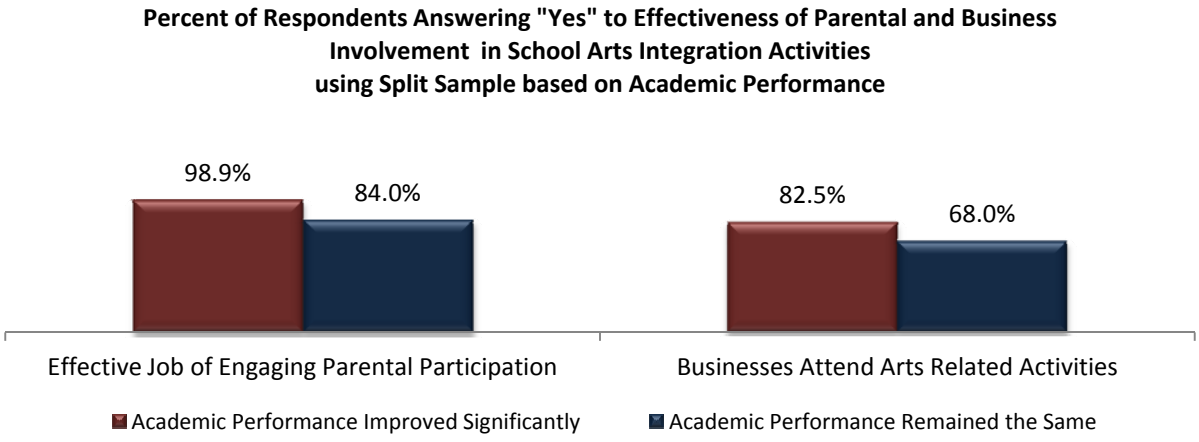

Figure 72: Relationship of Academic Performance with Parental and Business Participation in School Events

Among respondents who indicated students' academic performance "*improved significantly,*" 98.9 percent indicated that their school did an effective job of engaging parents in arts demonstrations, student exhibits, or other arts related experiences; this compared to 84 percent of respondents who indicated students' academic performance "*remained the same*."

Among respondents who indicated students' academic performance "*improved significantly* " as a result of arts integration, 82.5 percent reported that businesses in their community participated in arts demonstrations, student exhibits, or other arts related experiences; this compared to 68 percent of respondents who indicated students' academic performance "*remained the same*."

The need for financial support for arts integration was frequently mentioned in response to the open-ended question, "*What has been the biggest obstacle to arts integration at your school?*" These responses include: "*need funds because we have no art teacher;*" "*raising funds to purchase supplies and give students art experiences*;" "*need funding for a position for a dance instructor;*" "*are paying for art supplies with personal money;" "resources for physical materials – paint, paper, art prints, etc."* and *"our decreasing school budget and the lack of support from the district level for arts integration."* Approximately 55 percent of respondents indicate that funding was a major concern, especially funding for supplies. Financial shortfalls associated with human resource needs and funding to support additional professional development for teachers, arts specialists, and teaching artists to provide students with more arts experiences was a widespread concern across all WSI schools. Another concern expressed by respondents is securing funding to sustain arts integration at the end of their WSI funding cycle.

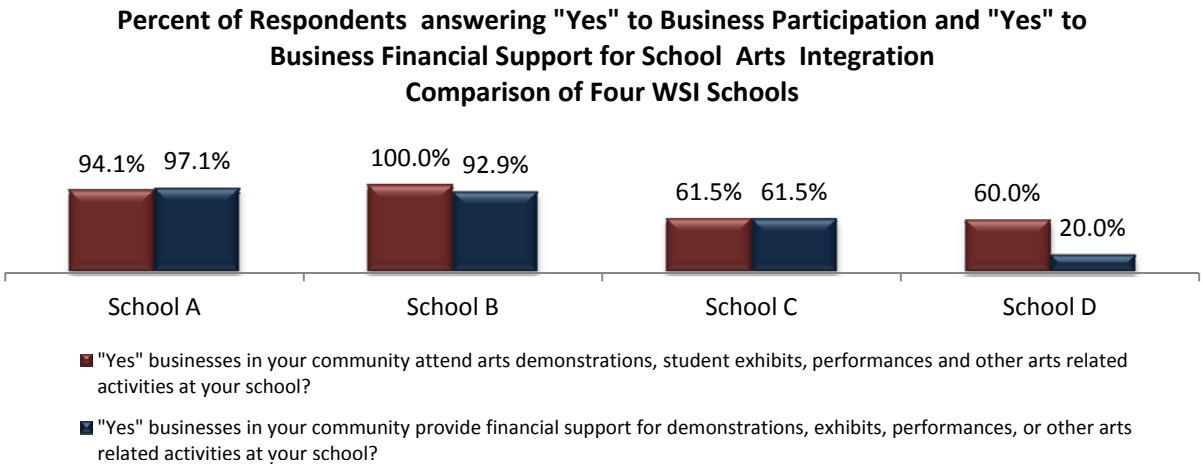

Figure 73: Relationship between Business Participation and Business Financial Support for Arts Integration Activities

To examine the potential relationship between business participation in arts demonstrations, student exhibits, performances, and other arts related experiences at WSI schools with financial support from local businesses, the responses from four schools were analyzed. In the two schools (School A and School B, Figure 73) with the highest percentage of respondents answering "*yes*" to the question regarding business participation in arts demonstrations, student exhibits, performances, and other arts related experiences, business financial support for these activities was also relatively high. In the two schools (School C and School D, Figure 73) with the lowest percentage of respondents answering "*yes*" to the question regarding business participation in arts demonstrations, student exhibits, performances, and other arts related experiences, business financial support for these activities was found to be relatively low. This finding provides evidence to support the assumption that outreach by schools to include local businesses may also lead to increased financial support from the local business community.

Important contributing factors to the "level" of arts integration implementation at schools participating in the Whole Schools Initiative from prior research:

- **Strong and well communicated support for arts integration by school administrators**
- **Administrator and faculty participation in professional development, specifically the WSI Summer Institute and WSI Fall and Spring Retreats**
- **Teachers working with teaching artists**
- **Adequate time for teachers to collaborate with their colleagues to embed the arts into the curriculum**
- **Faculty belief that arts integration is important**
- **Faculty level of "comfort" using arts integration in the classroom**
- **Faculty perception that arts integration is effective**
- **Faculty perception that student performance improved as a result of arts integration**

Sources:

Tabereaux (2002), Corbett, et al. (2004), and Mamrak (2009)

The Implementation of Arts Integration

This study found differences between WSI schools in the percentage of students scoring "*Proficient or Above*" on state standardized tests. The analysis of survey responses from school administrators, principals, arts specialists, and classroom teachers also found differences between WSI schools related to academic outcomes and the implementation of arts integration. There were also differences between individual responses related to academic outcomes and the implementation of arts integration. For example, in one school, all respondents (100%) indicated that their students' academic performance had improved (*significantly* or *slightly*) as a result of arts integration and 75 percent of the respondents within this school indicated that students' academic performance had "*improved significantly*." In another WSI school, only 45.5 percent of respondents indicated that their students' academic performance had improved (*significantly* or *slightly*) as a result of arts integration; within this school, only 9.7 percent of respondents reported that students' academic performance had "*improved significantly*."

Analysis of the survey of WSI school administrators, principals, art specialists, and classroom teachers also found between school differences in the effectiveness with which arts integration was occurring. As discussed in prior sections of this study, between school differences were found in the array of arts disciplines (music, art, dance/movement, or theatre/drama) that are integrated into the learning experience and the frequency of arts integration across the curriculum. In one WSI school, all respondents (100%) indicated that children in their school had "*daily*" or "*weekly*" exposure to dance/movement; whereas in another school no respondents (0%) indicated children in their school had "*daily*" or "*weekly*" exposure to dance/movement. Between school differences were also found in the effectiveness with which arts integration was occurring across subject areas (math, language arts, science, and social studies).

Individual classroom teachers report varying frequency levels (daily, weekly, frequently but less than weekly, seldom) of arts integration and frequency levels of practicing arts integration in specific subject areas. Within a school, one respondent may report the *daily* practice of arts integration across the curriculum (math, language arts, science, and social studies); another respondent, within the same school, may report *daily* arts integration in math and language arts, but "*seldom*" practicing arts integration with science and social studies.

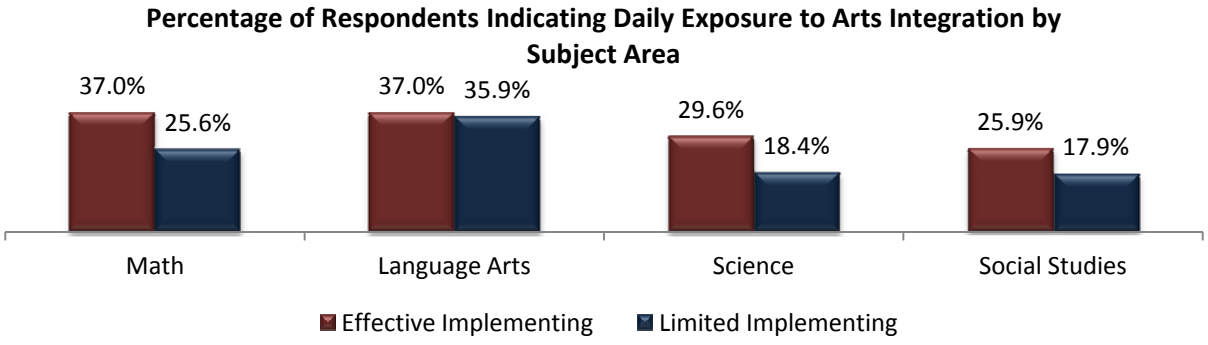

Figure 74: Daily Exposure to Arts Integration by Subject Area in Effective and Limited Implementing Schools

To gain insight into the differences that exist between WSI schools, the responses from the two schools that exhibited the highest percentage of students scoring "*Proficient or Above"* on standardized tests *and* the highest percentage of survey respondents indicating that their students' academic performance had "*improved significantly*" as a result of arts integration (labeled *Effective Implementing*) were compared with the responses from the two schools that exhibited the lowest percentage of students scoring "*Proficient or Above"* on standardized tests *and* the lowest percentage of respondents indicating that their students' academic performance had "*improved significantly*" as a result of arts integration (labeled *Limited Implementing*). These two groups were then compared to identify differences.

"*Effective Implementing*" WSI schools were found to exhibit a higher percentage of respondents who report "*daily*" arts integration in every subject area (math, language arts, science, and social studies) as compared to the "*Limited Implementing*" WSI schools (Figure 74). The percentage of respondents from "*Effective Implementing*" and "*Limited Implementing*" WSI schools who reported "*daily*" arts integration in language arts was approximately the same - 37 percent and 35.9 percent, respectively. *Effective Implementing* WSI schools exhibited a higher percentage of respondents who reported "*daily*" arts integration in math, science, and social studies than "*Limited Implementing*" WSI Schools. Among respondents from "*Effective Implementing"* WSI schools, 37 percent reported "*daily"* arts integration with math as compared to 25.6 percent of respondents from "*Limited Implementing*" WSI schools. Among "*Effective Implementing"* WSI schools, 29.6 percent of respondents reported "*daily"* arts integration with science and 25.9 percent reported "*daily*" arts integration with social studies; in "*Limited Implementing"* WSI schools these percentage rates were 18.4 percent and 17.9 percent, respectively.

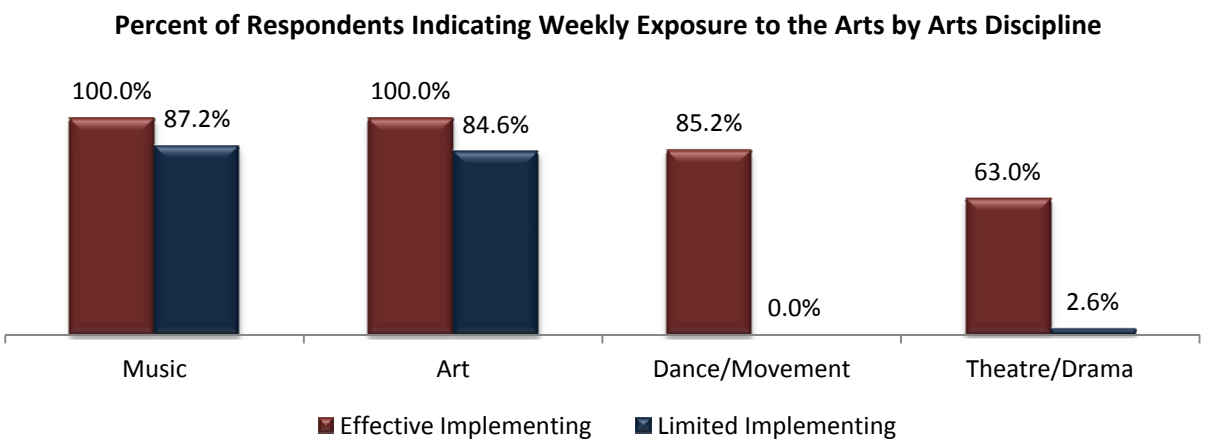

Figure 75: Weekly Exposure to Arts Disciplines in Effective and Limited Implementing Schools

Differences were found between the sample containing "*Effective implementing*" WSI schools and the sample containing "*Limited Implementing*" WSI schools in the array of arts disciplines to which students were exposed. "*Weekly*" exposure was higher across ***all*** arts disciplines in "*Effective Implementing*" WSI schools as compared to "*Limited Implementing*" WSI schools (Figure 75). In "*Effective implementing*" WSI schools, 100 percent of respondents indicated that students in their schools were exposed to music and art on a weekly basis. In "*Limited Implementing*" WSI schools, 87.2 percent of respondents reported "*weekly*" exposure to music and 84.6 percent of respondents reported that students in their schools were exposed to art on a "*weekly*" basis. Respondents from "*Limited Implementing*" WSI schools indicated that student "*weekly*" exposure to dance/movement was not occurring in these schools and only 2.6 percent of respondents in "*Limited Implementing*" WSI schools reported that students in their schools were exposed to theatre/drama on a weekly basis (Figure 75).

Analysis of survey responses from "*Effective implementing*" WSI schools and "*Limited Implementing*" schools exhibit a pattern similar to that identified when analyzing the responses from *all* survey respondents. Respondents from "*Effective implementing*" WSI schools were more likely to participate in WSI Summer Institutes and WSI Fall or Spring Retreats that provide arts integration professional development; had the opportunity to work with a teaching artists on a more frequent basis; and were more likely to engage with their colleagues to discuss their work in arts integration when compared with respondents from "*Limited implementing*" WSI schools (Figure 76).

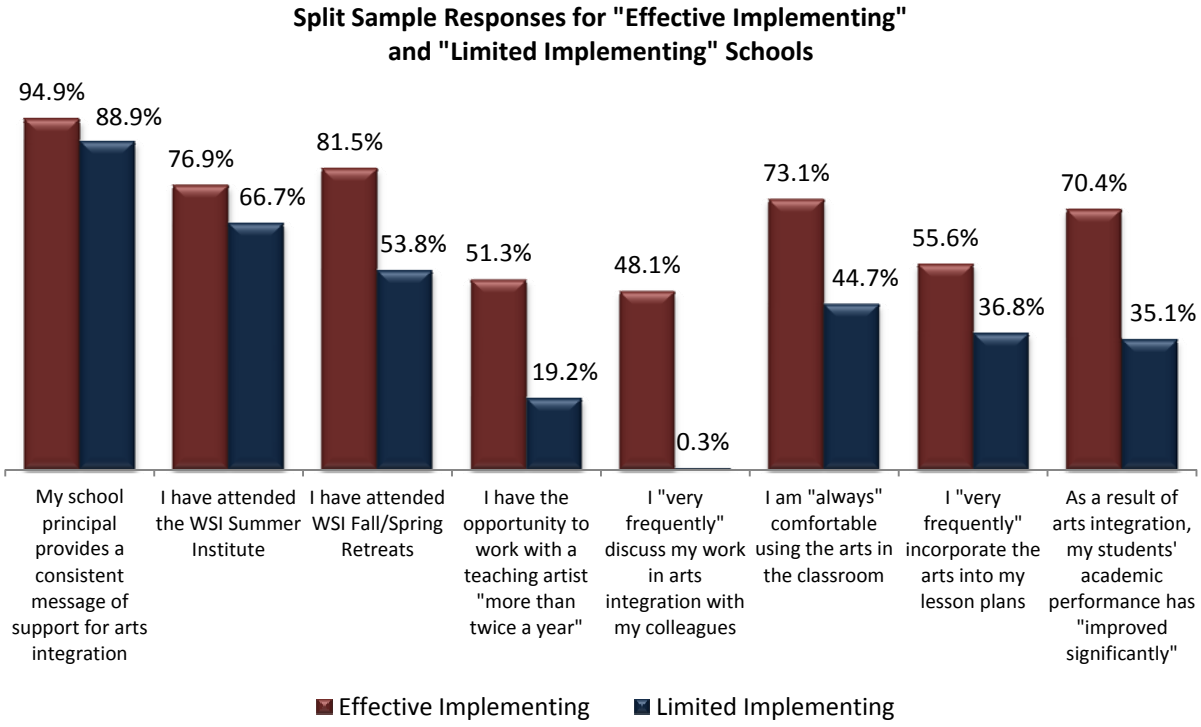

Figure 76: Comparison of Effective and Limited Implementing WSI Schools

Respondents from "*Effective implementing*" WSI schools were more likely to "*always*" be comfortable using the arts in the classroom and were more likely to "*very frequently*" incorporate the arts into their lesson plans when compared to respondents from "*Limited Implementing*" WSI schools (Figure 76).

The percentage of respondents in "*Effective Implementing*" WSI schools who indicate that their students' academic performance "*improved significantly*" is 70.4 percent. Among "*Limited Implementing*" WSI schools, 35.1 percent of respondents indicated a "*significant improvement*" in student academic performance.

The effective implementation of arts integration significantly impacts student academic performance. Respondents from "*Effective Implementing*" WSI schools were twice as likely to report that their students' academic performance "*improved significantly*" as a result of arts integration than were respondents from "*Limited Implementing*" WSI schools. Participation in professional development experiences is a key contributing factor to the effective implementation of the Whole Schools Initiative; these experiences include participation in the WSI Summer Institute and WSI Fall and Spring Retreats, frequent opportunities to work with a teaching artist, and opportunities to collaborate with colleagues.

Student Survey

To examine students' perceptions of their arts integration experiences, the Mississippi Arts Commission administered a survey to students who attend WSI schools; 742 anonymous responses were received from students. Survey responses were analyzed by the Stennis Institute. The survey sample was split based upon the percentage of students scoring "*Proficient or Above*" on the Language Arts MCT. One group contained student responses from the three WSI schools that exhibited the highest percentage of students scoring "*Proficient or Above"* on the Language Arts MCT (entitled "*Effective Implementing*" WSI schools), and the other group contained the three WSI schools that exhibited the lowest percentage of students scoring "*Proficient or Above"* on the Language Arts MCT (entitled "*Limited Implementing*" WSI schools). Analysis of this split sample is discussed in the following section of this study.

Students were asked to answer "*yes*" or "*no*" to a series of questions regarding their weekly exposure to specific arts disciplines (dance/movement, music, theatre/drama, and art). A higher percentage of students enrolled in "*Effective Implementing*" WSI schools were exposed to each arts discipline on a weekly basis as compared to students enrolled in "*Limited Implementing*" WSI schools (Figure 77). In "*Effective Implementing*" WSI schools, 73.7 percent of students reported they were in engaged in dance/movement weekly as compared to 52.6 percent of students in "*Limited Implementing*" WSI schools. In "*Effectively Implementing*" WSI schools, 81.9 percent of students reported they were engaged in music as compared to 68.4 percent of students in "*Limited Implementing*" WSI schools.

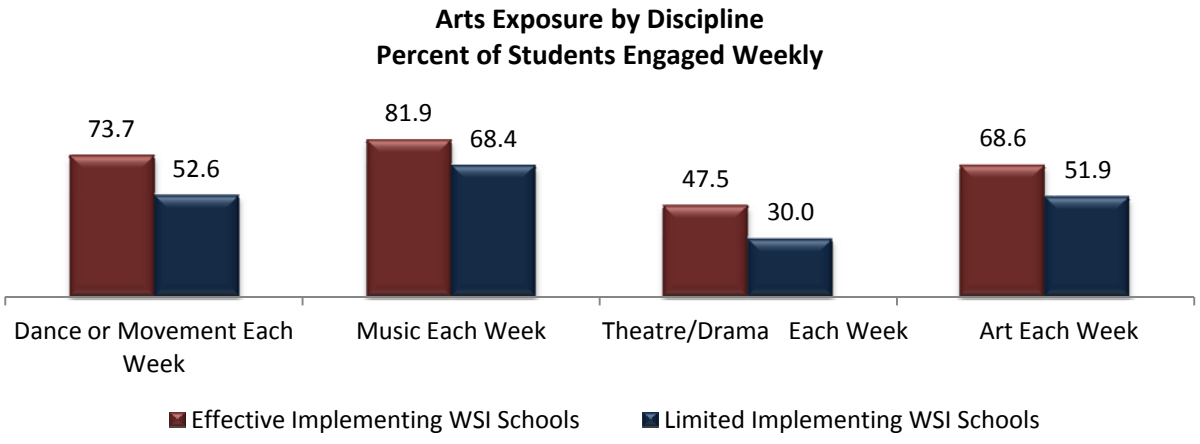

Figure 77: Student Weekly Participation in Arts by Discipline

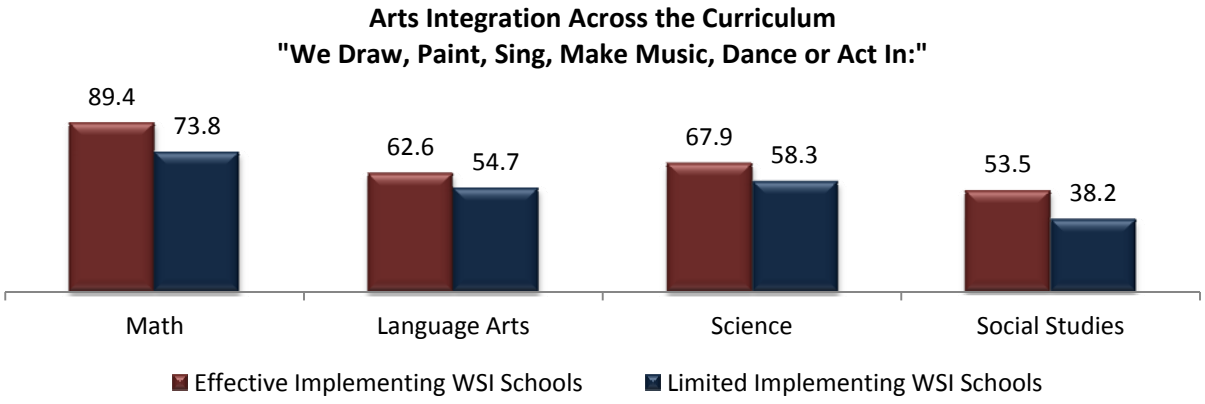

Figure 78: Arts Integration Across the Curriculum at Effective and Limited Implementing WSI Schools

Students enrolled in WSI schools were asked to answer "*yes*" or "*no*" to a series of questions regarding whether they "*draw, paint, sing, make music, dance, or act*" in math, in language arts, in science, and in social studies. Students in "*Effective Implementing*" WSI schools exhibited more frequent experiences with arts integration across the curriculum as compared to students enrolled in "*Limited Implementing*" WSI schools (Figure 78). Among respondents enrolled in "*Effective Implementing*" WSI schools, 89.4 stated that they "*draw, paint, sing, make music, dance, or act*" in math class; this compared to 73.8 percent of the students enrolled in "*Limited Implementing*" WSI schools. Among respondents enrolled in "*Effective Implementing*" WSI schools, 62.6 percent stated that they "*draw, paint, sing, make music, dance, or act*" in language arts class; this compared to 54.7 percent of the students enrolled in "*Limited Implementing*" WSI schools. Within "*Effective Implementing*" WSI schools, 53.5 percent of students reported experiencing arts integration in social studies; within "*Limited Implementing*" WSI schools, 38.2 percent of students reported experiencing arts integration in social studies.

Student responses provide a measure of the variety of arts disciplines to which students are exposed and the consistency with which the arts are integrated across the curriculum; the findings indicate a variance in the degree to which schools implement the Whole Schools Initiative arts integration model, and this variance in arts integration implementation is also associated with student performance on standardized tests.

Students were asked a series of questions to measure their experience in interdisciplinary learning, team learning experiences, the use of discussion to explore learning concepts, and teacher encouragement in the use of their imagination during learning experiences.

1. We use what we learn in one subject (like science) to help us learn in others (like language arts): 1) Always; 2) Sometimes; 3) Most of the time; and 4) Never
2. We work in teams: 1) Never; 2) Sometimes; 3) Most of the time; and 4) Always
3. We get to discuss ideas with each other as we work and learn: 1) Always; 2) Sometimes; 3) Never; and 4) Most of the time
4. My teacher encourages me to use my imagination: 1) Never; 2) Sometimes; 3) Most of the Time; and 4) Always.

Responses from "*Effective Implementing*" WSI schools indicate that students enrolled in these schools are more likely to experience interdisciplinary learning, to work in teams, to discuss ideas, and to be encouraged to use their imagination. As shown in Figure 79, students in WSI schools that effectively implement arts integration were more likely to experience interdisciplinary learning and to work in teams as compared to students attending "*Limited Implementing*" WSI schools.

Student responses indicate that "*Effective Implementing*" WSI schools are closely aligned with the educational objectives of the Common Core State Standards' Framework for 21st Century Learning that focus on critical thinking and problem solving, communication, collaboration, and creativity.

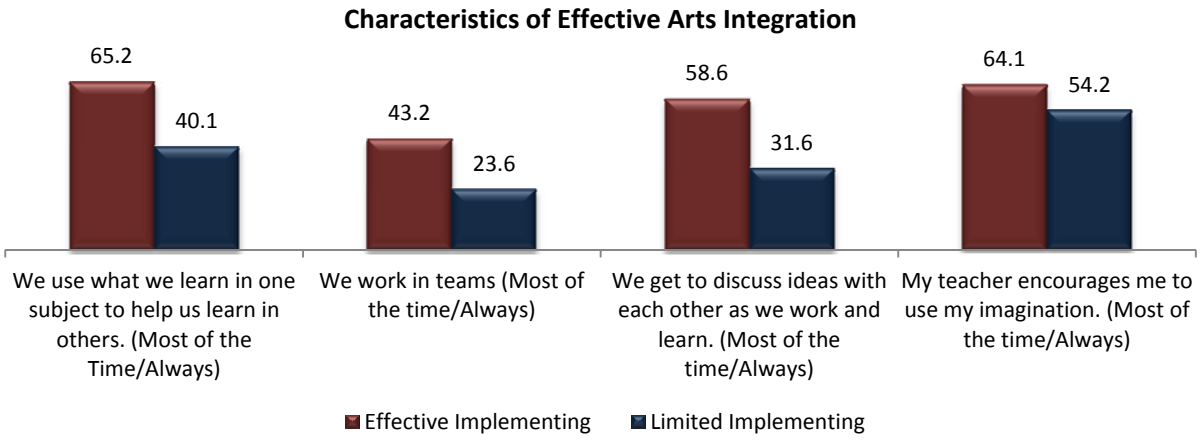

Figure 79: Characteristics of Effective Arts Integration

The Stanford Achievement Test is a national norm-referenced test that measures basic concepts and skills commonly taught in schools throughout the country. They are not designed as measures of any specific curriculum or instructional program. Norm-referenced tests compare a student's achievement with a national sample of similar students. The Stanford Achievement Test (SAT) covers a variety of subject areas, including math, reading, science, and writing, and is available for kindergarten through 12th grade students. The Stanford Achievement Test is a standardized test; it has specific requirements for when, where, and the time allowed for students to complete a test. This assures that all students are taking the test in the same manner and assures comparability between students, schools, school districts, states, and national SAT performance.

The National normal curve equivalent (NCE) provides the national average score for all students taking a specific SAT test. On average, students across the nation obtain an NCE of 50.0. Any score above 50.0 ranks as above average and scores below 50.0 rank below average.

The National percentile rank (NPR) provides an additional measure for comparing student performance on the SAT. The NPR identifies a student's performance on the SAT in relation to other students in the same grade. A percentile of 50 would mean that a student scored the same as or higher than 50 percent of other students at the same grade level on a specific SAT test. A score of 60 on Math means that a student scored the same as or higher than 60 percent of all other students in the same grade taking the same Math test; a score of 85 on Reading means that a student scored the same as or higher than 85 percent of all other students that took the same Reading test.

Student performance on the SAT can be compared with the scores of other students at the same grade level within the same class, with other students within the same school, and with district, state, or national student performance on the same test.

Student Academic Performance at Catholic Schools Participating in the Whole Schools Initiative

In addition to the Mississippi public schools discussed in the prior section of this study, there are four Catholic elementary schools enrolled in the Whole Schools Initiative. There is limited data available for student performance on standardized tests at private or parochial schools in Mississippi; Annunciation Catholic School, Saint Richard Catholic School, Sacred Heart Catholic School made data on student performance on Stanford Achievement Tests available to the Mississippi Arts Commission for inclusion in this report. No data was available from Saint Anthony Catholic School at the time of this report.

Sacred Heart Catholic School

Sacred Heart Catholic School is located in Hattiesburg, Mississippi. The school began implementation of the Whole Schools Initiative during the 2006/2007 school year. According to data from the National Center for Education Statistics, Sacred Heart enrolled 577 students in grades pre-kindergarten to 12th grade during the 2009/2010 school year; approximately 10 percent of the students enrolled at the school were African American. Student performance at Sacred Heart Catholic School is well above National normal curve equivalent (NCE) across all grades. As shown in Figure 80, students at Sacred Heart perform well above average on the Math SAT as compared to students nationwide.

Sacred Heart Catholic School
Math SAT National Percentile Rank
2012 Math SAT
Source: Mississippi Arts Commission

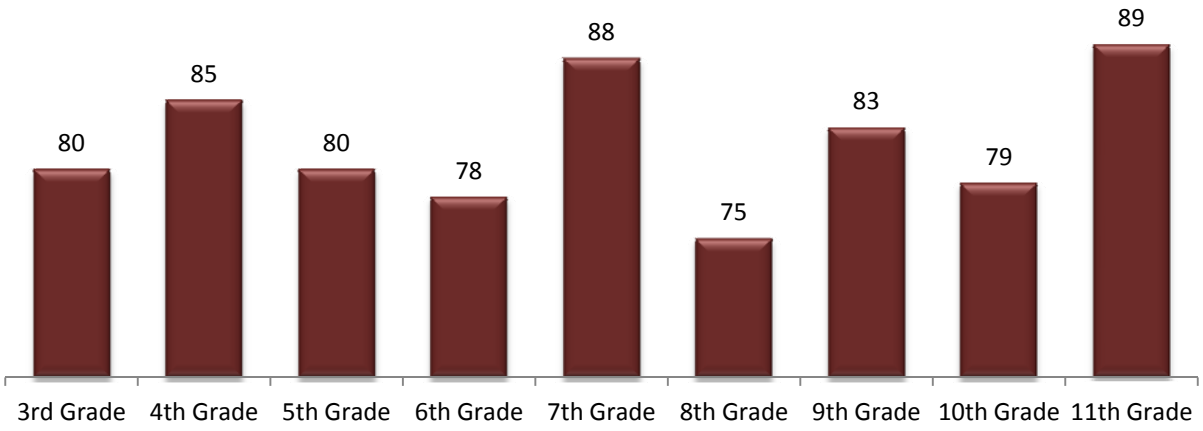

Figure 80: Performance on 2012 Math Stanford Achievement Test at Sacred Heart Catholic School, 3rd through 11th Grades

As a WSI Model School, Saint Richard Catholic School serves as an exemplar for the effective implementation of arts integration. Key elements of effective WSI schools that are used at Saint Richard Catholic School to support arts integration across the curriculum include:

- **A Well Defined Curriculum Mapping Plan.** Curriculum maps show all subject areas, state standards and benchmarks, arts integrated lessons, and planned special events. During the summer, teachers and arts specialists meet for two to three days to update and revise curriculum maps for the upcoming school year and also meet on a weekly basis during the school year to update curriculum maps. Curriculum maps are aligned across grade levels to assure that all state and national standards are met throughout the school year

- **Commitment to Professional Development.** Saint Richard's faculty handbook requires participation in WSI sponsored programs. Faculty and staff participate annually in the WSI Summer Institute; faculty are encouraged to make presentations at the WSI Summer Institute. Faculty are provided support to participate in national conferences and workshops to enhance their repertoire of arts integration teaching skills. A primary goal of the school is to have teachers participate in arts integration professional development experiences every week to broaden their ideas about arts integration.

- **A Formal Teacher Mentoring Program.** New teachers at Saint Richard receive four days of mentoring in arts integration in the summer prior to the beginning of the school year. All new teachers at Saint Richard are required to attend either the WSI Summer Institute or the WSI Fall Retreat for additional training. During the school year, new teachers meet weekly with their grade level mentor and have quarterly formal meetings with the arts integration lead mentor.

- **A Planned Schedule of Art Events and Activities that Engage the Community.** Saint Richard maintains a well-planned, annual schedule of frequent arts events and activities. The school's WSI Advisory Committee consists of parent volunteers, a Development Director, and a Public Relations Director in addition to the school principal, WSI Project Director, and arts specialists. The Advisory Committee works with community partners and sponsors to plan a schedule of arts events and activities and to assure that these events are well publicized in the media.

Annunciation Catholic School

Annunciation Catholic School is located in Columbus, Mississippi. This school has participated in the Mississippi Arts Commission's *Arts in the Classroom* program since the 2010/2011 school year and uses the WSI arts integration model; but has not formally applied to be a WSI school. According to data from the National Center for Education Statistics, Annunciation Catholic School enrolled 112 students in grades pre-kindergarten to 6th grade during the 2009/2010 school year; approximately 11 percent of the students enrolled at the school were African American. At Annunciation Catholic School, students have performed well above the national average on Stanford Achievement Tests, and student performance has shown a steady improvement since the adoption of arts integration (Figure 81).

Annunciation Catholic School students scored 83 percent in the critical thinking component of the SAT. In a press release dated January 19, 2012, the principal of Annunciation Catholic School stated: "***this shows we are in excellent shape as Common Core standards are implemented throughout the state of Mississippi***."

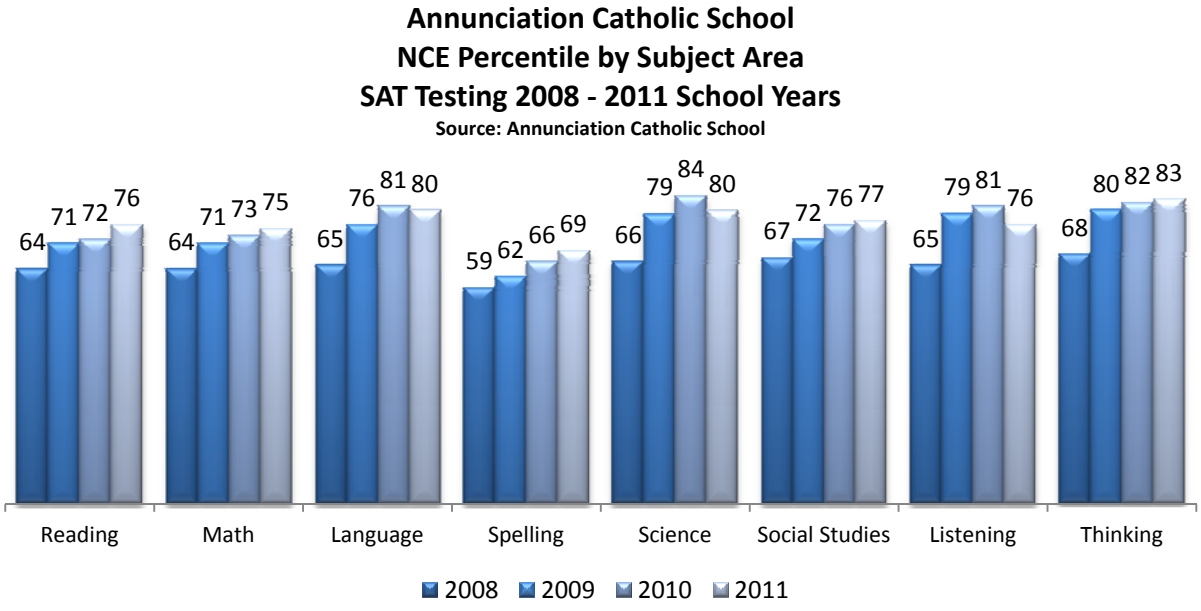

Figure 81: Comparison of NCE Percentile Performance Across Subject Testing Areas, Annunciation Catholic School

Saint Richard Catholic School

Saint Richard Catholic School is located in Jackson, Mississippi. This school began the implementation of the Whole Schools Initiative during the 2005/2006 school year and has been a participating WSI school since that time. In the 2009/2010 school year, Saint Richard Catholic School became a WSI Model School, and it continues to serve as a demonstration site for arts integration. According to data from the National Center for Education Statistics, Saint Richard enrolled 355 students in grades pre-kindergarten to 6th grade during the 2009/2010 school year; approximately 20 percent of the students enrolled at the school were African American. Results from the Stanford Achievement Tests for Saint Richard Catholic School indicate that the school performs above the National percentile rank of 50 across all subject testing areas and that student performance on standardized SAT subject area tests exhibits continuous improvement over time (Figure 82).

Saint Richard Catholic School
School Level Student Percentile Rank by SAT Subject Testing Area
Fall 2009 and 2011 SAT Testing
Source: Mississippi Arts Commission

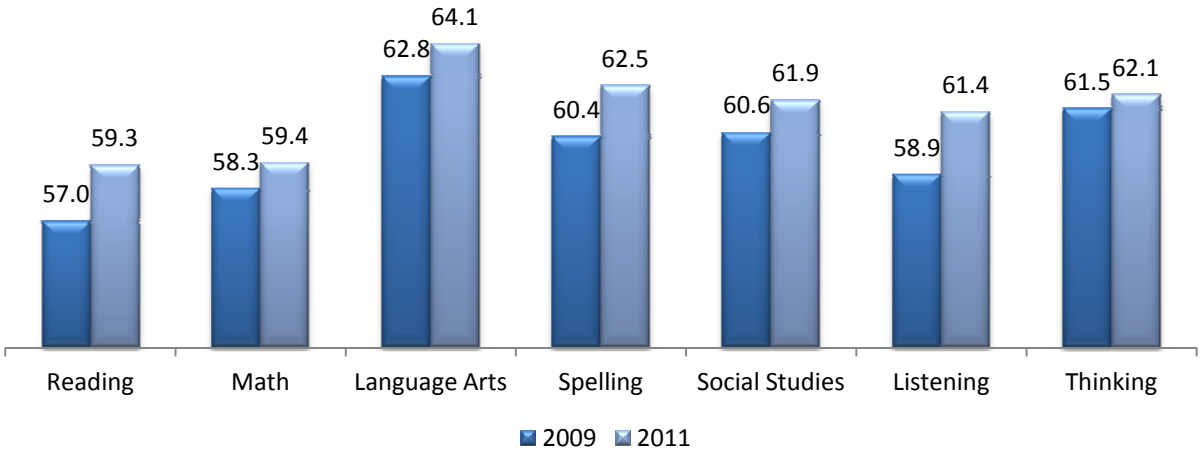

Figure 82: Percentile Rank by Subject Testing Area, Comparison of Fall 2009 and Fall 2011 SAT Testing, Saint Richard Catholic School

Saint Anthony Catholic School

Saint Anthony Catholic School is located in Madison, Mississippi. This school began participating in the Mississippi Arts Commission's *Arts in the Classroom* program during the 2010 school year and was accepted into the Whole Schools Initiative the following year. At the time of this report, no data was available from Saint Anthony Catholic School for inclusion in this report.

Review of the Findings

Recent advances in neuroscience, brain research, and cognitive development provide strong evidence to support the benefits of arts integration, and this evidence has been rapidly accumulating. Formal studies by cognitive neuroscientists offer evidence that arts education is related to the development of brain function and show relationships between the arts and student academic performance.[68] For more than a decade, education researchers have examined and found a linkage between arts experiences and improved test scores,[69, 70] the transfer of skills from the arts to learning in other subject areas,[71] and the specific benefits that arts integration offers to e*conomically disadvantaged* students.[72, 73] Beginning in the 1990s, the powerful effect of the arts on student learning led educators to develop new programs and practices based upon the concept that the arts contribute to cognitive development and that the arts could be integrated as an instructional strategy. This strategy connects the arts across the curriculum, rather than treating the arts as a separate subject or as a competitor for scarce time in the school day. Across the U.S., multiple arts integration school reform models have been adopted, including: Big Thought (Texas); the ABC Project (South Carolina); the A+ Schools Program (North Carolina, Oklahoma, and Arkansas); Arts at Large (Wisconsin); Arts Education in Maryland Schools Alliance (Maryland); the Center for Creative Education (Florida); the Chicago Partnerships in Schools (Illinois); the Higher Order Thinking (HOT)Schools Program (Connecticut); Value Plus Schools (Tennessee); and the Whole Schools Initiative (Mississippi).

At the request of the Mississippi Arts Commission, the Stennis Institute at Mississippi State University conducted a study of schools in Mississippi that are participating in the Whole Schools Initiative and are adopting arts integrated learning models. This evaluation consisted of: 1) comparing student performance on standardized tests using secondary data from the Mississippi Department of Education;

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[68] Asbury, C., & Rich, B. (2008). Learning, Arts and the Brain: The Dana Consortium Report on Arts and Cognition. New York: Dana Press.

[69] Fiske, E. B. (1999). Champions of Change: the Impact of the Arts on Learning. Washington, D.C.: The Arts Education Partnership and the President's Committee on Arts and Humanities

[70] Catterall, J. S., Chapleau, R., & Iwanaga, J. (1999). Involvement in the Arts and Human Development. In E. B. Fiske (Ed.), Champions of Change: The Impact of the Arts on Learning. Washington, DC: Arts Education Partnership.

[71] Deasy, R. J. (2002). Critical Links: Learning in the Arts and Student Achievement and Social Development. Washington, D.C.: The Arts Education Partnership.

[72] Ingram, D., & Reidel, E. (2003). Arts for Academic Achievement: What does Arts Integration Do for Students? University of Minnesota: Center for Applied Research and Educational Improvement, College of Education and Human Development.

[73] DeMoss, K. & Morris, T. (2002). How Arts Integration Supports Student Learning: Students Shed Light on the Connections. Chicago, IL: Chicago Arts Partnerships in Education (CAPE).

and 2) analyzing survey data gathered by the Mississippi Arts Commission from participating WSI schools. A review of the findings of this study is presented in the following section of the report.

The Whole Schools Initiative is an arts integration model for comprehensive education reform. Adoption of the WSI model is a long term process that encompasses change in organizational, cultural, and instructional patterns of participating schools. Schools begin the Whole Schools Initiative adoption process by developing a five year strategic plan for implementing an arts-based, interdisciplinary curriculum. Arts integration requires infusing the arts across the curriculum, enriching the lives of students by increasing their skills and knowledge of the arts disciplines, providing educators with arts-based professional development, and treating the arts as more than an add-on activity. Arts integration provides a multi-modal learning environment that uses kinesthetic, visual, auditory, and reflective learning to increase the potential for student learning and achievement.

The research evidence to support the positive educational outcomes associated with arts integration is ever-increasing. This study of the Whole Schools Initiative further reinforces the contribution of arts integration to improving student learning and educational achievement. The findings support the strong positive linkage between the frequency with which students are exposed to the arts across the curriculum and students' academic achievement. Respondents who indicated that arts integration was practiced in their classroom on a daily basis were more likely to report that students' academic performance had "*improved significantly*." It was found that respondents who more effectively integrated the arts across the curriculum (math, language arts, science, and social studies) also reported a higher percentage rate of "*significant improvement*" in students' academic performance. Student academic performance was found to vary based upon the prevalence of arts integration implementation. Effective implementation of arts integration was positively associated with a higher percentage of students performing at "*Proficient or Above*" on state standardized tests and with a higher percentage of classroom teachers reporting that their students' academic performance had "*improved significantly*" as a result of arts integration.

As with any education reform or organizational change, there are barriers to overcoming structural inertia within the organization; facilitating change within a school is a complex process. The degree to which WSI schools effectively implement arts integration and the length of time required to effectively implement the Whole Schools Initiative is dependent upon multiple factors and varies by school. Factors that impact the implementation of the Whole Schools Initiative include: leadership from school administrators and collaboration with faculty; faculty involvement and investment in the process; school

wide professional development for faculty; the allocation and use of resources; the involvement of parents and the community; and sustained effort to achieve the transition. Due to the multiple competing demands that school administrators and teachers face, sustainable implementation of the Whole Schools Initiative requires stable leadership and the belief, by teachers, that the effort is worthwhile. The process of comprehensive reform takes time, an investment of resources (human and financial), and focus. Within the current educational environment and as a result of NCLB, schools tend to focus on short-term outcomes that measure student performance on standardized tests, and schools are frequently operating in an environment of constant change as a result of school reorganizations and consolidations. These factors act as a barrier to the comprehensive implementation of the Whole Schools Initiative.

To assist schools to overcome the barriers to implementing the Whole Schools Initiative, the Mississippi Arts Commission offers a broad array of resources to facilitate and enhance the schools' ability to implement arts integration. These resources include (but are not limited to):

- Grants of up to $10,000 during the first year of participation and up to $15,000 annually over the remaining 5 years of participation in the Whole Schools Initiative
- Field Advisors who work with participating WSI schools to provide assistance with implementation
- Professional development opportunities, including the WSI Summer Institute and WSI Fall and Spring Retreats, designed to assist teachers and administrators in learning how to integrate the arts across the entire curriculum
- Training for the WSI school's leadership team, including training for the school's Project Director and Principal(s) to facilitate change and the implementation of arts integration
- Curriculum Mapping Facilitators who are National Board Certified teachers to assist participating WSI schools and grade level/subject teams to develop arts integrated curriculum and assist cross-grade level faculty teams to map curriculum aligned with the Mississippi Frameworks
- Teaching Artists who model arts integration strategies for participating WSI schools and provide professional development for WSI teachers; the Mississippi Arts Commission maintains a roster of Mississippi Artists and Teaching Artists to enable WSI schools to easily identify resources that augment the implementation of arts integration
- Lesson plans, demonstration lessons and presentations, multi-media lessons, and tool-kits for arts integrated units

As discussed in the review of research on arts integrated learning, active learning experiences allow students to activate more sensory memory pathways into the learning process; incorporating multiple pathways of the brain during the learning process creates greater possibilities for memory mapping and the storage of information in long term memory. Arts integration across the curriculum creates a learning environment that supports the use of multiple pathways of the brain through the use of multiple senses and organizes information using multiple activations across the brain. It is the integration of the arts – music, dance/movement, the visual arts, and theatre/drama – into the learning process that provides new ways for students to learn; it removes the barriers to learning for visual, kinesthetic, tactile, or verbal learners and enhances cognition and deeper understanding.

This study of Mississippi schools participating in the Mississippi Arts Commission's Whole Schools Initiative found the depth (effectiveness) of arts integration to be related to four primary factors:

1) the frequency with which students are exposed to the arts (e.g. daily, weekly);

2) the integration of the arts across the curriculum (i.e. math, language arts, science, and social studies);

3) the range of arts disciplines (music, art, dance/movement, and theatre/drama) that are integrated with teaching across the curriculum; and

4) participation in quality professional development experiences.

Students enrolled in WSI schools with classroom teachers who practice effective arts integration exhibit enhanced educational outcomes. Effective arts integration is defined by this research to mean a high prevalence of student exposure to the full range of arts disciplines in every subject area. At "*effective implementing*" WSI schools, 70.4 percent of respondents indicated their students' academic performance had "*improved significantly*"; this compared to 35.1 percent of teachers at "*limited implementing*" WSI schools.

Engagement in quality professional development experiences was found to be a key requirement for the *effective implementation* of arts integration. Professional development provides classroom teachers with the requisite proficiency to: integrate the skills and content of the arts across the curriculum; enhance their capacity to use multiple arts disciplines as learning tools; and to identify the natural connections between the arts and other subject areas. Participation in professional development experiences was found to increase teachers' feeling of competency using arts integration, which in turn

was found to increase the frequency with which teachers practice arts integration in the classroom. Participation in the WSI Summer Institute and WSI Fall or Spring Retreats sponsored by the Mississippi Arts Commission and working with teaching artists was found to be positively associated with teachers' feeling of competency and with increased use of arts integration across the curriculum, to include:

1) increases in the frequency that arts integration is practiced in the classroom (i.e., daily, weekly, frequently but less than weekly, never);
2) increases in the practice of arts integration across a greater range of subject areas (i.e., math, language arts, science, and social studies); and
3) increases in the range of arts disciplines used to teach other subject areas (i.e., music, art, dance/ movement, and theatre/drama).

Respondents who exhibited a high rate of participation in the WSI Summer Institute and WSI Fall or Spring Retreats sponsored by the Mississippi Arts Commission were found to be more likely to indicate that their students' academic performance "*improved significantly;*" were more likely to "*always*" be comfortable using the arts in the classroom; were more likely to incorporate the arts into their lesson plans "*very frequently*," and were more likely to "*very frequently*" provide students in their classroom with opportunities to demonstrate their arts related skills when expressing understanding of subject matter content. Among teachers who reported "*always*" feeling comfortable using arts integration in the classroom, 62.8 percent reported that their students' academic performance had "*improved significantly*" as compared to 10.7 percent among teachers who reported only "*sometimes*" or "*seldom*" feeling comfortable using arts in the classroom.

Working with a teaching artist was also found to increase the effectiveness of arts integration and student educational outcomes. A positive correlation was found between the frequency with which teachers worked with a teaching artist and the percentage of respondents who indicated their students' academic performance had "*improved significantly."* Among respondents who worked with a teaching artist more than twice a year, 55.2 percent reported that their students' academic performance had "*improved significantly*" as compared to 39.6 percent of respondents who had worked with a teaching artist twice a year or less.

Findings from the survey analysis indicate that as the arts are more *effectively* integrated across the curriculum, student academic outcomes improve. These findings demonstrate the linkage between participation in professional development, *effective* arts integration, and students' academic outcomes.

The positive relationship between arts integration and student performance on standardized tests was further reinforced by the analysis of student outcomes on standardized tests across grade 3 through grade 5. Student performance on standardized tests at schools participating in the Mississippi Arts Commission's Whole Schools Initiative were compared with the performance of students in the school district within which the WSI school is located, and were compared with statewide student performance using data from the Mississippi Department of Education. This analysis found a positive relationship between arts integration (WSI schools) and the percentage of students scoring "*Proficient or Above"* on standardized tests; these positive effects tend to increase in proportion to how *effectively* arts integration is implemented and to the length of time a school has participated in the Whole Schools Initiative.

Importantly, *economically disadvantaged* students enrolled in schools that have adopted the Whole Schools Initiative exhibit improved performance on standardized tests. Whole Schools Initiative schools that have committed to the program over an extended period of time and have effectively integrated the arts across the curriculum have significantly reduced or completely eliminated the achievement gap for *economically disadvantaged* students. For example, at one WSI school 67 percent of *all* students scored "*Proficient or Above"* on the 4th Grade Language Arts Test in the 2010/2011 school year; at this school 70 percent of *economically disadvantaged* students scored "*Proficient or Above"* on the 4th Grade Language Arts MCT, indicating the percentage of *economically disadvantaged* students that scored "*Proficient or Above*" was not only equal to, but higher than the percentage of *all* students scoring "*Proficient or Above*" within the WSI school. District wide the percentage for *all* students scoring "*Proficient or Above"* on the 4th Grade Language Arts MCT was 45 percent, and statewide the percentage for *all* students was 54 percent. This indicates that *economically disadvantaged* students at the WSI school significantly out-performed *all* students at the district level and statewide. This pattern of superior academic performance on standardized tests by *economically disadvantaged* students was found to be consistent across all grades and subject area standardized tests in WSI schools that exhibit *effective* arts integration.

WSI schools that exhibit *effective* implementation of arts integration were found to out-perform district and statewide performance on standardized tests; the percentage of students scoring "*Proficient or Above*" on state standardized tests was generally higher at WSI schools when compared to the performance of other schools within their district and to statewide performance. Surveys of teachers and administrators at participating WSI schools provide additional confirmation of improved student

academic outcomes as a result of arts integration. Among all respondents, 88 percent stated that their students' academic performance had improved as a result of arts integration; 46.6 percent of respondents indicated that their students' academic performance had "*improved significantly*" and 41.4 percent indicated that their students' academic performance had "*improved slightly*." At schools that exhibit *effective* implementation of arts integration, 70.4 percent of respondents indicated that their students' academic performance had "*improved significantly*" as a result of arts integration.

This study found that improved student academic performance is related to the effective implementation of arts integration across the curriculum at schools participating in the Mississippi Arts Commission's Whole Schools Initiative. The effective implementation of arts integration was found to require a high frequency of the use of all arts disciplines to be used in teaching and learning across the entire curriculum. Schools that exhibited a high level of academic performance, as measured by the percentage of students scoring "*Proficient or Above*" on standardized tests and as measured by the percentage of survey respondents indicating that students' academic performance had "*improved significantly*," integrated the arts across all subject areas (math, language arts, science, and social studies) at a higher frequency level and exposed students to a wider range of arts disciplines (music, art, dance/movement, theatre/drama).

Participation in quality professional development experiences was found to be an important contributing element to the effective implementation of arts integration at participating WSI schools and was found to be positively associated with improved student academic performance.

This study found a strong linkage between arts integration and improved student performance on standardized tests at Mississippi schools participating in the Mississippi Arts Commission's Whole Schools Initiative. However, arts experiences provide more than a tool to improve students' academic performance on standardized tests. The arts stimulate the imagination, introduce students to the creative process, provide them with opportunities for enjoyment, and enrich students' lives. Although this study focused primarily upon the impact of arts integration on student academic outcomes, the intrinsic and aesthetic value of arts education and teaching art for its own sake should not be undervalued.

"The Whole Schools Initiative has transformed our school to a more vibrant and relevant professional learning community."

"Arts integration will dramatically help Mississippi schools to meet Common Core Standards."

"Using the arts creates "thinking" minds – we need them!"

"Arts integration is the best thing that has happened to the Mississippi schools for our children."

"Every Mississippi school should be fortunate enough to offer arts integration for all students."

"Best curriculum in my 42 years!"

Source:

Teachers' responses to open-ended question: *"Do you have any other comments you would like to make about the Whole Schools Initiative?"*

Conclusions and Recommendations

The No Child Left Behind Act of 2001 (NCLB) formally established the arts as an integral core academic subject that should be taught by all schools; paradoxically, the mandatory testing requirements of NCLB have caused many schools to increasingly concentrate on standardized testing and to neglect the arts. Studies have found that less instruction time is allocated to teaching students skills that are not directly related to the academic subjects for which NCLB mandates testing and there has been a corresponding reduction of arts instruction in the curriculum.[74] Classroom teachers have eliminated or decreased the time they spend teaching the arts and engaging students in creative, hands-on instructional experiences in order to spend more time on practice drills and tests to prepare students for standardized tests.[75]

Recent advances in brain-imaging technologies have significantly increased the ability of researchers and educators to understand the working of the human brain, how the brain functions, and to observe changes in the brain that are associated with learning. Willis[76] stated "*that never before have neuroscience and classroom instruction been so closely linked because evidence based on neuro-imaging can help determine the most effective ways to teach.* " The levels of activation in the regions of the brain determine how factual knowledge will be remembered. Active learning increases long-term memory retention because it requires that students learn something using multiple pathways of the brain (Willis, 2007).[77] The brain's ability to parallel process means that it acquires information through multiple senses and organizes information with multiple activations across the brain, not in a single linear fashion. Arts integration provides opportunities for this stimulation of multiple senses.

Brain research and recent findings regarding the multiple neural pathways utilized by individuals to learn, store, and retrieve information provides support for the Theory of Multiple Intelligences developed by Howard Gardner of Harvard University. The important element of Gardner's Theory of Multiple Intelligences is that students have different cognitive processing and learning styles, and that all students must be provided with educational environments that allow them to utilize different cognitive styles and mental strengths. Gardner's Theory of Multiple Intelligences and brain research

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[74] Abrams, L. M., Pedulla, J. J., & Madaus, G. F. (2003). Views from the classroom: Teachers' opinions of statewide testing programs. *Theory into Practice*, 42(1), 18-29.
[75] Barksdale-Ladd, M.A., & Thomas, K.F. (2000). What's At Stake in High-Stakes Testing: Teachers and Parents Speak Out. *Journal of Teacher Education*, 51(5), 384-397.
[76] Willis, J. (2007). Brain-based teaching strategies for improving students' memory, learning, and test-taking scores. *Childhood Education*, *83*(5), 310-317.
[77] Ibid.

suggest the necessity for various types of instruction and assessment to ensure that all students' learning needs are met and to maximize the potential for intellectual growth in each student. Studies of schools using arts integration have repeatedly shown student growth and academic achievement to be related to the arts experience, and brain research further supports the important role of the arts in the neurological development of children.

A large body of research has found that many at-risk students tend to be highly tactual (tactile) learners, kinesthetic learners, or both. Tactile-kinesthetic learners have the greatest chance of learning when they experience and do things that involve the use of the whole body; they remember what they experience with their hands or bodies through active participation. Learning experiences that engage students in demonstrations, dance, body-games, dressing in character, role-play, charades, pantomimes, plays, puppet shows, musical performances, science labs, and cut-and-paste tasks are kinesthetic activities. Tactile experiences include modeling, artistic creations, dioramas, games, calculators, puzzles, sculptures, mobiles, and poster making. Multiple studies[78, 79, 80] have reported the positive effects of arts education on economically disadvantaged students and have found that involvement with the arts provides unparalleled learning opportunities to attain higher levels of achievement. In Frames of Mind: The Theory of Multiple Intelligence, Gardner states: "***Arts education ensures that students who learn through spatial, kinesthetic and musical intelligence who traditionally do not do well in the classroom have an opportunity to learn, especially in classes that are taught with an arts infused curriculum.***"[81]

A robust body of evidence exists to support the thesis that an arts integrated curriculum provides opportunities to enhance student achievement and academic performance. Extensive, longitudinal studies have been conducted on existing arts integration school reform models, such as the Chicago Arts Partnerships in Education that serves 5,000 students in 130 Chicago public schools and the A+ Schools Programs in North Carolina and Oklahoma supported by the Thomas S. Kenan Institute for the Arts at the University of North Carolina at Chapel Hill that serves approximately 70 schools. The Whole Schools Initiative is the arts integrated education reform model serving schools in the state of Mississippi.

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[78] Fiske, E.B. (1999), Champions of Change: The Impact of the Arts on Learning. President's Committee on the Arts and Humanities, Washington, DC: Arts Education Partnership, Washington, DC.
[79] Deasy, R. J. & Stevenson, L. (2002) Critical Links: Learning in the Arts and Student Academic and Social Development, a compendium of research published by the *Arts in Education Partnership and the National Endowment for the Arts*.
[80] Deasy, R. J. & Stevenson, L. M. (2005), Third Space: When Learning Matters, *Washington, DC, Arts In Education Partnership*.
[81] Gardner, H. E. (1985) Frames of Mind: The Theory of Multiple Intelligence. New York: Basic Books.

Three prior academic studies have investigated the Whole Schools Initiative's impact on education in the State of Mississippi. A 2002 survey of teachers at schools participating in the Whole Schools Initiative found: "***92 percent of respondents believed that arts integration across the curriculum had a positive effect on student achievement*;" "*teachers in these schools reported a positive improvement in student behavior*;" and "*increased collaboration among teachers in planning lessons***."[82] A 2004 study found: "***literacy proficiency ratings at WSI schools were higher than the state average***;" "***that variation in the level of implementation of the Whole Schools Initiative at each participating school impacted student achievement***;" **and** "***schools with a higher level of arts integration implementation were found to exhibit superior performance levels in meeting literacy proficiency growth standards***."[83]

This study, conducted by the Stennis Institute at Mississippi State University, used data reported by the Mississippi Department of Education to examine the impact of the Whole Schools Initiative on student performance on standardized Language Arts Mississippi Curriculum Tests, Mathematics Mississippi Curriculum Tests, and 5th Grade Science Tests at Mississippi public elementary schools participating in the Whole Schools Initiative. Surveys of school administrators, principals, arts specialists, classroom teachers, and students at WSI schools were also analyzed as part of this study.

This study found the percentage of students scoring "*Proficient or Above*" on standardized Language Arts and Mathematics Mississippi Curriculum Tests and on standardized science tests was significantly higher at schools participating in the Whole Schools Initiative that had effectively implemented the WSI arts integration model as compared to the performance of students at other schools within the school district and as compared to student performance statewide. WSI schools that effectively implement arts integration were found to have reduced or actually eliminated the academic achievement gap for *economically disadvantaged students.* In WSI schools that effectively implement arts integration, a higher percentage of *economically disadvantaged* students score "*Proficient or Above*" on standardized achievement tests when compared to *all* students (not only *economically disadvantaged* students) at the district and state level, across multiple grades and subject areas.

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[82] Tabereaux, C.B. (2002). *An Investigation of Arts Infused Schools in Mississippi: The Whole Schools Initiative*. (Doctoral Dissertation, Mississippi State University).

[83] Corbett, D., Wilson, B., & Morse, D. (2004). The Arts Are An "R" Too; *Jackson, MS: Mississippi Arts Commission.*

Even in "*limited implementing"* WSI schools, the positive effect of arts integration is exhibited; in these schools, there is evidence of a positive, cumulative effect on student performance over time as students transition to successive grades. In some WSI schools, this positive effect is evidenced by an upward trend in the percentage of students scoring "*Proficient or Above"* on standardized tests or by a decrease in the percentage of students scoring "*Minimal" or "Basic*" and an upward shift to higher achievement on Mississippi Curriculum Tests.

Generally, the *effective* implementation of the WSI arts integration model is associated with the length of time that a specific school has been participating in the Whole Schools Initiative. Comprehensive school wide adoption of an arts integrated curriculum requires planning, professional development for faculty, and a sustained focus. In some WSI schools, school district reorganization may temporarily divert resources and the focus of administrators and faculty; this introduces exogenous factors that confound the analysis of the effect of arts integration on student performance.

The study also found that a very small percentage of students (2.2%) that were enrolled in WSI schools self-identified as "*never being a successful student*." Among the students who identified themselves as "*never being a successful student*," 50 percent stated that they still enjoyed coming to school either "*most of the time*" or "*all of the time,*" and 85.7 percent of these students identified art, music, dance, or acting in response to the open-ended question: "*What are some of the things you like best about this school?"* **These findings are congruent with the extensive body of theoretical and empirical research that has identified the positive effect of arts integration on at-risk students' academic and social development, including: reduced truancy, increased student motivation, reduced school failure rates, and improved high school graduation rates.** For some students, the arts may provide one of the few opportunities they have to perform well and to experience success in the classroom.

Mississippi's schools are falling short of meeting the educational needs of students. The cycle of high poverty and low educational attainment has been a long-term and systemic problem throughout Mississippi. In 2011, Mississippi's poverty rate of 33 percent for children under the age of 18 was the highest of any state in the nation; this percentage rate has increased by seven percent from 26 percent in 2000. According to the National Center for Education Statistics, 45 percent of children in Mississippi performed at Below Basic on 4th grade Reading achievement tests; this was the second highest rate among the states. In Mississippi, 21 percent of children ages 6 to 17 have repeated one or more grades since starting kindergarten — the 2nd highest rate of any state. In Mississippi, only 62 percent of students receive a regular high school diploma within four years of entering ninth grade.

To address issues associated with poor educational outcomes within the public school system, the state of Mississippi has attempted a multiplicity of policies and strategies to improve educational achievement and student performance, these efforts include: the Mississippi Education Reform Act of 1982; Mississippi Better Education for Success Tomorrow (1988); the Education Enhancement Act (1992); the Three Tier Instructional Model (2005); the Teacher Opportunity Program (2006); the Education Reform Act of 2006; the creation of the Office of Dropout Prevention (2006); the authorization of the Mississippi Virtual Public School (2010); the Children First Act of 2009; Governor Barbour's Commission on Educational Structure; Blueprint Mississippi (2011); and more recently, the adoption of the *Common Core State Standards*.

The goals identified in Blueprint Mississippi 2011 combined with the adoption of Common Core State Standards create a framework to support the adoption of policies and a strategic focus that more effectively supports arts integration into education in the state of Mississippi. The goals identified in Blueprint Mississippi 2011 include:

- Improve Communication and Coordination Among Public, Private, and Non-Profit Leaders, to include Mississippi's public university system;
- Support Mississippi's Creative Economy by facilitating efforts to make communities throughout the state more creative and vibrant; and
- Increase the Educational Achievement Level of Mississippians

The Mississippi Department of Education has adopted the Common Core State Standards. The purpose of adopting the Common Core Standards is to create a world-class education system in the state of Mississippi that provides students with the skills and knowledge that is required for them to be successful in college and in the 21st century workforce. A focus of the Common Core State Standards is that students need to be able to solve problems, to work in teams, to analyze and conceptualize, to communicate, and to create, innovate, and critique in order to succeed in 21st century colleges and careers. To successfully implement the Common Core State Standards, teachers will be required to: know how to plan for rigorous and deep learning experiences; ensure that students retain and have the ability to apply learning; and create a learning environment that fosters deep thinking, student engagement, integration across subject areas, and problem-based learning experiences.

The Common Core State Standards are clearly aligned with the visual, auditory, tactile, and kinesthetic elements of arts integration learning models and the Whole Schools Initiative model. Examples include:

- The Common Core standard of *Phonological and Phonemic Awareness*, found to be the best predictor of reading success. Phonological and phonemic awareness includes the ability to hear rhymes and alliteration, the ability to orally blend words and syllables, and the ability to do phonemic manipulation tasks. Instruction in phonological awareness can be taught through the use of rhymes, songs, chants, alliteration, and clapping syllables in words; all of these teaching methods are aligned with and will require arts integration.
- The Common Core Standard of *Comprehension: Students Understand, Interpret, and Analyze Narrative and Informational Grade Level Text*. This standard involves exposing students to a variety of writing genres (depending upon grade level, this includes fairy tales, poems, myths, legends, plays, historical or science fiction); arts integration learning strategies that include elements of theatre, drama, visualization, and the interpretation of art forms can assist schools to effectively implement Common Core State Standards.
- The Common Core Standard of *Writing: the process of selecting, organizing, and developing ideas, arranging ideas in a logical sequence, and expressing ideas in effective language*. Common Core Standards in writing require frequent writing practice and require that students acquire the skill to write in different modes and form, for a variety of audiences, and for a range of purposes. To acquire competency in writing, students will be required to generate ideas for writing by reading and discussion; identify the audience, purpose, and form of writing to be used; use strong verbs, precision, and vivid language to convey meaning; produce traditional and imaginative stories, narrative, and formula poetry (e.g., ballad, cinquain, haiku, lyric, quatrain); produce writing to persuade (e.g., editorials, speeches, scripts); incorporate relevant illustrations, photos, diagrams, and visual elements into their writing; and produce and/or publish group or individual projects. Arts integration will enhance the development of writing skills and augment the level of writing competency acquired by students. For example, the use of visual arts to teach concepts of symmetrical, asymmetrical, and radial balance; the use of a specific media to express mood, themes, or ideas; or using visual arts to communicate the concepts of observation, perspective, harmony, balance, or contrast.

Arts integration fosters the student engagement and "deeper learning" that is at the heart of the Common Core and arts integration promotes the interdisciplinary learning that is a vital aspect of the Common Core. The Common Core State Standards are precise in conveying a detailed description of "***what"*** level of performance is to be expected of students for every standard across grade levels; but are not prescriptive in terms of "***how"*** teachers will achieve these levels of performance. Implementation of Common Core State Standards in the State of Mississippi will require a significant investment of time and resources by school districts, school administrators, and classroom teachers as they move up the learning curve regarding "***what***" the Common Core State Standards require. Arts integration has the demonstrated potential to successfully answer the question of ***"how"*** to achieve the deeper learning of content, creative problem solving, and mastery of advanced higher order thinking skills to be achieved by the adoption of the Common Core State Standards.

Extensive research has found a consistent and robust link between arts integration and a range of positive outcomes to include increased academic achievement, critical thinking skills, creative thinking, school engagement, and the reduction of the achievement gap for *economically disadvantaged* students. More recent developments in neuroscience provide additional support for the role of the arts in brain development and learning. The Stennis Institute's research on the Mississippi Arts Commission's Whole Schools Initiative found a consistently higher percentage of *all* students scoring *"Proficient or Above"* on Language Arts MCTs, Mathematics MCTs, and 5th Grade Science Tests, and found the achievement gap for *economically disadvantaged* students attending WSI schools had been substantially reduced or eliminated. These findings converge with Gardner's Theory of Multiple Intelligences, advances in brain research, and the consistent findings in prior research of the positive link between arts integration and improved academic outcomes to support the conclusion that a focused effort to expand arts integration in Mississippi schools will enhance educational outcomes and more fully realize the transformational potential of arts integration.

The arts integration model of the Whole Schools Initiative can significantly contribute to improving educational achievement in schools throughout the state and can play an important role to assist the state of Mississippi to achieve the goals identified in Blueprint Mississippi and meet the objectives of the Common Core State Standards. To achieve these goals and objectives, the Stennis Institute recommends consideration of the following policies:

- **Provide school administrators and teachers with resources, professional development, and information on specific practices to address the new Common Core State Standards through arts integration**

  The Mississippi Arts Commission should play a significant role as a partner to the Mississippi Department of Education in the design of a framework that elevates the importance of arts integration during the implementation of the Common Core State Standards. This recommendation reflects two goals of Blueprint Mississippi 2011: to increase collaboration between two state agencies (the Mississippi Department of Education and the Mississippi Arts Commission) and to increase educational achievement. The adoption of the Common Core State Standards, alone, will not lead to improved student achievement unless teachers are provided with the teaching tools, guidance, and professional development that will enable students to meet the *standards.* It is clear that arts integration has improved the academic achievement of Mississippi students enrolled in WSI schools. It is also clear that the use and application of multiple arts disciplines are interwoven throughout the design of the Common Core State Standards and will be vital to developing the essential skills and knowledge that students will need to master grade specific *standards*. The successful implementation of the Common Core State Standards across schools in the state of Mississippi will require a significant investment of time and resources; teachers, principals, and superintendents will require high-quality professional development to meet Common Core expectations. A focus on arts integration using the Mississippi Arts Commission's Whole Schools Initiative as a model will significantly augment the implementation of the Common Core State Standards and increase the possibilities for Mississippi students to meet the expectations of the *standards*.

- **Increase the number of elementary schools participating in the Whole Schools Initiative and expand the adoption of arts integrated learning by early childhood education programs**

  Scientific developments in cognitive neuroscience, brain development, and neuroplasticity indicate that exposure to an arts integrated curriculum may provide the greatest benefits during the early years of child development, particularly before the age of ten. The positive effect of the Whole

Schools Initiative arts integration model on the educational achievement of *economically disadvantaged* students indicates that students in Mississippi elementary schools with a high percentage of children living in poverty would experience optimal benefits from adopting the WSI arts integration model. Research evidence for the role of the arts in the development of brain function indicates the importance of the arts during early childhood development and the need to adopt arts integrated learning in early childhood education programs. The widespread adoption of arts integrated learning experiences in pre-kindergarten programs and in early childcare programs is equally as important as the adoption of arts integration in the K – 12 school system.

Expanding the number of schools that can be assisted by the Mississippi Arts Commission to adopt the Whole Schools Initiative will require an increase in the financial resources available to support this expansion and to provide the quality of professional development that is required to achieve the effective implementation of arts integration. Opportunities may exist to create incentives to encourage individuals and businesses in the state of Mississippi to provide resources and financial support for the expansion of arts integration in schools and in early childhood learning programs; options for these policies need to be explored.

- **Expand teaching artists programs, increase access to teaching artists, and use teaching artists to augment the implementation of the Common Core State Standards**

  Teaching artists are an essential component to effective arts integration education models. They play an important role engaging students in arts based learning experiences, assisting teachers and schools to link arts integrated teaching practices with state curriculum standards, and can supplement uneven arts offerings at resource constrained schools. Teaching artists can bridge the gap in specific arts disciplines, such as dance or theatre, to assure that all students have access to truly effective arts integration that provides a high frequency of classroom experiences across the curriculum using the full range of arts disciplines. Teaching artists can teach arts integration skills and assist classroom teachers with arts integration projects to facilitate the effective implementation of the Common Core State Standards, particularly in schools that are located in high poverty school districts.

Expansion of the teaching artists program would enable teaching artists to provide more assistance to underserved schools, enable teaching artists to partner with teachers to develop arts integrated curriculum, build long term relationships with other community partners, engage students in extended arts integrated learning experiences, and provide high quality arts experiences. Existing models, such as Teach for America, Music National Service, and AmeriCorps programs could be adopted in Mississippi and leveraged with philanthropic funding to provide resources to support the expansion of training for teaching artists and increase public schools' access to teaching artists.

The use and application of multiple arts disciplines is an integral prerequisite to acquiring the knowledge and skills described within the Common Core State Standards. Not only will students be expected to acquire and exhibit these skills, but teachers will be required to be able to use a range of arts disciplines as teaching tools in order to achieve the goals of *the standards*. Teaching artists are well-prepared to make a significant contribution to schools across the state of Mississippi during the implementation of the Common Core State Standards. They can assist teachers to link arts integrated teaching tools to *the standards*, engage students in arts-based learning experiences aligned with *the standards*, and assist with the development of subject specific lessons plans that meet *the standards.* Teaching artists can be a valuable asset for the shared delivery of professional development and as resources in the classroom as schools struggle to move up the Common Core learning curve, and they can facilitate and accelerate the implementation of the Common Core State Standards.

- **Prioritize Whole Schools Initiative resources to maximize the benefits of arts integrated learning for children during early childhood and elementary school**

  Arts integration can make a contribution to students learning at any age; it can help students to think in new and creative ways, and because each arts discipline appeals to different senses and is expressed through different media the arts can help more students, with a range of learning styles, of all ages to learn. To withhold access to the arts and to arts integrated learning experiences is, for many students, the same as withholding the opportunity for educational achievement. Mississippi faces a crisis in educational achievement that requires difficult choices; particularly within an environment of constrained human and financial resources.

According to the National Center for Education Statistics, 45 percent of 4th grade students in Mississippi public schools scored "*below basic*" on reading and 33 percent scored "*basic*" on reading; only 22 percent of Mississippi students scored "*proficient or above*" on reading in the 4th grade. These percentage rates have not changed significantly since 2007. Students *learn to read* up until 3rd grade, after that they *read to learn* and gain skills in other subjects. If children cannot read proficiently by the end of 3rd grade their future educational achievement is in jeopardy. A poor reader in 3rd grade is highly likely to continue to be a poor reader throughout their remaining years in school. Fourth grade students who cannot meet a "*proficient*" level in reading are more likely to drop out of school and to become the state's least-skilled and lowest-income citizens. Mississippi must break the cycle of low educational attainment, high student drop-out rates, and high poverty.

Understanding how the brain develops and learns provides input into the decision-making process to support the recommendation that providing arts integrated learning experiences for children ages ten years and under should be given the highest priority. The brain adds comparatively few cells after birth. Instead, the existing neurons grow larger and more powerful, sprouting axons and dendrites and connecting with neighbors to create the neural network. Synaptic connections enhance the brain's computing power — its ability to accept sensory input from the outside world and make sense of it. Activation of the neural network is critical to its growth. The neural networks that are used grow stronger; those that are not wither away. This process is known as pruning. The death and removal of excess brain cells and the connections that are made by synaptic activity across the neural network sculpts the brain. Although growth and pruning of the neural network takes place throughout our lives, it occurs at a different rate based upon age and dependent upon stimuli. Until age three, growth of the neural network outpaces pruning. From age three to ten, the formation of new connections is balanced by the elimination of unused connections. When a child reaches puberty, the rate of growth shifts and the formation of new connections is outpaced by the pruning of connections.

Science indicates that prime opportunities for brain development and learning occur prior the age of ten. Learning advances sequentially, from listening – to speaking – to reading. A baby learns to speak by learning to listen; babies learn to distinguish various sounds as parts of a word and words that become sentences. Sound is a stimulus that transmits signals to the brain, developing the

associated neural network required to recognize words and to begin to speak. During the process of listening and eventually speaking, multiple areas of the brain are being activated in rapid succession and synaptic connections are increasing and growing stronger. Reading is a more advanced language skill requiring a more complex neural network. Words on a page are associated with sounds that are heard when words are spoken. Sensory inputs that include sights, sounds, and touch stimulate the growth and strength of synaptic connections that build the foundation for brain development and the creation of neural networks that are fundamental to children's ability to move to the next level of cognitive development and learning — from listening — to speaking —– to reading.

Arts integration provides the enriched, stimulating learning environment conducive to the use of all five senses that stimulate the growth and synaptic connections that are fundamental to children's cognitive development. The visual arts introduce elements of line, shape, color, and space; music introduces tempo, rhythm, pitch, harmony and timbre; dance introduces movement and the principals of repetition, pattern, creative expression, balance; and theatre introduces storytelling, pantomime, scripted role play, puppets, and the emotional content of comedy, fantasy, and tragedy. Each arts discipline plays a unique role in stimulating the senses and makes a unique contribution to an enriched learning environment that contributes to increased synaptic activity that activates the neural network and increases the potential for enhanced learning outcomes.

Prior to the age of ten, children have the greatest opportunity to achieve the maximum benefits from arts integrated learning. Arts integration offers opportunities for enhanced brain development and related improvements in learning and educational achievement. If children are not prepared to learn at an early age, they will face difficulties throughout their academic future. Science and brain research, combined with research on arts integrated learning leads to the conclusion that the earlier we can expose children to arts enriched learning environments, the greater the possibilities for enhanced learning outcomes. Although students at upper grade levels undoubtedly benefit from arts integrated learning experiences, within a constrained resource environment and given the crisis faced in educational achievement, optimal outcomes associated with the investment of resources for arts integrated learning will be achieved by maximizing the opportunities for participation in arts integrated learning experiences during early childhood and elementary school.

- **Leverage the existing resource of K – 12 arts specialists**

  Arts specialists are education professionals with a teaching certificate in a specific arts discipline — visual art, music, dance, or theatre. Arts specialists are teachers hired by an individual school or the school district to teach a specific arts discipline and, normally, teach the discipline full-time.

  Arts specialists receive training in arts education at colleges and universities, their course of study combines the study of an arts discipline with general education courses in child development, educational philosophy, curriculum and assessment. Arts specialists understand age appropriate arts content and have the ability to design lesson plans and curricula. The college education of arts specialists includes a liberal arts education in history, math, science, and language. This provides them with the expertise to integrate their arts discipline with other subject areas. Arts specialists are a prerequisite to assuring that all students in public schools have access to high-quality, standards-based arts instruction. Because the arts are defined as a core academic subject in the 2001 reauthorization of the Elementary and Secondary Education Act (No Child Left Behind), arts specialists are necessary to meet the requirement that highly-qualified educators teach any subject that is defined as a core content area.

  In WSI schools, arts specialists play an expanded role as a partner in the shared delivery of arts integration learning experiences. There are 43 arts specialists at WSI schools across the state; 20 percent of all Dance Arts Specialists in the state of Mississippi are employed by WSI schools. At WSI schools arts specialists frequently serve on the WSI school advisory board. Arts specialists become resource experts and frequently act as facilitators to assist classroom teachers to develop lesson plans that integrate the arts into other subject content, they may assist with arts integrated curriculum design and development, and they may serve as mentors or assist in providing arts integration professional development to classroom teachers within the WSI school. Using a shared delivery model of arts learning experiences for students, effectively implementing WSI schools create a community of learning involving relationships between classroom teachers, arts specialists, teaching artists and community arts organizations, with all partners sharing in the delivery of arts learning experiences to students.

  There are approximately 1,886 Mississippi licensed classroom teachers that have certification in a

specific arts discipline (arts specialists). As shown on the maps in Appendix A, there is a significant geographic variance in the distribution of the number of arts specialists; school districts with a higher percentage of students living in poverty generally have fewer arts specialists. In many school districts throughout the state there are no Theatre Arts Specialists, Dance Arts Specialists, or Visual Arts Specialists. Statewide there are 164 Theatre Arts Specialists, this equates to one Theatre Arts Specialist for every 2,991 students enrolled in Mississippi's K – 12 public school system. There are 21 Dance Arts Specialists statewide, this equates to one Dance Arts Specialist for every 23,358 students enrolled in Mississippi's K – 12 public school system.

The existing infrastructure of certified arts specialists is insufficient to assure that students in Mississippi public schools have access to a quality arts education regardless of geographic location or socio-economic status. At minimum, policies need to be developed that will provide additional resources to support the shared delivery of arts learning experiences to all students enrolled in Mississippi public schools throughout the state and to more effectively use the existing resource base of arts specialists in the state.

- **Develop state policies that reinforce the adoption and expansion of arts integration education models**

The positive outcomes associated with arts integrated learning demonstrate significant potential to overcome the educational challenges faced in Mississippi schools. Decision-makers, educators, school boards, and superintendents need to be made more fully aware of the potential that arts integration offers for increasing student achievement and reducing the achievement gap that exists for *economically disadvantaged* students throughout the state of Mississippi.

The universities and colleges in the state of Mississippi have an important role to play in preparing the teachers of the future and providing them with the tools to effectively practice arts integration in the classroom. The Mississippi Arts Commission and the institutions of higher learning in the state of Mississippi should explore opportunities for increasing arts integrated learning experiences and courses related to arts integration teaching methods. Arts integration teaching methods should be an essential component of the curriculum for all students at colleges and universities in Mississippi who aspire to be educators in Mississippi schools.

- **Increase arts integration professional development opportunities**

  To achieve the positive education outcomes associated with arts integration will require effective arts integration across the curriculum, using the full array of arts disciplines. Participation in professional development enhances the arts integration competency of teachers and increases the frequency with which teachers use the arts as a learning tool in the classroom. The complex interface between specific arts disciplines (music, dance/movement, art, theatre/drama) and individual student learning styles (kinesthetic, tactile, aural, or auditory) indicates a need to expand teachers' repertoire of arts integration skills across the arts disciplines and across subject areas. The demands of standardized testing, constrained budgets, and burden of competing priorities on teachers and school administrators create obstacles to their participation in professional development, thereby creating obstacles to the adoption and effective implementation of arts integrated learning in the classroom. In many cases, schools may be unable to provide the resources to support teachers' participation in professional development experiences; the time and cost of travel to participate in professional development activities may also act as a barrier to participation. These barriers to the effective implementation of arts integration need to be overcome and policies to achieve this objective are required.

The rich traditions of literature, music, performing and visual arts, history, architecture, and the culinary arts are the fabric of Mississippi's creative heritage. Mississippi's creative heritage is woven throughout the state. The threads of arts, culture, and heritage intertwine throughout every community creating the backdrop for civic engagement, setting the stage for lifelong learning, and enhancing the lives of our citizens. In many ways, Mississippi's creative heritage is one of its greatest assets and strengths. The arts not only improve Mississippians' quality of life, they make a significant contribution to the state's economy through their impact on tourism and job creation.

This study found that the arts also make a significant contribution to the educational outcomes of Mississippi's school children. Students enrolled in Mississippi schools that have adopted the arts integration education reform model of the Mississippi Arts Commission's Whole Schools Initiative generally outperformed their peers within the school district and statewide on standardized tests administered to students enrolled in the 3rd through 5th

grades. In WSI schools that had effectively implemented arts integration across the curriculum, students' academic performance improved significantly, and a higher percentage of these students scored "*Proficient or Above*" on standardized tests. Importantly, WSI schools that effectively implement arts integration have significantly reduced or completely eliminated the educational achievement gap for *economically disadvantaged* students.

The state of Mississippi has a long history of struggle with systemic obstacles to educational achievement. Low educational attainment and high drop-out rates among students in Mississippi's public school system are among the state's greatest challenges. The result of low educational achievement and high drop-out rates is an unskilled workforce, high unemployment, and high poverty levels; these are the state's greatest economic weakness. Historically, decision-makers have urgently sought to identify solutions that will improve student learning, increase educational attainment, and reduce drop-out rates. Frequently, the effort to find solutions to the challenges faced within Mississippi Schools has involved adopting the most recent educational nostrum, borrowing policies or programs from other states, and following recommendations by consultants and experts from outside of the state. There is little evidence that these efforts have been successful.

With the adoption of the Common Core State Standards, the state of Mississippi is now beginning another experiment that hopes to solve the systemic educational challenges faced in schools throughout the state. This effort will require a significant investment of resources and the outcomes are as yet unknown.

It is known, and the evidence supports the statement, that the arts integration model of the Whole Schools Initiative does improve students' academic achievement *and* that the effective implementation of arts integration can reduce or eliminate the educational achievement gap for *economically disadvantaged* students. The Whole Schools Initiative is a Mississippi model of arts integration education reform proven to work in Mississippi schools.

As Mississippi moves forward with the implementation of the Common Core State Standards, decision-makers should consider developing an augmented strategy that uses one of Mississippi's greatest strengths to address its' greatest weakness. The use of arts integration

builds upon one of Mississippi's greatest strengths – its creative heritage. The preliminary infrastructure and resources for widespread adoption of arts integration already exist within the state of Mississippi and creative traditions exist within every community in the state. A cohesive strategy, designed to support the widespread adoption of arts integration and to assure that all students receive the benefits of arts integrated learning experiences, has the potential to inspire a vibrant new approach to transformative education by unleashing the strength of Mississippi's creative spirit.

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Appendix A: Maps of Arts Certified K – 12 Classroom Teachers by County

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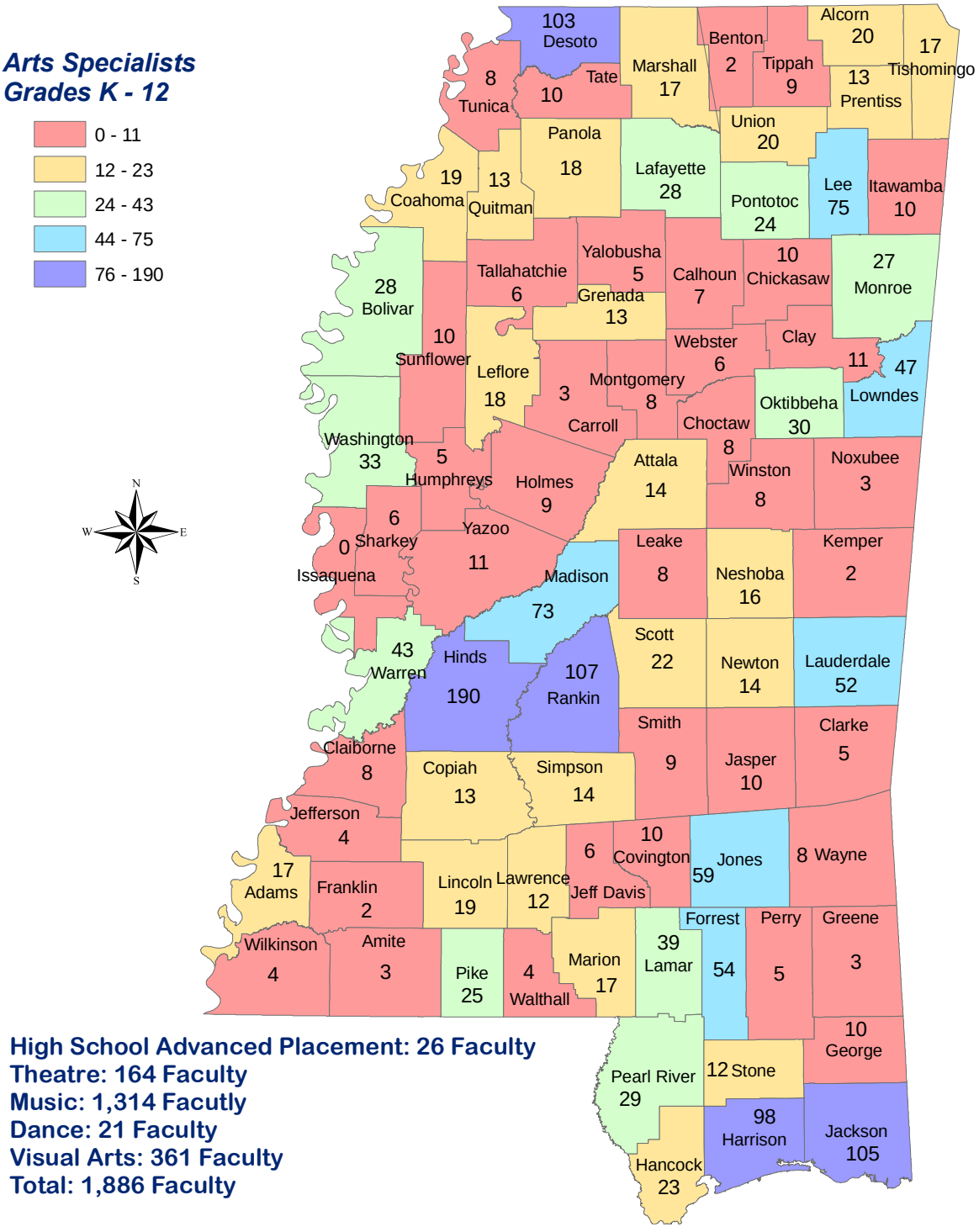
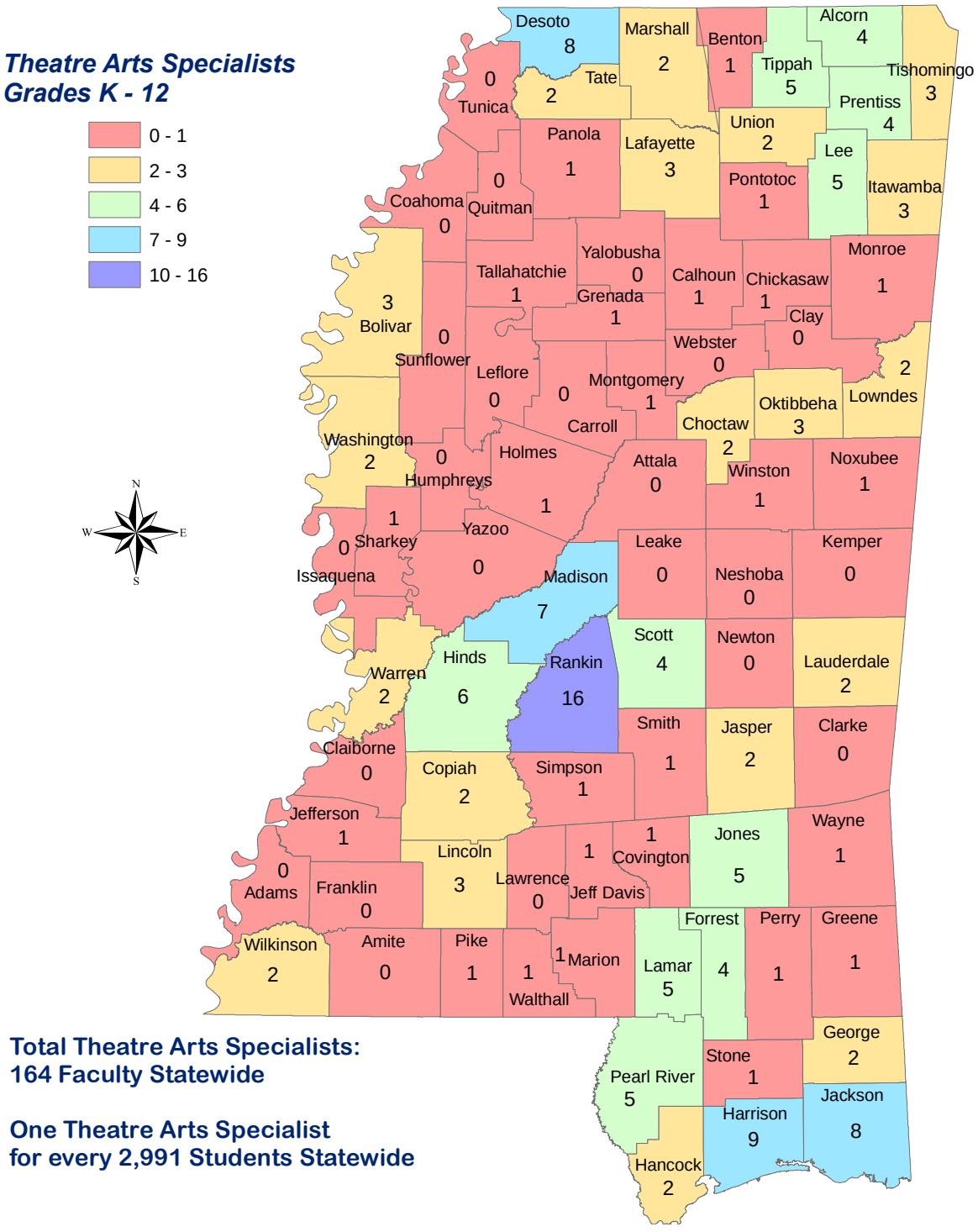
The Arts in Mississippi Public Schools
Total Number of Certified Arts Specialists



High School Advanced Placement: 26 Faculty
Theatre: 164 Faculty
Music: 1,314 Facutly
Dance: 21 Faculty
Visual Arts: 361 Faculty
Total: 1,886 Faculty

Map 1: Total Arts Certified K -12 Classroom Teachers by County

The Arts in Mississippi Public Schools
Total Number of Certified Theatre Arts Specialists

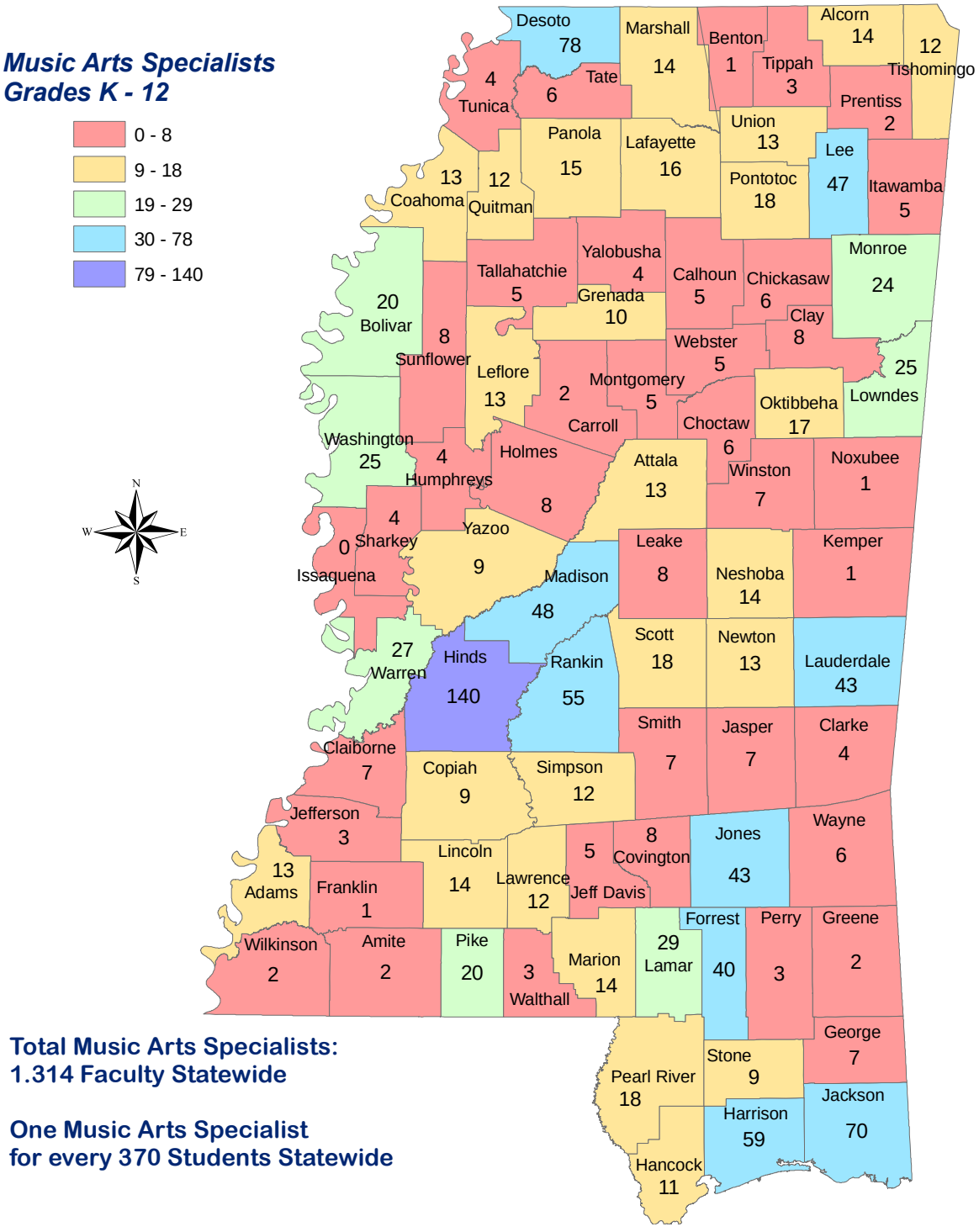


Total Theatre Arts Specialists:
164 Faculty Statewide

One Theatre Arts Specialist
for every 2,991 Students Statewide

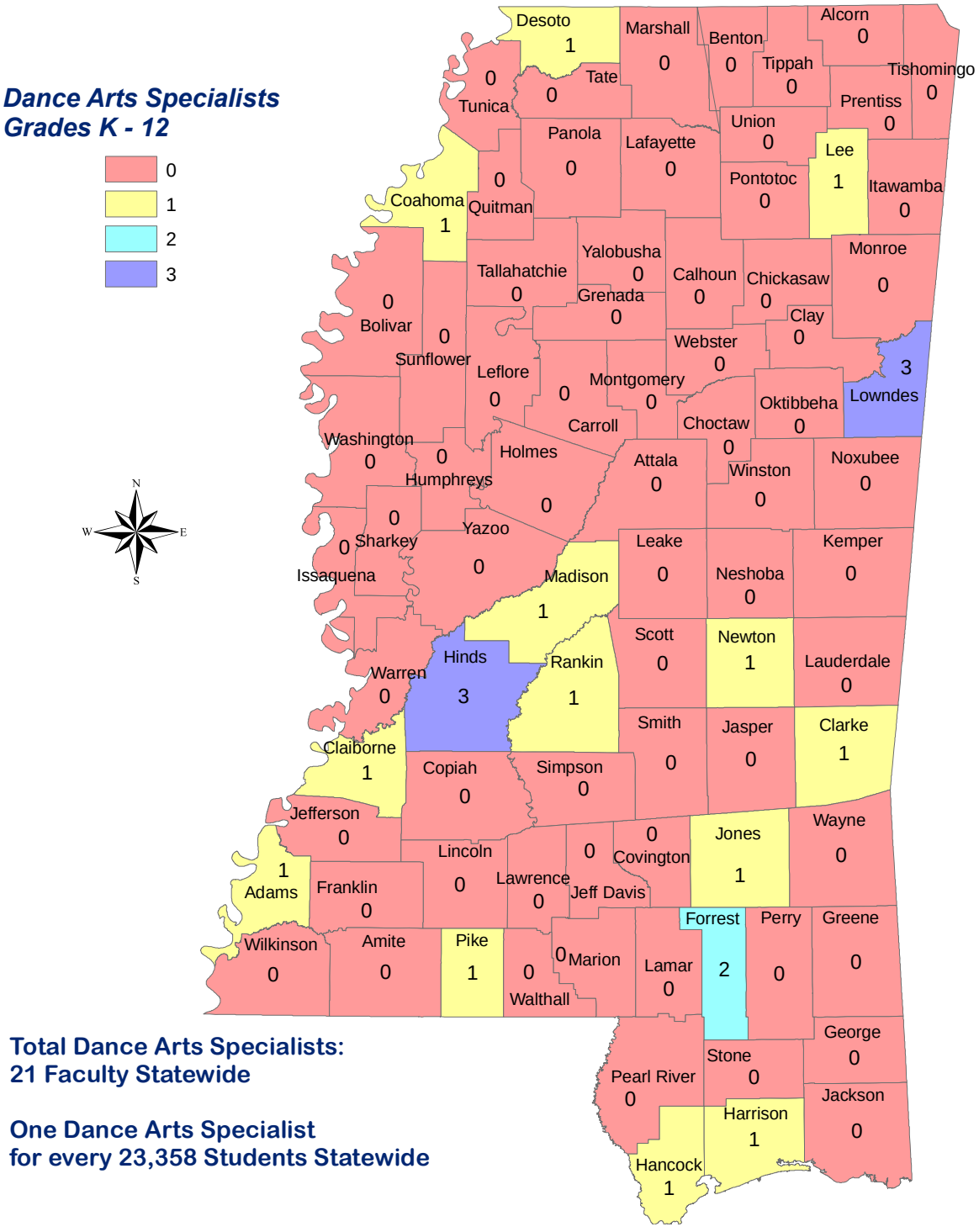
Map 2: Theatre Arts Specialists Statewide

The Arts in Mississippi Public Schools
Total Number of Certified Music Arts Specialists



Map 3: Music Arts Specialists Statewide

The Arts in Mississippi Public Schools
Total Number of Certified Dance Arts Specialists

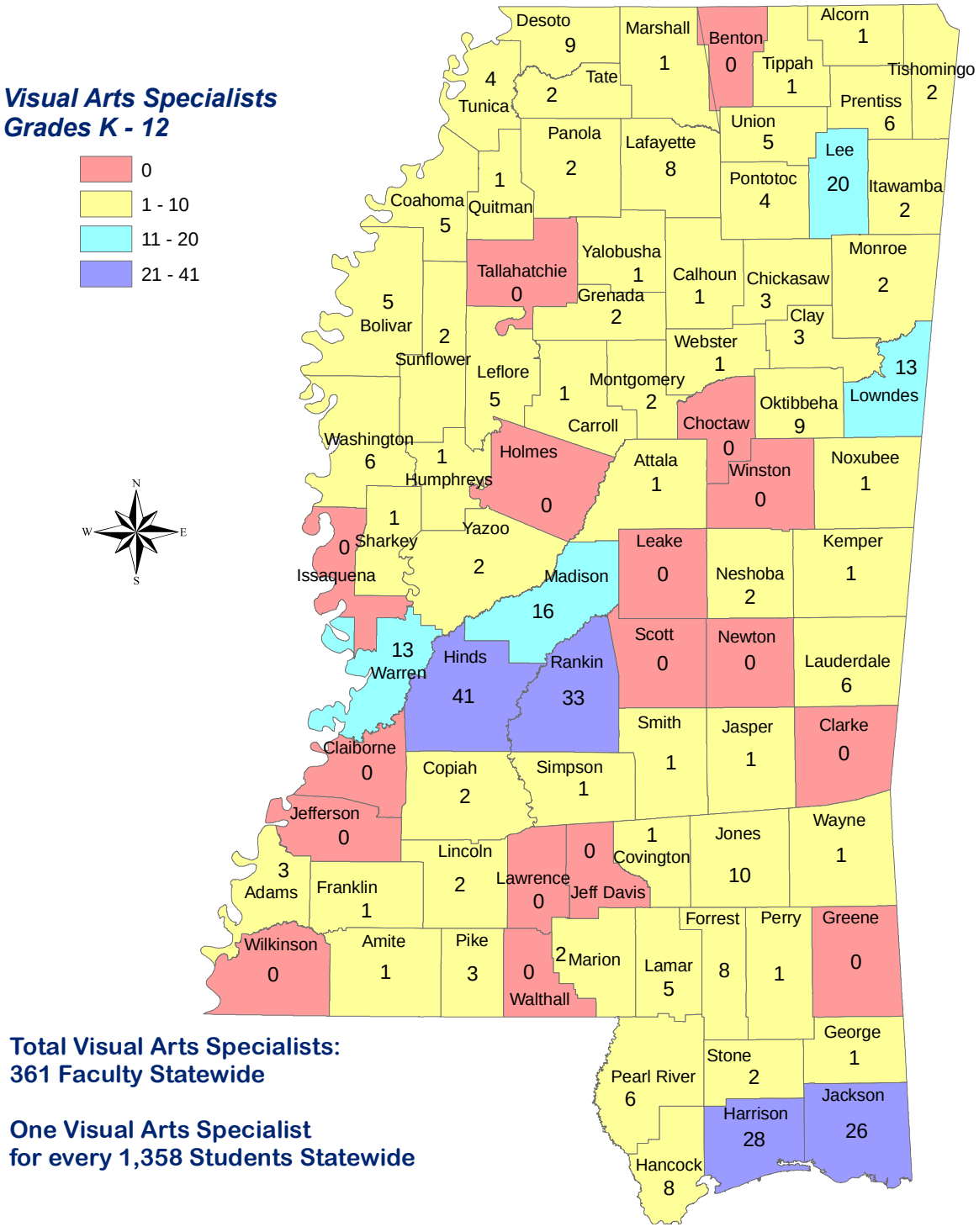


Total Dance Arts Specialists:
21 Faculty Statewide

One Dance Arts Specialist
for every 23,358 Students Statewide

Map 4: Dance Arts Specialists Statewide

The Arts in Mississippi Public Schools
Total Number of Certified Visual Arts Specialists

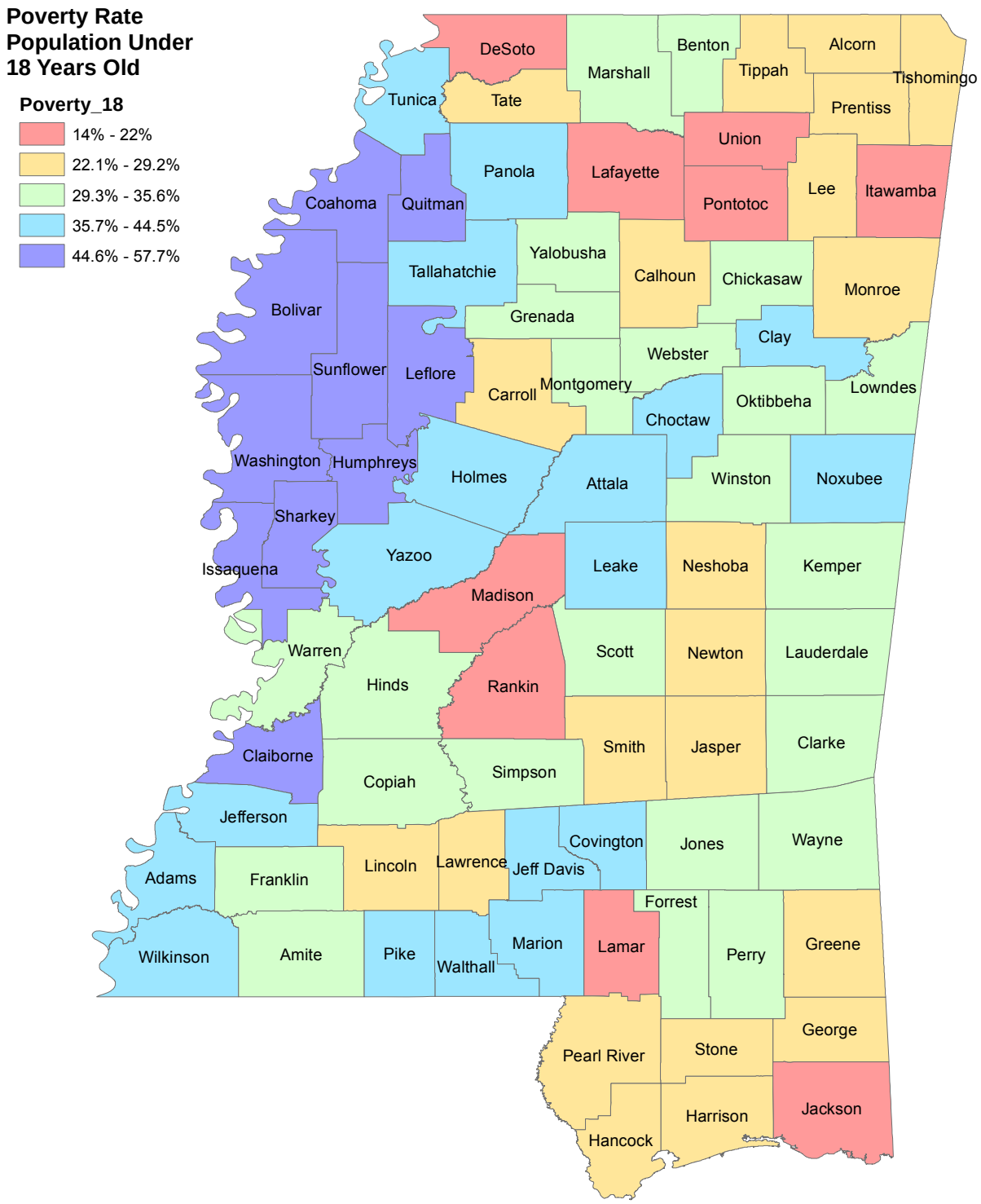


Total Visual Arts Specialists:
361 Faculty Statewide

One Visual Arts Specialist
for every 1,358 Students Statewide

Map 5: Visual Arts Specialists Statewide

Poverty Rate for Population Under 18 Years of Age



Map c: Poverty Rate for Population Under the Age of 18

Yoshawnda Trotter, 5th grade teacher at Casey Elementary School in Jackson, leads her students through an arts integration lesson

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