



University of Colorado  
Denver

**School of Education  
& Human Development**

**DPS Exemplary Schools Case Study:  
Math and Science Leadership Academy**

*WORKING DRAFT 2*

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## DPS UCD ELA Exemplary Schools Case Study Overview

The Denver Public Schools (DPS) University of Colorado Denver (UCD) English Language Acquisition (ELA) Exemplary Schools Case Studies investigated DPS schools with a high density of learners of English as a second or additional language and high levels of students who qualified for a free or reduced price lunch that were experiencing the most success with English language learners (ELL students). The study was conducted by the DPS UCD Research Collaborative between December 2010 and March 2011. The purpose of the study was to identify school-wide practices that have been successful in supporting the achievement of these students. Six schools (two elementary, two middle, and two high schools) were identified on the basis of five criteria: (1) an open enrollment policy, (2) at least 40% of total enrollment consisting of ELL students, and at least 100 English language learners enrolled, (3) a total School Performance Framework (SPF) rating greater than 49% for elementary schools, and greater than 45% for middle schools and high schools, (4) at least 50% of students in the school qualified for a free or reduced price lunch, and (5) high gains on the CSAP and CELA tests for the past three years relative to other schools serving the same grade levels. Two additional elementary schools, which did not meet all criteria, but have good reputations among area educators were also studied. Math and Science Leadership Academy (MSLA) was one of the reputational schools. The case studies involved three sources of data: 1) photographs providing environmental scans of the language resources and supports for ELL students in the schools; 2) documents and public information (e.g., websites) as well as student performance data; and 3) interviews with school leaders, teachers, and other support personnel. This report will detail the practices uncovered at MSLA.

NOTE: This case study of MSLA is ongoing. These preliminary assertions and explanations are based on two formal and recorded interviews with staff members, informal conversations with teachers, photographic inventories, and archived data collected between December 2010 and March 2011 only. We anticipate that further study, e.g., observations in classrooms and additional interviews, will expand our understanding of the school's practices.

The following assertions emerged as key components contributing to the success of MSLA in working with English language learners:

- MSLA is a teacher led school. Distributed leadership is a key to ensuring that the academic and social development of ELL students (who make up the majority of the students at MSLA) is the focus for all teachers and staff throughout the school.
- Professional development that focuses on the Academic Language Development of ELL students and all students.
- Professional development that uses a strengths-based approach including internal expertise, consultation and research for ideas and practices that work for ELL students.
- Service learning projects provide opportunities for students to participate in interdisciplinary problem solving as mathematicians and scientists of the 21<sup>st</sup> century. ELL students particularly benefit from cross age group work and mixed groups of variable bilingual proficiency.

- MSLA is unified around Conscious Discipline – an approach that encourages students and teachers to be communicative and expressive about behavior and learning. MSLA is a school as family – a rich communicative environment for ELL students.
- Spanish, the first language of all ELL students at MSLA, is considered a resource and base for English language learning.

The following sections of this report will include a more in-depth explanation of the study, a brief history and demographic description of the school, and a more detailed narrative of the case study assertions and how the described practices are facilitating academic growth for ELL students at MSLA (to be found beginning on page 7).

## DPS Exemplary Schools Case Study: Context and Purpose of the Study

As of October 1, 2010, there were 26,761 identified English language learners (non-exited ELL students in grades ECE-12) enrolled in Denver Public Schools. Of these students, 17,544 received ELA services at a designated ELA program school. Spanish was the primary language for 15,246 (87%) of these students, while other common languages included Vietnamese, Arabic, Somali, Nepali and Karen/Burmese <http://ela.dpsk12.org/>

Denver Public Schools and University of Colorado Denver are working in collaboration on the DPS ELA Exemplary Schools Study to examine practices within DPS schools in which learners of English as a second (or additional) language are outperforming their peers in similar schools. The purpose of the study is to provide guidance to DPS and other districts in improving the educational performance of English language learners by describing practices currently used in DPS schools in which English language learners are experiencing the most academic success. Due to its positive reputation among area educators, MSLA was included as a reputational school in the study. The primary research question addressed by this study is:

- *What are the school-wide practices of schools that are successfully serving a high number of English language learners?*

This study was formulated in accordance with the Department of Justice Court Order, which provides guidance to and approval of the DPS English Acquisition program, and includes guidance regarding research on the effectiveness of DPS ELA programs. One goal of this study is to identify practices that have been successful across different school contexts. This report focuses on the practices at MSLA.

## Study Design and School Selection Criteria

This study of school practices involved three sources of data: 1) observations/photographs of language resources in the school environment; 2) documents and public information (e.g., school websites, newsletters) as well as aggregate data on student performance; and 3) multiple

interviews with school leaders, teachers, and other support personnel. In this preliminary phase, the study did *not* include students as participants.

A three-step process was used to select high performing schools for English language learners in DPS. For the purposes of this study, English language learners at DPS were defined as those students who were currently receiving ELA services, opted out of services, or exited from ELA services.

Step 1: In order to select the case study schools, schools were identified at the elementary, middle, and high school level, which met four criteria:

- 1) at least 40% of the school's total enrollment consisted of English language learners,
- 2) at least 100 ELL students were enrolled at the school,
- 3) at least 50% of students at the school qualified for a free or reduced price lunch, and
- 4) the school received a School Performance Framework (SPF) rating greater than 49 for elementary schools, and greater than 45 for middle schools and high schools.

For the SPF, every school in DPS that contains at least one grade that takes CSAP (grades 3-10) is assigned one of the following accreditation ratings every September using data collected during the previous three school years: Distinguished, Meets Expectations, Accredited on Watch, Accredited on Priority Watch (added in 2010) or Accredited on Probation. Ratings then relate to how much autonomy schools are given, the support needed, corrective action taken and compensation earned by principals, assistant principals and teachers. For this study, the SPF rating was used to ensure that the schools chosen were not on probation and were meeting expectations or nearly meeting expectations (for all students, not only ELL students).

Step 2: Performance data for English Language Learners on the Colorado Student Assessment Program (CSAP) Reading, CSAP Writing, CSAP Math and the Colorado English Language Assessment (CELA) were analyzed for each school for the past three years. Schools from the initial list, which were making the largest gains were identified, weighting gains in 2010 the highest, 2009 second highest, and 2008 third. Data presented in Table 1 below show the three-year weighted averages of the CSAP median growth percentiles for each school and average gain (Z score) on CELA. Based on these criteria, three schools at each educational level, for a total of nine schools, were identified as candidates for the case study.

Step 3: The student recruitment and retention policies at the nine schools were investigated to determine whether the schools had policies for admittance or dismissal related to performance, special education needs, or behavioral problems. In narrowing the selected schools to six, researchers agreed that at least one school at each level should be a comprehensive neighborhood school, as opposed to a charter school or magnet school. The six schools included Bryant Webster Dual Language ECE-8 (study focused on the elementary grades), Force Elementary, Merrill Middle,

West Denver Preparatory Charter – Federal Campus (a middle school), Abraham Lincoln High, and Bruce Randolph High.

Once the schools had been narrowed to six high performing schools, two additional elementary schools of interest were selected based on a combination of their relatively high performance and reputation among educators in the district. Both schools added additional characteristics to the pool of schools, including learners of English from diverse linguistic backgrounds and concentration on math and science. These two additional “reputational” schools were Goldrick Elementary and the Math and Science Leadership Academy (K-3). Due to its newness, MSLA does not yet have CSAP scores. The unique approach as a teacher led school with a focus on math and science made the school of interest to the researchers. MSLA was established with the express expectation that Latino students, who are under-represented in higher levels of math and science, will become mathematicians, scientists, and engineers.

### **History of the Math and Science Leadership Academy**

The Math and Science Leadership Academy (MSLA), located at South Tejon Street and West Alameda Avenue in southwest Denver, serves students in Kindergarten through third grade. The school opened three years ago and is expanding one grade level at a time to be a comprehensive elementary school. Lori Nazareno and Dr. Lynne Lopez-Crowley are currently the two co-lead teachers at MSLA. The mission of MSLA is to provide enhanced math and science education to its students beyond what is traditionally provided in neighborhood schools. MSLA is designated as a Transitional Native Language Instruction (TNLI) school, meaning that students receive native language instruction in Spanish with supported English content instruction and English language development. As students’ English proficiency increases, they move toward supported English content instruction and English language development only.

MSLA is on the campus of Rishel Middle School and shares the building with Rishel and KIPP Collegiate High School. This year is the last year of 8<sup>th</sup> graders attending Rishel. MSLA is a NCLB receiving school (MSLA met AYP (Annual Yearly Progress) last year) and therefore transportation is provided for students not in the attendance area. MSLA is a performance school and has worked to recruit and maintain a student population of Spanish-speakers.

### **Demographic Overview of the Math and Science Leadership Academy**

In the 2009-10 school year (the school year based on which schools were selected for the study), 134 students in grades K-3 were enrolled at MSLA. The large majority of students at MSLA were Hispanic/Latino (92%) and 70% of students spoke Spanish. Among the student body, 94% qualified for free and reduced lunch. Due to the fact that this school is so new, it does not have an SPF rating. CSAP is not taken until the 3<sup>rd</sup> grade and the SPF requires more than one year of data.

There were 126 students who qualified for ELA program services as of October 2010 enrolled in MSLA. Among these students, there were 111 designated English language learners; all of these students spoke Spanish. AMAO 1 (Annual Measurable Achievement Objective) is an indicator of

English language acquisition. It represents the number of students who are making progress on the CELA exam. In 2010, 64% of ELL students at MSLA were making progress.

The charts below display student demographics (including primary home languages and ethnicities of students throughout the school), and the proficiency levels of MSLA students on the CELA. All non-exited ELL students (who include students whose parents opted out of services) take the CELA exam, which test students on four domains – Listening, Speaking, Reading and Writing.

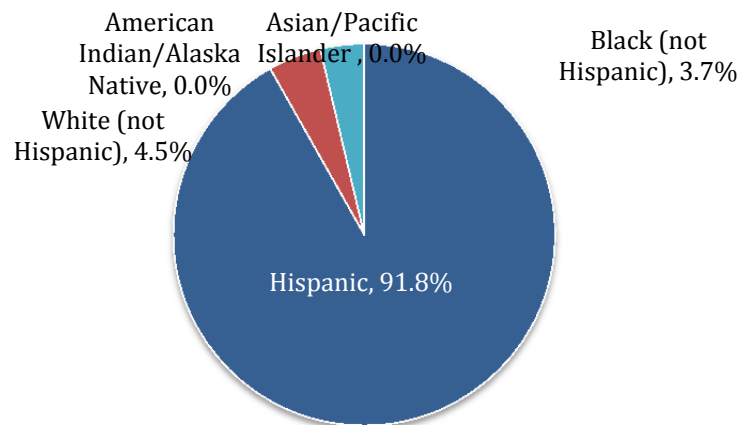
### Primary Home Language Spoken by MSLA Students

LANGUAGE	
Spanish	70.4%
English	29.1%
Vietnamese	0.6%
Total (N=179)	100.0%

Source: Administrator Portal pulled February 22, 2011 (the Administrator Portal uses data from the 2010-11 DPS October Count, matched with current student enrollment).

Note: Data describe students throughout the entire school, not just ELL students.

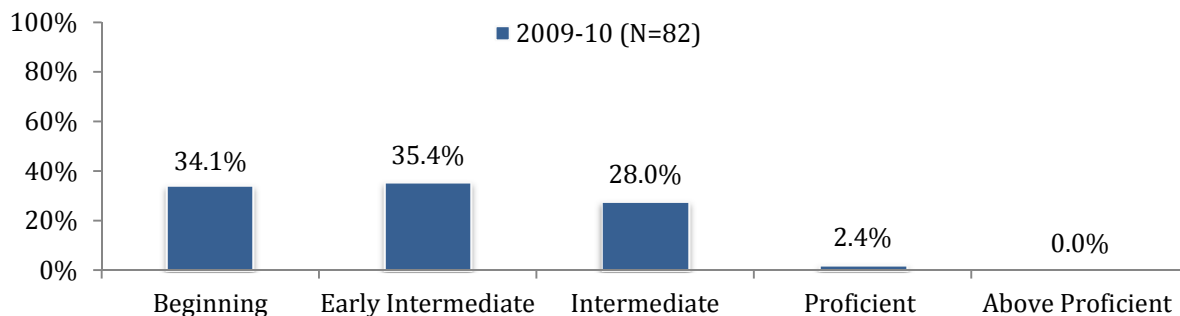
### Ethnicity of Students at MSLA, 2009-10



Source: DPS Strategy Department, Count of Student Membership by Ethnicity by School, 2009-10 from October Count 2009.

Note: Data describe students throughout the entire school, not just ELL students.

## MSLA English Language Proficiency Level, CELA Overall



Source: DPS Department of Accountability, Research and Evaluation, CELA Report 2010.

### **Math and Science Leadership Academy – MSLA – K-3**

#### **Leadership for English language learners in Math and Science**

#### **and English language academic development**

MSLA was founded in 2008 with K-1 adding a grade every year. MSLA is a NCLB Receiving School – meaning that parents of students in other schools in DPS are notified if their child is in a low performing school that they have the option to choose another higher performing school (the “receiving school”) MSLA recruits from the neighborhood notifying parents that may have had their children in low performing schools. Recruitment is done through neighborhood canvassing letting families know that MSLA is an option. Valverde Elementary School is on a contiguous campus to the north. It is currently a low performing school. The teacher leadership at MSLA has worked collaboratively with the leadership at Valverde to inform parents in the neighborhood of the options they have with these two schools.

#### **Why MSLA is successful for English language learners?**

- MSLA is a teacher led school. Distributed leadership is a key to insuring that the academic and social development of ELL students (who make up the majority of the students at MSLA) is the focus for all teachers and staff throughout the school.

MSLA was founded in 2008 by teachers who together with stakeholders designed a Performance School in Denver Public Schools. An important innovation was to shift the leadership of the school from a principal to the distributed leadership of all the teachers. Currently, there are two Co-Lead Teachers: Lori Nazareno and Dr. Lynne Lopez-Crowley. Responsibilities such as teacher evaluation are distributed amongst the teachers. This model is structured around peer evaluation and coaching. All teachers hired for MSLA understand and agree to this innovation which includes their full participation.

- Professional development that focuses on the Academic Language Development of ELL students and all students.

DPS expects all schools to participate in professional development around Pedagogical Content Knowledge (PCK). MSLA chose this year to focus on the Academic Language Development of ELL students and all students. They have been involved in work led by Lily Wong-Fillmore (University of California at Berkeley), a nationally recognized scholar in bilingualism and the academic development of children of immigrants.

- Professional development that uses a strengths-based approach including internal expertise, consultation and research for ideas and practices that work for ELL students.

In addition to working with consultants such as Wong-Fillmore, MSLA teacher leaders look to their own strengths to work together. They also keep current on research for best practices for working with ELL students. The regular meetings that the faculty participate in were described as: meaningful, purposeful, strategic, relevant, charged, effective, fun and safe. A strengths-based perspective is finding and leading with strengths.

- Service learning projects provide opportunities for students to participate in interdisciplinary problem solving as mathematicians and scientists of the 21<sup>st</sup> century. ELL students particularly benefit from cross age group work and mixed groups of variable bilingual proficiency.



The photo above is of a quilt that students created as a result of a service learning project about quilts. The group involved in this project was K-1. The teacher who led the project ventured into patterns and fractions and the children got authentic experiences with irons and sewing by hand and on the sewing machine. The children also used technology for accessing a process for securing photographs and/or pictures for the quilt. They also got to visit the Colorado Quilt Museum and made individual quilt bags for children at Warren Village.

Since 1974, Warren Village has pursued the mission of awakening the potential in those who need support and direction in life. Warren Village is a unique family community helping motivated low-income, previously homeless single parent families move from public assistance to personal and economic self-sufficiency through subsidized housing, on-site nationally accredited child care, intensive case



management, educational guidance and career development.  
<http://www.warrenvillage.org/>

These interactive projects exemplify the distributed leadership of MSLA and the integrative approach MSLA has towards the education of ELL students. Service Learning projects span a six to eight week period. Kids say of these projects: “School can be fun!” (Paty Holt, 3<sup>rd</sup> grade teacher)

- MSLA is unified around Conscious Discipline – an approach that encourages students and teachers to be communicative and expressive about behavior and learning. MSLA takes a “school as family” approach, creating a rich communicative environment for ELL students.

School as family is the approach that MSLA takes to all participation by teachers, students, and community alike. There is an organizing chart in one classroom designating what jobs of the school’s family students are responsible for (similar charts are in all classrooms). This approach is part of what is known as Conscious Discipline and essentially requires everyone to behave with respect and self awareness. With Conscious Discipline and the school family culture brings English speakers together with Spanish speakers with very intentional mixing to support language development. The Climate and Culture Committee (a sub group of teachers) along with Conscious Discipline, is involved in parent engagement and involvement, and the teachers of this committee are the liaisons for the Parent Teacher Organization. Thus, the school family extends to the families in the students’ communities.

- Spanish, the first language of all ELL students at MSLA, is considered a resource and base for English language learning.

As a part of its mission as an Innovation School, MSLA is explicit about Spanish being a resource and not a language that needs to be replaced by English. That approach includes educating parents and teachers what that means particularly when it comes to helping parents make decisions about program services. Parents of students whose first language is Spanish are encouraged to place their children in Spanish Kindergarten. They have found that students do better academically in the long run.

### Other issues related to MSLA’s success with ELL Students

- Teacher teams/Shared teacher leadership model: Teachers are organized into four teams— Climate & Culture (responsible for the conscious discipline emphasis), Professional Development, Peer Assistance & Review (PAR) (teachers get feedback from each other on their practice), and Curriculum and Instruction. Each summer teachers evaluate what worked, what didn’t, what to keep, what to change. Building on both students’ and teachers’ strengths is key to the school philosophy. Teachers use the Strengths Finder (<http://strengths.gallup.com/110440/About-StrengthsFinder-2.aspx>) to establish teacher work groups and to give them a common language for collaborative work and decision making.

- Five teachers are National Board Certified and there is a commitment from others to pursue it in the future. MSLA is based on the National Board Certification Five Core Propositions about accomplished teaching, which include:
  - Proposition 1: Teachers are Committed to Students and Their Learning
  - Proposition 2: Teachers Know the Subjects They Teach and How to Teach Those Subjects to Students.
  - Proposition 3: Teachers are Responsible for Managing and Monitoring Student Learning.
  - Proposition 4: Teachers Think Systematically about Their Practice and Learn from Experience.
  - Proposition 5: Teachers are Members of Learning Communities.  
[http://www.nbpts.org/the\\_standards/the\\_five\\_core\\_proposition](http://www.nbpts.org/the_standards/the_five_core_proposition)

### Why Math and Science?

The low representation of Latinos in math and science demands that this innovative school be focused there. Starting with the emphasis in elementary school means that the students have a chance to develop math and science interests in middle and high school. There are no other elementary schools in DPS with a math and science focus. “[For the obvious reasons and also] because of the way in which math and scientists work together. These embody 21st century skills. The notion of identifying a problem, working together, collaborating . . . those are foundational ways that mathematicians and scientists work together and what kids need for the new century.” (Lori Nazareno, Teacher Co-Leader).