Arlington Public Schools

Early Childhood Program Evaluation Report

Prepared by the Office of Planning and Evaluation

Response from the Early Childhood Office

January 2016

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SECTION 1: BACKGROUND

The Early Childhood evaluation began in 2014-15 with the development of an evaluation design. A planning committee met regularly throughout the year to develop the evaluation questions that would guide data collection for this report. Committee members included staff from Planning and Evaluation, the Early Childhood Office, other central offices, and schools; as well as a community member from the Arlington Montessori Action Committee (AMAC) and the Early Childhood Advisory Committee (ECAC). Data collection for the evaluation occurred during the 2015-16 school year and the fall of 2016. This evaluation employed various methodologies to collect data with which to examine the success of the APS Early Childhood program. In particular, this report addresses the following three components outlined in Arlington Public Schools (APS) policy and procedures (45-3) for accountability and evaluation:

1. A description of the department, program, or service
2. Evaluation questions that ask
   a. How effectively was the Early Childhood program implemented?
   b. What were the outcomes?
3. Recommendations

The executive summary and appendices are located online at www.apsva.us/evaluationreports.

Early Childhood Program Description - *Prepared by the Office of Early Childhood*

Program Overview

Arlington Public Schools (APS) offers three different types of full day Pre-K school programs for a limited number of three- and four-year-olds that reside in Arlington County.

- The primary Montessori program is a multi-age preschool program based on the methodology and philosophy of Dr. Maria Montessori. Students work independently and cooperatively in a structured environment which allows students to work at their own pace. Montessori teaching materials are designed to promote habits of concentration, initiative, persistence, and discovery, while the Montessori philosophy and community emphasizes respect for others, peace, and creativity.

- The Virginia Preschool Initiative (VPI) is designed to follow the High Scope[1] model which can easily be compared to a traditional preschool program. The VPI Pre-Kindergarten program curriculum is based on *Virginia's Foundation Blocks for Early Learning: Comprehensive Standards for Four-Year-Olds*.[2] The standards cover literacy, mathematics, science, history and social science, physical and motor development, and personal and social development. The VPI program has a strong focus on education, parent involvement, child health and social services, and transportation for families with four-year-olds at risk of school failure. The *Foundation Blocks* establish a measurable range of skills and knowledge essential for four-year-olds to be successful in kindergarten.

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[1] www.highscope.org

[2] VDOE. (http://www.doe.virginia.gov/instruction/early_childhood/preschool_initiative/foundationblocks.pdf)

- The APS Pre-K Special Education program receives oversight from the Office of Special Education. The program serves children with disabilities aged two to four years old. There are a variety of programming options based on student's needs and Individualized Education Plans (IEPs). Options include community-based resource services provided in a child's private childcare or Pre-K program within Arlington, toddler programs, multi-intervention programs for students with autism, and non-categorical programs for students aged three to four years old. The programs for students aged three to four years old are aligned with the VPI curriculum. The goal of the Pre-K special education program is to help students meet their individualized IEP goals in identified developmental areas of delay.

Office of Early Childhood is a part of the APS Department of Instruction (DOI). The Office is responsible for several broad areas including:

- Virginia Preschool Initiative (VPI) Program: Family outreach, student registration and placement, professional development for Pre-K staff, quality monitoring, oversight of VPI state grant and budget

- Primary Montessori Program: Parent outreach and education, recruitment of staff, student registration and monitoring, program monitoring, and professional development

- Instructional Support and Guidance for Early Childhood Educators and Administrators (pre-k to grade 2)

- Kindergarten Readiness support to families and schools

- Implementation of APS policies relating to early childhood

Goals and Objectives

The Early Childhood Office operates within the Department of Instruction (DOI) to meet APS Strategic Plan goals and DOI process goals. APS develops six-year strategic plans with staff and community involvement to identify focus areas for school system improvement. Each year the School Board and the public receive reports on the progress made within each Strategic Plan goal area during the preceding year, with the opportunity for modifications to the Strategic Plan as warranted.

The current strategic plan runs through 2017 and focuses on five important goal areas:

Goal 1: Ensure that Every Student is Challenged and Engaged

Goal 2: Eliminate Achievement Gaps

Goal 3: Recruit, Retain and Develop High-Quality Staff

Goal 4: Provide Optimal Learning Environments

Goal 5: Meet the Needs of the Whole Child

The Early Childhood Office also works toward meeting the following seven DOI process goals:

- **Communication**: Communicate curriculum and programs to constituent groups

- **Curriculum**: Develop, revise, and enhance curriculum and programs; identify and create teacher resources that support a rigorous curriculum aligned with state standards

- **Assessment**: Provide analysis of summative student achievement data

- **Formative Assessment**: Identify and implement formative assessments to monitor student progress and inform instruction

- **Instruction**: Monitor instruction and program implementation; promote high quality instruction through curriculum development, professional development, observation and feedback cycles for teachers

- **Professional Development**: Provide sustained high quality professional development for staff

- **Research:** Review current research/environmental scans for innovative approaches to teaching and learning

Progress in each of the areas of responsibility is monitored through a cycle of program evaluation as well as annual supervision and evaluation within DOI.

The mission of the Office of Early Childhood is to provide effective programs and experiences for young children and their families. This will be accomplished through curriculum leadership, community involvement, and instructional support of developmentally effective programs. Understanding that young children have unique and specific developmental needs, the Office of Early Childhood is committed to providing direct services and collaborating with core instructional offices to ensure that young children's educational experiences are commensurate with their developmental characteristics. In addition, the Early Childhood Office is committed to increasing access to Pre-Kindergarten programs for Arlington families with a special attention to those of lesser financial means and to maintaining a high quality Montessori choice program.

Montessori Education Goals and Objectives

The Montessori program provides an interdisciplinary, discovery-based approach to learning founded on the work of Dr. Maria Montessori over 100 years ago. The program is based on a philosophy of learning that grows from the belief that children are natural learners, and that learning occurs best in a nurturing, prepared environment that promotes spontaneous cooperative inquiry. The teaching method that grew from this philosophy fosters a sense of security, self-confidence and independence in children, enabling them to develop into people who respect and care for themselves, others, the environment and all life. Montessori teachers address physical, emotional, social, spiritual, aesthetic, and cognitive needs as they guide their students to develop inner discipline, coordination, concentration, a sense of order, and independence. A list of goals and objectives are outlined below to sustain a quality Montessori program for Arlington children ages 3-12.

- A multi-age grouping in each classroom provides a family-like setting where learning can take place naturally and cooperatively.

- The Montessori classroom is a working community of children and adults with constant problem solving, child-to-child teaching, and socialization.

- The Montessori Method is based on scientific observation. Much of student assessment is through teacher observations.

- The Montessori Method refers to the interaction of children, Montessori teaching materials, and Montessori teachers.

- The Montessori philosophy values all intelligences and styles of learning. Subjects are interwoven, not taught in isolation, and children are free to work and develop at their own pace with materials they have chosen, either alone or with others.

- Children in a Montessori environment are able to learn in many different ways: individual lessons with the teacher, small group lessons with the teacher, and large group lessons with the teacher; a lesson from another child and most importantly from being able to observe other children of various ages working.

- The aim of the method is to assist children in developing habits of concentration, initiative, persistence, and joy in learning so that they can reach full potential in all areas of life and become life-long learners.

- The guiding principle is freedom within limits.

Virginia Preschool Initiative (VPI) Goals and Objectives

The Virginia Preschool initiative program, VPI, provides a foundation for learning and academic success. School-readiness activities focus on phonological awareness, vocabulary, number sense and physical, motor and social development. The goal of the VPI program is to prepare both the child and family for school success in kindergarten and beyond.

Instruction in the VPI program must align with the Foundation Blocks for Early Learning[3]. The Foundation Blocks for Early Learning are comprehensive standards that must be met in the following categories: literacy, mathematics, science, social studies, health & physical well-being, personal & social well-being, music and visual arts.

These principles frame the Arlington Public Schools approach to early childhood education:

- Valuing each young child

- Acknowledging the importance of each child's family and culture

- Working collaboratively with stakeholders, including Northern Virginia Family Services who provides Head Start in Arlington and the Arlington Department of Human Services, to meet the needs of young children and their families

- Increasing the level of parent education and staff training available to those involved with young children in Arlington

- Emphasizing the importance and necessity of acquiring school readiness skills

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[3] www.doe.virginia.gov/instruction/early_childhood

APS uses both locally developed curriculum and commercial materials to meet the needs of the students. Program materials support our goal of ensuring students have the experiences and skills needed to be successful in kindergarten and beyond. When planning learning experiences for students, a backward design model is used. Teachers first look at our desired outcomes for children as specified in the Virginia's Foundation Blocks. The teachers then plan activities/experiences for the children that will facilitate the development of concepts and skills needed to meet the objectives.

APS is committed to providing a balance between both teacher directed (direct instruction) and student centered experiences. Teachers use a High-Scope framework in their classroom and all teachers have students engage in small group interactions as well as the Plan, Do, Review process. For the direct instruction component all teachers use *Opening the World of Learning (OWL)*, a comprehensive early literacy program, *Words Their Way,* and *Handwriting without Tears*. In Mathematics, all teachers use the Great Source *Every Day Counts: Every Day in Pre-K: Math* instructional program and *Numbers Plus Preschool Mathematics Curriculum*.

The Policy Implementation Procedures aligned with School Board Policy 20-3 on Program Differentiation provide the framework for Arlington's early childhood programs. The Board believes that each Pre-Kindergarten-aged child should experience high quality settings that promote success in school, whether in his or her home with family supervision, with a home day-care provider, in a private day care center, and/or in a publicly funded program. The Arlington School Board recognizes the critical influence of early childhood experiences on school success and desires that more children begin their school careers in kindergarten fully prepared for success in school, including the ability to speak and understand English. As a result of this belief and recognition, the Arlington School Board supports other community agencies and stakeholders in providing additional Pre-Kindergarten programs, as well as caregiver education opportunities.

In implementing the principles listed in the prior section, Arlington Public Schools provides

- Pre-Kindergarten programs for identified students with disabilities, aged 2-4 years old

- Pre-Kindergarten programs for four-year-old students identified as at-risk for school failure, in selected locations and as resources allow

- Montessori programs for three-, four-, and five-year-old students in selected locations and as resources allow. Tuition shall be charged on a sliding scale for all enrolled students who do not meet the age requirement for kindergarten. "Two-thirds of the positions in each Montessori class will be reserved for children whose parents' income is at or less than 80% of the amount specified in the annual income guidelines for families qualified for tax relief programs in Arlington County" as stated in APS School Board policy 25-2.2.

Attributes of Success

Through successful implementation, the Early Childhood program will accomplish the following:

- Students will develop school readiness as outlined in the Virginia State Task Force definition of school readiness; emphasis will be placed on emergent literacy and numeracy outcomes, as well as socio-emotional growth including:

  - display emerging literacy skills

  - show an interest and skill in mathematics

  - build early science skills

  - learn about history and social studies

  - enhance physical and motor development

  - exhibit personal and social skills and a sense of self-worth

- Students will master literacy skills assessed on the following literacy assessments:

  - Pre-K Phonological Awareness Literacy Screening Pre-K PALS (VPI, Special Education and Montessori 4 year olds only)

  - K Phonological Awareness Literacy Screening (KPALS)

- Students will master math skills assessed on the following literacy assessments:

  Developmental Math Assessment (DMA) (VPI and Special Education Pre-K 4 year olds only)

  APS kindergarten Math Assessment (K year)

Program Attributes

Montessori Pre-K

Montessori education is a multi-age, child-directed model of education based on the work of Dr. Maria Montessori, a renowned physician, anthropologist, and educational researcher. Over a century ago, Dr. Montessori opened the first 'casa del bambini' or children's house in Rome in 1907. Through extensive study and careful observations of students, she concluded that children are innately equipped with an 'absorbent mind' and should have a carefully prepared environment in which children may act on their need to explore and learn. The Montessori Method is based on the philosophy that a child's desire and ability to learn should be nurtured through interaction with a prepared environment, purposeful activities, and the guidance of trained adult. Over time, children develop concentration, self-discipline, and respect for themselves and others.

Montessori education is available in Arlington for students 3-12 years of age. This includes primary elementary and middle school classrooms. The program provides Arlington public schools with an option other than the traditional educational model. Families must apply for their child to participate in the Montessori program during the Pre-Kindergarten years. Additional entry points are considered at

grade one and three with the discretion of the principal and parents. The Pre-Kindergarten program reserves two-thirds of the available positions for families of lesser financial means as defined by APS School Board policy.

Application Process

The primary Montessori application is a school-based process. Children and families may apply to the primary Montessori program at each eligible school site if the child has turned three-years-old by September 30. During the month of April, a lottery is conducted at each school in which two-thirds of the available positions are reserved for families whose income is at or less than 80% of the median income for a family of four in Arlington County.

Children that apply for four and five-year-old positions are placed on a school waiting list. All families with three-year-old children pay tuition, which is assessed on a sliding scale. Families whose income is below 80% of the median income for Arlington County, do not pay tuition during the four-year-old year. All five-year-old children (by September 30) attend the Montessori program free of charge. Elementary students also have the opportunity to apply and enroll in the Montessori elementary program.

Additional entry points are typically at first and fourth grade.

Family and Parental Involvement Plan

Communication between home and family is unique in a Montessori setting as the children and families work with a single teacher for three consecutive years. This allows the teacher to build enduring relationships with the student and his or her family based on shared experience. A variety of methods are used to sustain communication including conferences, newsletters, school events, and personal communication.

In addition to individual school events and conferences, Montessori families are invited to attend county-wide programs. These events, including parent education evenings, back-to-school picnics, curriculum nights, celebrations and Montessori Information Night, bring families together from across the division to learn and share their experience of a Montessori education.

The schools sponsor many events to make the school setting as inviting as possible for each family. Also, the Early Childhood Office coordinates and executes an Annual Montessori Information Night for families.

Primary Montessori Curriculum and Instruction

Montessori primary curriculum is divided into four curricular areas, which include: Practical Life, Sensorial, Math, and Language. Art, music, science, and cultural studies are integrated into all areas of the classroom. Students engage with both the teacher and the prepared environment to learn fundamental skills and content knowledge. Students experience a sequence of lessons in small groups or one-on-one settings with the teacher. Follow-up work is selected to provide concrete experiences on concepts to be learned. Children also work to acquire independence, coordination, sense of order, concentration, and internal motivation.

Lessons are delivered in small groups or one-on-one with the teacher. Follow-up work is selected and completed during the three-hour work cycle. As children progress through curricular materials, which are self-correcting, they work from concrete to abstract lessons at their own pace. Classes are multi-age, traditionally spanning three years (ages 3-6, 6-9, and 9-12). This affords children and families continuity and promotes strong relationships among the teachers, children, and parents in a Montessori environment.

Montessori children experience the Arlington Public Schools, Virginia State Standards for kindergarten, and Montessori curriculum which extends from age 3 to 12. Teachers maintain a sophisticated record keeping process which allows them to track individual student's progress in the curricular areas. The Early Childhood Office provides resources for teachers to utilize the online Montessori Record Keeping System (MRX). This is an online tool that allows for teacher record keeping and report creation for parents and administrators.

Virginia Preschool Initiative

The Virginia Preschool Initiative (VPI) is a program that serves at risk four-year-old children in Arlington County. Currently, Arlington supports 35 VPI classrooms with approximately 630 students. VPI began in 1995 with the Education Act (HB2542). This legislation was created in response to a study of early childhood programs for at-risk four-year-old children presented to the Senate Finance Committee and House Appropriations Committee in 1993. The state of Virginia provides monies to public and private agencies which are able to provide high quality early childhood services to at-risk four-year-olds in order to eliminate academic differences in school readiness. Although the initiative is focused primarily on supporting academic success through quality pre-kindergarten education, programs must also include support for health services, social services and parental involvement.

VPI is a pre-kindergarten program for children from families of lesser financial resources Children must be four years old on or before September 30 of the year they enroll in the program and their household income must not exceed 350% of the federal poverty level. Per state guidelines, priority for this program is based on need starting with those at or below 100% of federal poverty. The VPI grants requires that jurisdictions also collect risk factor information on children applying for the program including: homeless status, parental incarceration, single parent status, military family, parent with limited school and whether the child is an English-Language learner. VPI classes are housed in 16 elementary schools with one countywide site at Drew Model School. The VPI program is funded through state and local funds. The VPI program is a high quality, comprehensive pre-kindergarten program operating during school hours and provides a balance of student initiated and teacher initiated activities. The curriculum aligns with the Virginia Foundation Blocks for Early Learning and students are assessed using the Pre-K PALs and the DMA math assessment three times per year. Teachers in the program are fully Virginia licensed teachers with an endorsement in Early Childhood Education.

Application Process

The VPI program is available to families whose income is at or below 350% of the federal poverty level and who have other risk factors. Families that qualify for the VPI program must submit a completed application and verification of income to the early Childhood Office before the registration cut-off date

in mid-April. After the application window has closed, the Office of Early Childhood places students based on need at particular sites giving consideration to parent preferences listed on the application. Those applications are then sent to school sites to offer families spots in the program and assist them in completing registration.

Social Services and Child Health Plan

The Arlington Department of Human Services School Health Office collaborates with the APS Office of Early Childhood by promoting and providing awareness of our programs as well as assistance in completing applications. Additionally, APS partners with Northern Virginia Community College for an annual event to provide free dental cleanings to all VPI students and selected Special education and Montessori students. APS has also partnered with Northern Virginia Family Services who serves Head Start to collaboratively support the needs of students and families.

Family and Parental Involvement Plan

Communication between home and family is carried out using a variety of means. At a minimum, parents will meet seven times with the teacher to include: one home visit, three parent teacher conferences and multiple countywide parent/family events. All of the schools have bilingual staff and translation is provided at meetings, during phone calls and in written communications. Teachers make home visits for each child in their classroom. They sometimes will bring along the instructional assistant, co-teacher, interpreter or another staff member from the school. The first home visit takes place before school starts or during the month of September. In cases where a visit at the child's home cannot take place, the teacher works with the parent to identify a location where the family feels comfortable. The goal of the home visit is to begin to create a relationship between the family and teacher.

The schools sponsor many events to make the school setting as inviting as possible for family participation. Parents with children in the VPI program are invited to all school events. The school calendar is a component of each school's Family Handbook, which is revised and published every September. The school year begins with an Open House before school opens in order for parents to get acquainted with one another and the teaching staff. There is also a Back-To-School Night where parents learn about their child's instructional program. All schools have family literacy nights and family library nights where staff members present programs that introduce children to diverse genres of literature while modeling literacy building skills for parents. VPI teachers are encouraged to provide at least two parent involvement events including one for literacy and one for numeracy and ways to foster these areas at home.

In addition, the APS Office of Early Childhood sponsors numerous events open to all VPI families.

Parents have the opportunity to meet with their children's teachers at school three times during the year, for parent teacher conferences. The teachers are encouraged to also create regular class newsletters, blogs, twitter accounts, etc. to keep parents informed about the activities in their children's classes. Parents are also encouraged to volunteer in their children's classroom, the library, or the cafeteria and on field trips as their work schedules permit.

Finally, each VPI student receives a monthly Home School Connection packet that includes a letter translated into 5 languages, an activity and a book. These packets correlate with what the student is learning in the program during that month.

VPI Curriculum and Instruction

APS uses locally developed curriculum and commercial materials to meet the needs of the students in the VPI classes. Program materials support our goals of ensuring students have the experiences and skills needed to be successful in kindergarten and beyond. When planning learning experiences for students, a backward design model is used. Teachers first look at the desired outcomes for children as specified in the Mathematics and Literacy checklists (the APS Scope and Sequence) and Virginia's Foundation Blocks. This allows teachers to use both State and National norms and expectations on which to base a student's progress. The teachers then plan activities/experiences for the children that facilitate the development of concepts and skills needed to meet the objectives. Additionally, teachers utilize the *Words Their Way* and the *Handwriting without Tears* materials as part of the VPI literacy block.

APS is committed to providing a balance between both teacher directed (direct instruction) and student centered experiences. Teachers use a High-Scope framework in their classroom and all teachers have students engage in small group interactions as well as the Plan, Do, Review process. For the direct instruction component all teachers use the Pearson *Opening the World of Learning* comprehensive early literacy program and the *Alligators to Zucchini* early literacy kit. In Mathematics all teachers use *Every Day Counts in Pre-K: Math* instructional program as well as the *Numbers Plus* materials.

For socio-emotional learning, the VPI program uses the Conscious Discipline program. Components of this program such as family photographs posted, classroom jobs representing every student, a safe place, etc. is expected to be evident in each classroom so that students feel safe and have their socio-emotional needs met.

Best and Current Practices

In 2006, a group of Montessori parents, teachers and others produced a best practices document for APS primary Montessori teachers. It included the following components:

1. A child remains in the same class; any changes in a child's placement will include a dialogue with parent(s), teacher and administrator.
2. Parents of children Kindergarten age and up without Montessori experience, who are interested in Montessori, must meet with a teacher and principal and observe a class in order to determine if the transition into Montessori is in the best interest of the child.
3. Advanced Practical Life Activities are available, presented, and utilized.
4. Workspace is designed to optimize concentration and engagement.
5. Sound level is low enough to encourage concentration.
6. Conversations are held only in close proximity.
7. Most children working in the classroom demonstrate on-task behavior (attention, eyes focused on their work and language related to that work)
8. Adults should seldom intervene when children are on-task

9. A full complement of Montessori materials is available to the teacher
10. Respect for others space e.g. not interfering or bothering children who are working
11. The teacher acts as a role model.
12. Behaviors promoted –completion of cycles- that the child completes, even if the cycle is short, teachers demonstrate a focused and well-prepared lesson that is appropriately scripted-physically models the lesson in a developmentally appropriate manner using the materials.
13. Adults speak in a low voice with close proximity to the child.
14. Adults use the language and behaviors of the grace and courtesy lessons they teach.
15. Adults address the child at his/her eye level.
16. Adults use respectful language.
17. Adults offer assistance when needed and limit unnecessary interference.
18. Teachers use a variety of communication and reporting techniques including the following: parent conferences, telephone calls, e-mail contacts, written reports, and open house events.
19. A 3 hour work period is provided -preferably not interrupted by specials and in the morning as little teacher scheduling as possible, as much student choice as possible.
20. Specialist where possible, adopt Montessori principles
21. Absence of extrinsic rewards.
22. Wide variety of exercises (Type and complexity) is available
23. Materials are attractive and arranged with purpose
24. Children practice grace and courtesy
25. Children extend their learning with fine and lively arts
26. A Variety of literature is provided to enhance oral and written experiences
27. Observation, reflection and social interactions are valuable learning activities
28. Most students are engaged in Montessori materials in a focused and appropriate manner.
29. Concentration is evident during work, reflection and observation
30. Children are allowed opportunities to experience silence (teacher or child initiative)
31. Wait time is provided.
32. Teachers have access to funds to furnish classrooms appropriately.
33. Curriculum that is not inherently "Montessori", will be presented within the parameters of the Montessori philosophy (i.e., lends itself to independent work and is not solely teacher directed.)
34. Teachers observe for specific purposes (whole class, small group or individual child).
35. Observation is on-going.
36. Observation informs the preparation of the environment and program implementation.
37. Classroom layout enables teachers to monitor students working in all areas of the room.
38. Non-Montessori materials must serve an explicit purpose and are aligned with Montessori principles and/or APS curriculum.
39. Teachers encourage students to reflect on his/her work.
40. Teachers model language of Montessori self-assessment
41. Teachers assist students in goal setting.
42. Children will use materials in sequence to learn concepts.
43. Materials are arranged in logical sequence.
44. Children have the freedom to choose work and follow their interests.

45. Children working in small groups or individually.
46. Whole group lessons are short and kept to a minimum.
47. Teachers present materials and provide opportunities to explore that leads to discovery of concepts.
48. Children create follow-up work and extensions.
49. Children have multiple opportunities to work on research projects.

VPI Program Guidelines/Expectations:

The VPI program has several consistent guidelines and expectations that have been developed over the history of the program. These guidelines support consistent implementation and foster high quality early childhood experiences for students.

1. Classroom schedules reflect the VPI Required Daily Schedule Components.

2. All classes use the *Every Day Counts: Every Day in Pre-K Math* materials.

3. All classes use the *Pearson Opening the World of Learning Early Literacy Program* (OWL). Teachers implement the curriculum per APS guidelines.

4. All teachers implement the OWL Story Time and Songs, Word Play and Letters (SWIPLE) components of the program as described in the teacher's manual.

5. All teachers implement the High/Scope work time "Plan, Do, Review" a minimum of 45 minutes a day, 4 days per week.

6. All teachers attend and participate in regular VPI professional development opportunities.

7. All teachers conduct home visits for each child in their class.

8. All teachers take at least two field trips. These may include a walking field trip.

9. All parents have the opportunity to attend 3 parent involvement activities. These may be done in conjunction with other activities already scheduled at the school.

10. All classroom environments facilitate both small and large group activities and have the following four areas: Blocks, Toys, Home and Art.

Professional Development

The Office of Early Childhood works closely with the Department of Instruction to provide professional learning opportunities for all Pre-K teachers.

Because primary Montessori teachers educate students in the kindergarten year, they often participate in school-based professional learning to ensure an understanding of what is being taught in the general education kindergarten classroom and meet those needs in the Montessori classroom.

Additionally, The Office of Early Childhood provides the funding for primary Montessori teachers to attend professional Montessori conferences and workshops to meet their individual needs and training as Montessori guides. Additional training is provided for primary Montessori assistants to learn more about their role in the prepared Montessori environment.

The Office of Early Childhood collaborates with the Special Education Office to plan and execute differentiated professional learning for VPI and Special Education Pre-K teachers. Past trainings have included Early Childhood SIOP best practices, support for inclusive classrooms serving children with disabilities, socio-emotional support for students, literacy training, and more.

VPI and Special education assistants receive a choice of developmentally appropriate trainings to best meet their needs to support the Pre-K classroom.

Resources

The budget for the Department of Instruction includes funds for approved curriculum and staff development. The FY 2017 budget includes $1,013,490 that is shared among **all** instructional programs to pay for

- salaries for curriculum work done by teachers

- salaries and costs for in-service professionals, including outside consultants, contract courses, and staff participating in professional learning outside of their contract hours

- Conference registration fees for both presenters and attendees

- School-based professional development

The Office of Early Childhood is responsible for the implementation of Pre-Kindergarten initiatives, VPI and Montessori, as well as co-supervision of the Montessori elementary program. Support for instruction and professional development is a shared responsibility with the other offices throughout the Department of Instruction as well as the Department of Student Services and Special Education.

The primary responsibilities of the three Early Childhood Office employees are described in **Table 1**:

Table 1: Early Childhood Office Staff and Responsibilities

Employee	Primary Responsibilities
Director of Early Childhood and Elementary Education (fulltime)	- Supervises the Early Childhood Coordinator and subsequent management of the Virginia Preschool Initiative Program - Supervises the Early Childhood Coordinator and subsequent management of the Pre-K programs - Plans, leads and coordinates APS school improvement Initiatives for identified schools - Engages in APS executive Leadership (ELC) Initiative for continuous school improvement - Provides systematic and targeted instruction and organizational support monthly & weekly to identified schools (operational, management and instructional leadership)

	- Screens, interviews, and mentors staff (both administrators and others)
	- Formally observes teachers and provides feedback related to the instructional programs and student learning
	- Coaches identified principals on a biweekly/monthly basis
	- Plans and facilitates intra-departmental meetings to align priorities related to parent engagement and collaboration and professional learning opportunities for staff
	- Serves in leadership role for Department of Instruction and APS initiatives and projects (i.e. PLC, Festival of the Minds, data-driven instruction, master scheduling, early literacy initiatives, formative assessment, ATSS, etc.)
	- Establishes and fosters APS division-wide collaboration to enhance the educational opportunities for staff to strengthen the APS Pre-K and elementary programs
Coordinator, Early Childhood (fulltime)	- Supervises and manages the Virginia Preschool Initiative (VPI) to include writing of grant, management of budget, coordination of outside services including dental, health and social services
	- Supports school administration in interviewing potential teaching candidates and assists with the hiring process for both the VPI and primary Montessori programs
	- Develops and facilitates professional development with VPI and Montessori teachers and assistants
	- Works with parents and private providers to answer questions and assist in planning for entry to the Arlington Public Schools both for Pre-K and kindergarten
	- Supervises and provides formal observations of VPI, Montessori and K-2 teachers upon request
	- Serves on local and state committees addressing issues relevant to young children and their families including the Arlington Child Care Committee, George Mason early childhood subgroup, Wolf Trap Early Learning Committee and VA Early Childhood Council
	- Collaborates with Information Services and School & Family Relations to provide training to school registrars
	- Serves as the liaison to the Advisory Council on instruction's Early Childhood Advisory Committee

	• Advises parents and private providers on kindergarten readiness and APS kindergarten standards and curriculum
	• Responsible for oversight of the APS Underage Placement Policy working with families and schools to review candidates
	• Produces literature for Pre-K programs including FAQs, applications, etc. as well as kindergarten readiness guidance
	• Updates and prints kindergarten progress report indicators (KIDS) for schools
	• Coordinates parent engagement events for APS families including Montessori Information Night, Pre-K Registration Night, Title I & VPI Parent Engagement Night, and others
	• Tracks Pre-K waitlists in coordination with school registrars and communicates this to the executive leadership team
	• Provides a point of contact for families with questions regarding the primary Montessori program
	• Facilitates the implementation of the early childhood summer school programs
Administrative Assistant (Fulltime)	• Completes administrative paperwork including filing statistic reports, documentation and detailed records for VPI and Montessori accounts
	• Purchases instructional materials for VPI, Montessori, and new Kindergarten classrooms
	• Maintains records for the VPI budget and Office of Early Childhood professional development and supply budgets
	• Monitors waitlists across the elementary schools
	• Serves as a contact for all elementary school registrars regarding Pre-K initiatives
	• Prints and distributes flyers, documents, databases, and newsletters for the Office of Early Childhood
	• Orders, sorts and distributes monthly home-school connection materials for all VPI students
	• Supports the implementation of summer school through purchasing, curriculum and materials distribution
	• Serves as a contact for Arlington families with the Office of Early Childhood
	• Completes special projects to support the VPI, Montessori, K-2, Summer School, and Early Childhood Community projects

	• Maintains the Office of Early Childhood website

All Pre-K teachers have earned a Virginia State Teaching license. Most have earned advanced degrees. Montessori teachers hold a second Montessori credential from either American Montessori Society (AMS) or American Montessori International (AMI). The instructional assistants have varied educational experiences.

The teaching staff for FY 2017 is funded through school planning factors and includes the following positions that support early childhood instruction:

- 19 Pre-K Montessori teachers
- 35 VPI teachers
- 54 instructional assistants

The average teacher salary in FY2017 is $78,002.

Class Size

Each Montessori class has a maximum capacity of 23 students and is served by a Montessori teacher as well as an instructional assistant. APS has 19 primary classes across 9 schools.

VPI classrooms have between 16-18 students served by a teacher and an instructional assistant. This number fluctuates based on availability of VPI-eligible 4-year-old students with disabilities at particular sites. During the 2016-17 school year there are 35 VPI classes across 16 schools. Pre-K students with disabilities are included in accordance with their IEPs in both VPI and primary Montessori classrooms.

Other Program Resources

In addition to set class sizes and appropriate levels of staffing, APS Pre-K programs have access to a variety of curricular materials and other program resources:

- Montessori materials and curriculum

- VPI materials and curriculum

  - *Opening the World of Learning* (OWLs): A Comprehensive Early Literacy Program: Pearson Early Learning

  - *Every Day in Pre-K Math*: Great Source Education Company

  - *Handwriting Without Tears*: Teacher's guide, student books, manipulative kits: Handwriting Without Tears Company

  - *Words Their Way*, Pearson

In addition to APS operating funds, the VPI grant provides $3,000 per student served, while many of the families with Montessori students pay tuition on a sliding scale.

Status of Recommendations Made in Previous Evaluations

The Early Childhood Program was last evaluated in 2010 and included the following recommendations.

Table 2: Status of Recommendations Made in Previous Evaluations

Recommendation	Status
Continue to provide both Montessori and VPI Pre-K programs for Arlington families, giving priority to students who are economically disadvantaged or limited English proficient.	• APS has increased Pre-K enrollment in both programs since the last evaluation. For current numbers, see *Participation in APS Pre-K Programs* on page 36.
Provide professional development • that addresses instructional support as defined by the CLASS framework, for teachers and instructional assistants in both the Montessori and VPI programs. The professional development should provide opportunities for Pre-K staff to become skilled in the areas of concept development, quality feedback and language modeling. • for instructional assistants that ensures the quality of instruction is consistent within the classroom. • that continues to reinforce the classroom organization as described by the CLASS for VPI teachers, to reduce the variability of implementation.	• The EC Office continues to provide targeted professional development to support instructional needs. • The EC Office has increased professional development opportunities for all assistants since the last evaluation.
Identify consistent methods to monitor student progress in mathematics, using existing assessments such as work sampling and Montessori record keeping.	• VPI teachers now have a curriculum framework created by a committee of teachers in 2013. Additionally, VPI teachers now use the DMA math assessment to measure numeracy understanding. • Montessori teachers now have the option to use Montessori Records Express (MRX) to record progress.
Review the personnel descriptions for Pre-K instructional assistants and determine if revisions are needed that align APS more closely with the QRIS expectations for a 5-star rating. Determine ways to develop the skills so instructional assistants meet any new requirements.	• Job descriptions for instructional assistants have been updated to ensure that candidates meet the criteria for highly qualified staff Instructional assistants are provided training and support by the Early Childhood Office annually.

Develop a communication plan that promotes a revised message about parent involvement, so parents understand this is not limited to their time at the school, but instead includes the things they do with their child that supports their school experience, like talking to their children about school, reading to them, etc.	• The Early Childhood Office continues to look at ways to improve access and awareness regarding our programs. In 2014, we established the First Annual Pre-K Night to provide an opportunity to support families ability to apply to our programs. • We have also improved our home-school connection program to not only provide a connection with what students are learning in school, but also a relevant book for the family to read together at home. • In partnership with other DOI Offices and the Arlington Public Libraries, we provide a summer reading Traveling Trolley to support parent education and access to local libraries for young children during the summer months.

Expressed Concerns

Although APS has increased access to both the VPI and Montessori Pre-K programs, there is continued interest in increasing access to Pre-K programs. APS wait list data suggest strong interest in both programs, while the state of Virginia also identifies unmet need[4]. The VPI wait list has included approximately 50 students a year over the past three years. For school year 2009-10 the Commonwealth of Virginia estimated 549 unserved, at-risk four year old children in Arlington were eligible for the VPI program. APS provided VPI spots for 496 students. This report includes a section on program capacity.

As APS continues to increase the number of Pre-K classrooms, questions have been raised about the long term impact this program has on student outcomes. This report includes a longitudinal study of students who started in the Pre-K program.

Pre-K teachers indicate that they need more time to plan for instruction. This concern is not addressed within this evaluation report since it was raised after data collection was underway.

Methodology

Evaluation Design and Questions

Table 3 displays the Early Childhood evaluation design.

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[4] Virginia Preschool Initiative Projected Grant Application.

Table 3: Early Childhood Evaluation Design

Program Service/Objective	Program/Service Question	Data Source(s)
Evaluation Question 1: Implementation – How effectively was the Early Childhood Program implemented?		
Objective 1: Best instructional practices for emotional support, classroom organization, instructional support, and student engagement are evident across instruction in Pre-K classrooms.	1a To what degree are best instructional practices evident in Pre-K classrooms?	Existing Tools and Data Sources: ● Observations using the Classroom Assessment Scoring System (**CLASS**)
Objective 2: The APS Early Childhood Montessori program follows best practices aligned to the Montessori philosophy.	2a To what extent does observed early childhood Montessori instruction align with Montessori best practices?	Developed Tools: ● APS-developed Montessori observation
	2b To what extent do primary Montessori students participate in the program for the full three years?	Existing Tools and Data Sources: ● Pre-K enrollment
	2c What factors lead some parents to leave Montessori after the 3- and 4-year-old years?	Developed Tools: ● Parent survey
	2d To what extent does kindergarten attrition affect Montessori program fidelity?	Developed Tools: ● Teacher survey
Objective 3: APS Pre-K programs are accessible to all students who are eligible to participate.	3a Who participates in APS Pre-K programs? • Demographic representation • Variability among locations	Existing Tools and Data Sources: ● Enrollment ● Household income
	3b What factors contribute to participation or non-participation in APS Pre-K programs?	Developed Tools: ● Parent survey

Program Service/Objective	Program/Service Question	Data Source(s)
Evaluation Question 1: Implementation – How effectively was the Early Childhood Program implemented?		
Objective 4: Pre-K students in need of specialized support are identified, receive appropriate services, and are appropriately included in VPI and Montessori classrooms.	4a To what extent do Pre-K students and families receive support and services needed for success in school?	Developed Tools: ● Staff survey
	4b To what extent are Pre-K teachers trained in SIOP strategies?	Developed Tools: ● Teacher survey
Objective 5: The APS early childhood program promotes and supports students' physical, social, and health well-being.	5a How does APS develop and maintain students' physical, social and health well-being?	Developed Tools: ● Staff survey ● Parent survey
	5b To what extent are specials teachers (art, music, PE,) prepared to provide developmentally appropriate instruction for Pre-K students? (VPI, SPED, Montessori)	Developed Tools: ● Staff survey
Objective 6: Early Childhood staff collaborate with each other to ● ensure students are meeting their potential ● get intervention ideas ● get ideas for supporting families ● curriculum support	6a To what extent do early childhood staff collaborate with each other?	Developed Tools: ● Staff survey
Objective 7: The registration process is efficient and accessible to families.	7a To what extent does the registration process facilitate enrollment in Pre-K, both for schools and for families?	Existing Tools and Data Sources: ● Attendance at parent information night

Program Service/Objective	Program/Service Question	Data Source(s)
Evaluation Question 1: Implementation – How effectively was the Early Childhood Program implemented?		
		Developed Tools: ● Parent survey ● Staff survey
Objective 8: The APS Early Childhood program provides opportunities to parents to learn how to support their children.	8a How comfortable are Pre-K parents engaging with the school? 8b To what extent do parents feel well-informed about the Pre-K program? 8c To what extent do parents feel that their child is ready for kindergarten/first grade?	Developed Tools: ● Parent survey
	8d To what extent do parents participate in school-based and countywide events?	Developed Tools: ● Data collection from Pre-K teachers about parent participation ● Staff survey ● Parent survey
Objective 9: APS manages Early Childhood resources effectively.	9a What are the relative costs to APS of the VPI and Montessori programs?	Existing Tools and Data Sources: • Fee data • Staffing costs • Transportation costs • Startup classroom costs
	9b To what extent is APS able to staff the early childhood program with highly qualified teachers?	Existing Tools and Data Sources: ● Teacher endorsements Developed Tools: ● Staff survey ● Parent survey

Program Service/Objective	Program/Service Question	Data Source(s)
Evaluation Question 1: Implementation – How effectively was the Early Childhood Program implemented?		
	9c How effective and relevant is the professional development provided to Pre-K **teachers** and **assistants**?	Developed Tools: ● Staff survey
	9d To what extent are teachers satisfied with division-level support?	Developed Tools: ● Staff survey
Evaluation Question 2: Outcomes – What were the outcomes for the targeted population?		
Objective 10: APS Pre-K students develop emergent literacy and numeracy skills.	10a To what extent do APS Pre-K students and student groups demonstrate emergent literacy and numeracy skills?	Existing Tools and Data Sources: ● Pre-K Phonological Awareness Literacy Screening ● Kindergarten PALS ● Developmental Math Assessment ● APS Kindergarten Math Assessment
Objective 11: Participation in APS Pre-K prepares students for academic success beyond Kindergarten.	11a To what extent does participation in an APS Pre-K program impact students' academic outcomes throughout their career in APS?	Existing Tools and Data Sources: ● Longitudinal cohort study (Hanover Research)
Objective 12: APS Pre-K students demonstrate social emotional growth.	12a To what extent do APS Pre-K students exhibit personal and social skills?	Developed Tools: ● Centralized data collection of social-emotional indicators ● Parent survey
Objective 13: APS Pre-K students develop fine and gross motor skills.	13a To what extent do APS Pre-K students demonstrate growth in physical and fine and gross motor development?	Developed Tools: ● Parent survey

Study Measures

Data sources used to inform this evaluation are described in detail below.

Outcomes: Classroom Assessment Scoring System (CLASS)

The Classroom Assessment Scoring System (CLASS) is an observation tool developed at the University of Virginia's Curry School of Education to analyze the interactions among adults, students, and content. CLASS observations were conducted in the winter of 2016 at all elementary schools with Pre-K programs.

The domains and dimensions of the CLASS tool are described in detail in **Appendix B1**. **Appendix B2** describes the alignment between CLASS dimensions and APS best instructional practices. A summary of CLASS data used in this evaluation is available in **Appendix B3.**

Implementation: Montessori Observations

In order to assess APS primary Montessori classrooms' fidelity to the Montessori philosophy, the Office of Planning and Evaluation contracted with the Montessori Training Center Northeast (MTCNE), a part of the Capitol Region Educational Council (CREC) in Hartford, Connecticut. An MTCN evaluator was able to complete 18 observations out of 19 primary classrooms in February 2016. Their full report is available in **Appendix B4**.

Implementation: Enrollment

This evaluation uses Pre-K enrollment data from Synergy, the student information system. Full enrollment information is available in **Appendix C1**.

Implementation: Parent Participation

Throughout the 2015-16 school year, Planning and Evaluation collected information from Pre-K teachers about the types of parent participation that occurred for each child in their class. The full report can be found in **Appendix C2**.

Stakeholder Feedback: Surveys

Several surveys were developed and administered as part of this evaluation. A staff survey was administered in fall 2015 to Pre-K teachers and assistants, as well as elementary specials teachers, principals, assistant principals, and front office staff known to work on Pre-K registration. In March-April, 2016, two separate surveys were administered to parents of kindergartners who had discontinued the Montessori program, or who had not attended a Pre-K program at all. In June 2016, a survey was administered to parents of current Pre-K students. Due to low a low response rate, data from the non-participant survey has been excluded from this evaluation. Parent survey results can be found in **Appendix D1**, and staff survey results can be found in **Appendix D4**.

Implementation: Cost Comparison

Planning and Evaluation contracted with Hanover Research (Hanover) to conduct a comparison of costs and revenue for the Montessori and VPI programs. The analysis also included a summary of teacher qualification by program. The full Hanover report can be found in **Appendix E1**.

Outcomes: Phonological Awareness Literacy Screening (PALS)

PALS results were downloaded from the PALS site for this evaluation. The full analysis of Pre-K PALS results can be found in **Appendix F1**. The full analysis of fall K PALS results, disaggregated by prior Pre-K experience, can be found in **Appendix F4**.

Outcomes: Developmental Math Assessment (DMA)

The Developmental Math Assessment (DMA) was selected in 2011-12 to evaluate the mathematical understanding of students in the VPI program. The DMA is used for all VPI and 3-5 year-old Special Education Pre-K students and is administered at three points in the year. The Office of Early Childhood provided Planning and Evaluation with three years of DMA data for VPI students, and the Special Education Office provided the most recent year of DMA data. The full report is available in **Appendix F2**.

Outcomes: Kindergarten Math Assessment

The Math Office provided Planning and Evaluation with four years of kindergarten math assessment data. This assessment is an APS-developed test that measures students' mastery of kindergarten math skills. An analysis of fall math assessment scores by prior Pre-K experience is available in **Appendix F3**.

Outcomes: Longitudinal Study

Planning and Evaluation contracted with Hanover to conduct a longitudinal analysis of achievement data for two cohorts of APS Pre-K students. The full Hanover report can be found in **Appendix F5**.

Outcomes: Social Emotional Outcomes

Planning and Evaluation collected information from all Pre-K teachers on social-emotional outcomes for their students at three points during the 2015-16 school year. The analysis of these outcomes can be found in **Appendix F6**.

SECTION 2: FINDINGS

Evaluation Question #1: How effectively was the Early Childhood program implemented?

To address this question, the evaluation focused on several areas: quality of instruction, program fidelity, meeting the needs of the whole child, community and parent engagement, and effective use of resources.

Quality of Instruction

CLASS Observations

> **CLASS observations across programs show a high level of emotional support and classroom organization, while instructional support scores fall into the low-mid range. Regard for Student Perspectives appears to be particularly strong in Montessori classrooms.**

Arlington Public Schools uses the Classroom Assessment Scoring System (CLASS) observation tool to assess the quality of interactions between teachers and students for all program evaluation areas. It was developed by the University of Virginia's Curry School of Education as an early childhood observation tool, and later expanded to include other grade levels.

The CLASS tool is grounded in developmental theory and research that suggest that interactions between students and adults are the primary mechanism for student learning. Multiple research studies have found that students who attend classrooms that rate highly on the CLASS have improved social and academic outcomes (Howes. et al., 2008).

The Pre-K CLASS is organized into three broad domains: Emotional Support, Classroom Organization, and Instructional Support. Each domain contains specific observable dimensions that are appropriate to each grade level. **Table 4** outlines the dimensions included in each domain of the Pre-K CLASS tool. Dimensions are scored on a 7-point scale consisting of Low (1, 2), Mid (3, 4, 5), and High (6, 7) ranges.

Table 4: Pre-K CLASS Domains and Dimensions

Domain	Dimension	Measures
Emotional Support	Positive Climate	Warmth and connection shared by teachers and students, verbal and non-verbal
	Negative Climate	Expressed negativity among teachers and students, verbal and non-verbal
	Teacher Sensitivity	Teacher awareness and responsiveness to students' academic and social needs
	Regard for Student Perspectives	Degree to which teachers emphasize students' interests, motivations, and points of view, and promote students' independence
Classroom Organization	Behavior Management	Teachers' use of clear behavioral expectations and effectiveness at redirecting misbehavior
	Productivity	How well the teacher manages time and routines so instructional time is maximized

Domain	Dimension	Measures
	Instructional Learning Formats	Teachers' employment of lessons and materials to support different learning styles, interests, and abilities
Instructional Support	*Concept Development*	Facilitation of students' broader understanding of concepts and ideas
	Quality of Feedback	Degree to which feedback expands learning and understanding
	Language Modeling	Quality and amount of language-stimulation and facilitation techniques

CLASS domains and dimensions are described in detail in **Appendix B1**. The alignment between CLASS dimensions and APS best instructional practices can be found in **Appendix B2**.

Pre-K CLASS observations were conducted in the winter of 2016 at all elementary schools with Pre-K programs. Observers conducted two 30-minute cycles (observations) for each teacher. All 34 VPI teachers were observed, along with 18 out of 19 Montessori teachers and 18 out of 19 Special Education teachers. **Figure 1** shows the average CLASS scores for each domain by level.

For context, two sets of additional CLASS scores are included in this analysis:

- Mean scores from the prior evaluation of the Early Childhood program. These observations were conducted in 2008-09 in VPI and Montessori classrooms. Mean scores are included here as an average for both programs combined as the prior report did not include a comparison between the two programs.
- Mean scores from a national review of Head Start programs. This review was conducted by the Office of Head Start in 2015, and included a series of CLASS observations conducted in a random sample of Head Start preschool classrooms.[5]

When interpreting CLASS results, Teachstone advises that typically, half a point to a point difference is considered to be **educationally significant**; in other words, a difference that would impact outcomes for students[6]. Mean scores for APS programs and the national Head Start comparison data show no educationally significant differences among programs, but do show some large gaps among domains.

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[5] https://eclkc.ohs.acf.hhs.gov/hslc/data/class-reports/class-data-2015.html
[6] Teachstone, personal communication, June 13, 2014 and January 5, 2016

Figure 1: Average CLASS Doman Scores by Pre-K Program
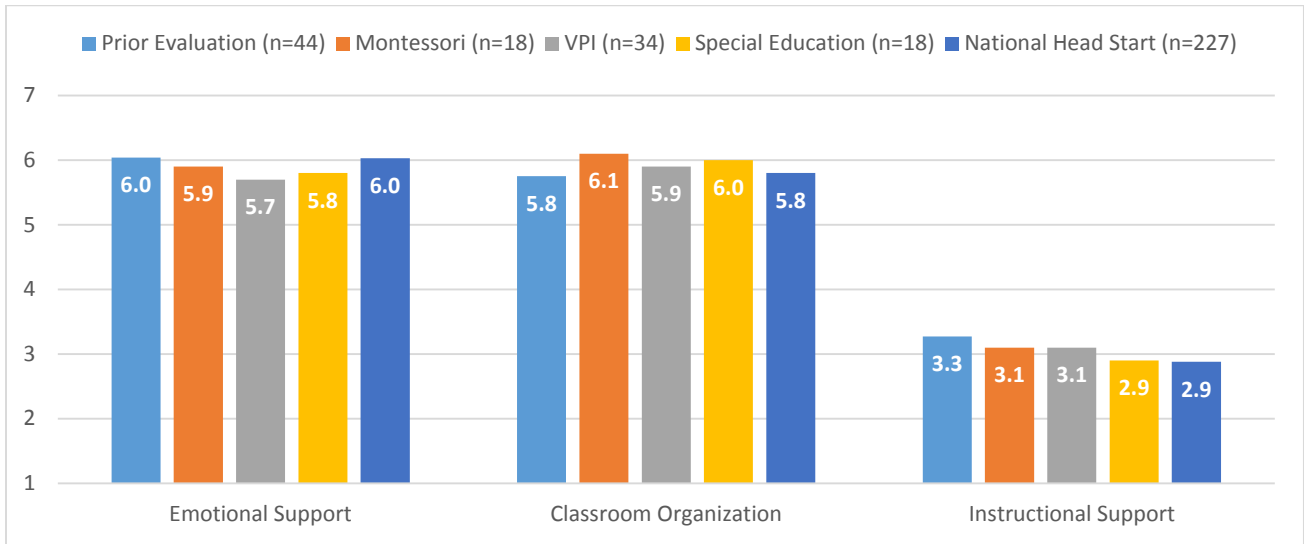
Average scores for all APS programs fell into the high range for **Emotional Support** and **Classroom Organization**. Similar to national and APS district-wide trends, the average **Instructional Support** scores were relatively lower and fell into the low-mid range. Within Instructional Support, **Concept Development** was the lowest rated dimension for either program (2.6, 2.7, and 2.1 for Montessori, VPI, and Special Education, respectively).

Concept Development refers to how teachers facilitate children's broader understanding of concepts and ideas, rather than concentrating on rote instruction and recall of facts. At the Pre-K level, observers look for behavioral markers associated with a series of indicators as displayed in **Table 5**.[7]

Table 5: Indicators and Behavioral Markers Associated with Pre-K Concept Development

	Analysis and reasoning	Creating	Integration	Connections to the real world
Behavioral Markers	• Why and/or how questions • Problem solving • Prediction/experimentation • Classification/comparison • Evaluation	• Brainstorming • Planning • Producing	• Connects concepts • Integrates with previous knowledge	• Real-world applications • Related to students' lives

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[7] Pre-K CLASS Dimensions Guide (2014). Teachstone Training, LLC.

While there were no **educationally significant** differences among programs at the domain level, there were some at the dimension level.

- The average score for **Teacher Sensitivity** (Emotional Support) was half a point higher in Special Education classrooms (6.4) than in either Montessori or VPI classrooms.
- The average score for **Regard for Student Perspectives** (Emotional Support) was 1.0-1.1 points higher in Montessori classrooms (5.1) than in VPI or Special Education classrooms.
- The average score for **Concept Development** was 0.5-0.6 points higher in Montessori and VPI classrooms (2.6, 2.7) than in Special Education classrooms.

The full report on CLASS observation results can be found in **Appendix B3**.

Montessori Observations

> *Observations found that implementation of Montessori practices fell within a range of high developing to low effective. The strongest dimension was **Respectful Interactions with Children**. Observers noted with concern that few new lessons were presented during the observations.*

In order to assess APS primary Montessori classrooms' fidelity to best practices in Montessori education, Planning and Evaluation contracted with the Montessori Training Center Northeast (MTCNE), a part of the Capitol Region Educational Council (CREC) in Hartford, Connecticut. An MTCNE evaluator was able to complete 18 observations out of 19 primary classrooms in February 2016. The observation framework used by MCTNE included four domains that reflect the key tenets of the Montessori philosophy. Each domain included several dimensions, listed below.

The Prepared Environment

- Uninterrupted Work Cycle
- Full Spectrum of Materials in Good Condition
- Layout of Classroom and Materials
- Order, Cleanliness and Beauty of the Classroom

The Work of the Child

- Engagement
- Work is Evident in All Montessori Areas
- Work is Developmentally Appropriate
- Three-Part Work Cycle is Completed
- Choice is Child Directed
- Control of Movement with Materials and Throughout Environment

The Work of the Adults

- Respectful Interactions with Children
- Connecting Children to Appropriate Lessons and Work
- Evidence of High Expectations
- Role of the Assistant

- Managing Student Behavior
- Lesson and Assessment Record Keeping

The Community of Children

- Children Respect the Environment
- Kind and Respectful Social Language and Movement
- Appropriate Mixed Aged Groups
- Spontaneous, Productive Work Groups

Dimensions were rated using a 4-point rubric, with 1 indicating ineffective and 4 indicating highly effective. Average scores fall between 2.6 and 2.9, within a range of high developing (2) to low effective (3). In order to assess whether there are differences between the countywide primary Montessori program and the satellite programs, MCTNE provided a breakdown of the average scores comparing observations conducted at Drew (countywide) and those conducted at other schools (satellites). **Figure 2** shows the average domain scores by location. Average scores are consistent across domains, with only minor differences between the countywide program and satellite programs.

Figure 2: Average Montessori Domain Scores by Location
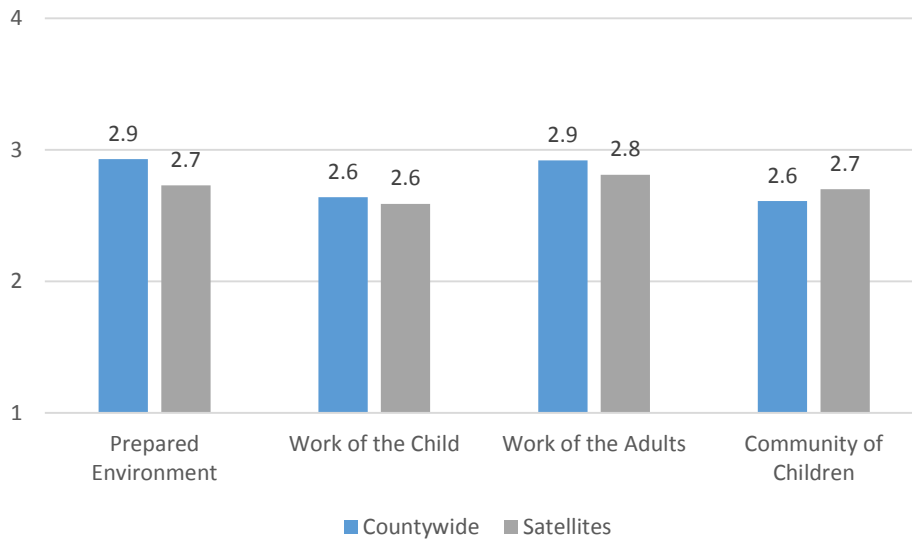
In the summary of the observations focusing on **Work of the Child**, the MCTNE report noted that:

> *It is also the work of the adult to connect children to lessons and to work. Many of the teachers did not give specific lessons but roamed the room, stopping to assist children as needed. Though review or assistance may be helpful to the child, of significant note were very few new lessons were presented during the three observation days. Two lessons were given that were not Montessori lessons. In light of the previously mentioned observation, lack of Montessori materials being chosen, this observed pattern should be examined by the APS Montessori teaching staff.*

Among the dimensions, average scores are also fairly consistent between the countywide and satellite programs, with just two exceptions:

- Prepared Environment: **Full Spectrum of Materials in Good Condition** (3.1 countywide, 2.6 satellites)
- Work of the Child: **Work is Evident in All Montessori Areas** (2.7 countywide, 2.4 satellites)

The strongest dimension was **Respectful Interactions with Children** in the Work of the Adults domain, with scores of 3.3 for both Drew and satellite programs.

The full MCTNE report, including commendations and recommendations, is available in **Appendix B4**.

SIOP Training

> ***Most APS Pre-K teachers have participated in some form of SIOP training. VPI teachers were the most likely to report that they implement SIOP strategies daily.***

The Sheltered Instruction Observation Protocol (SIOP) Model is a research-based and validated model of sheltered instruction for English language learners. VPI and Special Education Pre-K teachers were required to participate in SIOP training offered by the Early Childhood Office during a three-year period from 2012-13 through 2014-15. Primary Montessori teachers were invited to participate as well; their participation was optional.

A survey administered to Pre-K teachers and assistants in fall 2015 included a series of questions about participation in SIOP training and application of SIOP strategies in Pre-K classrooms. **Figure 3** shows the percentage of respondents who indicated that they had participated in SIOP training offered by their school, by the Early Childhood Office, or by another source. Most Pre-K teachers indicated that they had participated in some form of SIOP training.

Unsurprisingly, Montessori teachers were far more likely to have participated in school-based training (60%) than training offered by the Early Childhood Office that focused on early childhood students (7%). High percentages of special education and VPI teachers had participated in an Early Childhood SIOP training (79% for both groups). VPI and special education assistants were more likely than teachers in their program to indicate that they had never participated in any SIOP training (88% and 43%, respectively).

Figure 3: Participation in SIOP training

Legend:
- Special Education Assistant (n=14)
- Montessori Assistant (n=5)
- VPI Assistant (n=8)
- Special Education teacher (n=28)
- Primary Montessori teacher (n=15)
- VPI teacher (n=29)
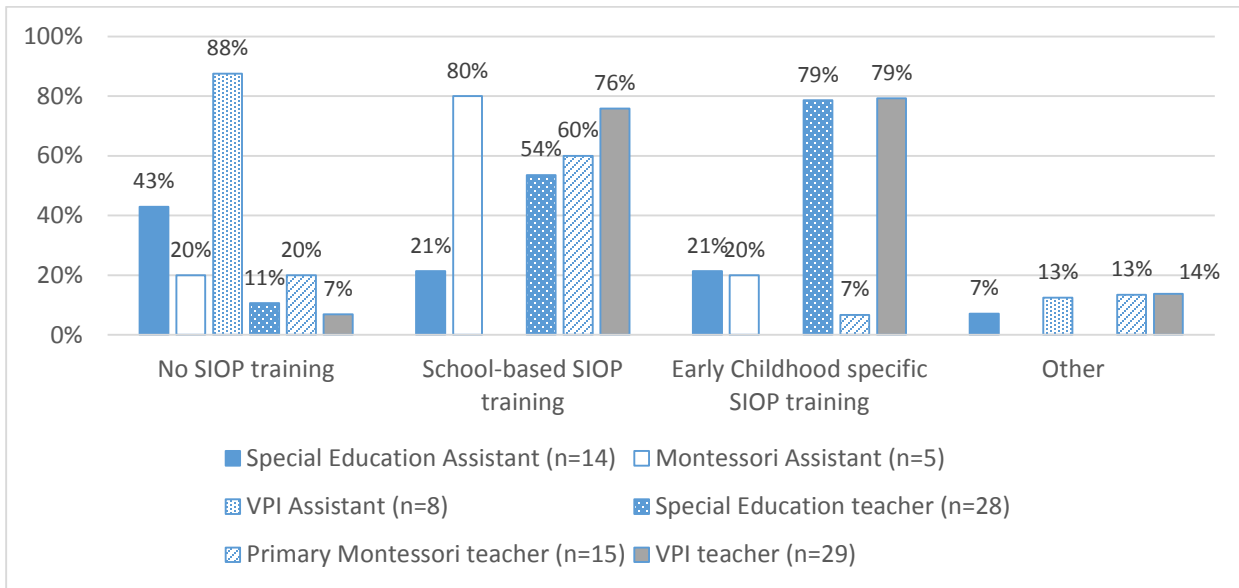
Those who had participated in any type of SIOP training were asked how frequently they use SIOP strategies in their classrooms. VPI teachers were the most likely to report that they implement SIOP strategies *daily* (56%), followed by special education teachers (29%) and Montessori teachers (17%). Montessori teachers were more likely to select *a few times a month* (33%) and special education teachers were slightly more likely to select both *a few times a month* (33%) and *weekly* (33%).

Participants were also asked, "**How helpful has the school-based/Early Childhood SIOP training been in your work with Pre-K students who are English language learners?**"

Figure 4 shows the percentage of respondents selecting *extremely* or *very helpful*. Assistants are not included in this graph due to low numbers.

Figure 4: Percentage of Participants Rating SIOP Training Extremely/Very Helpful
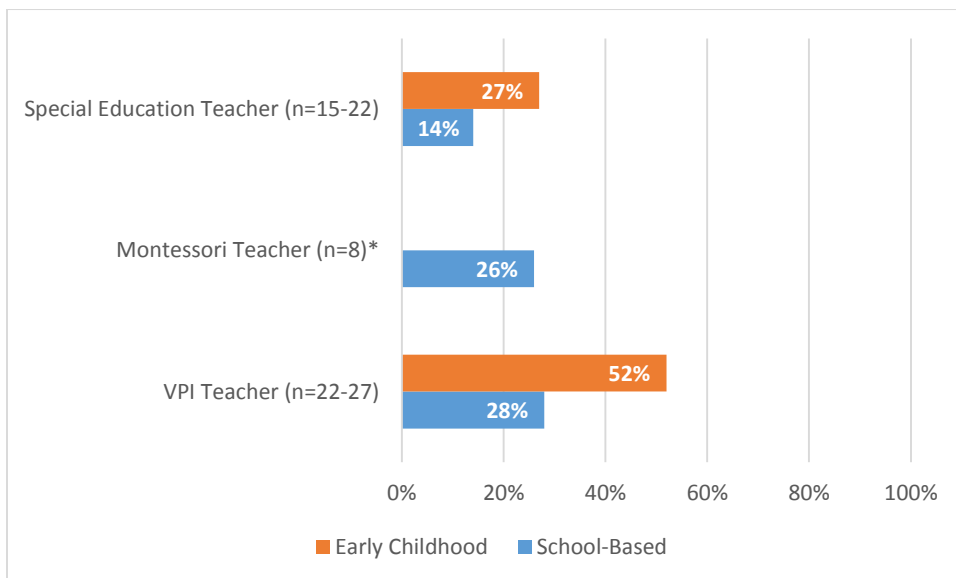
Legend:
- Early Childhood
- School-Based

CLASS observation scores show that **Language Modeling** was the strongest dimension within the **Instructional Support** domain, with mean scores of 3.5 in VPI and Montessori observations, and 3.3 in special education observations, ranging from 0.8 – 1.2 points higher than **Concept Development**. Language modeling is a key component of the SIOP model.

The full staff survey report is available in **Appendix D4**, and the full CLASS report is available in **Appendix B3**.

Collaboration among Pre-K Teachers

> *Collaboration among teachers occurs most frequently among teachers at the same school and among teachers within the same program. The most frequently occurring type of collaboration between Pre-K teaches and specials teachers (art, music, and PE) is sharing ideas. Special education teachers were the most likely to report that they frequently co-teach with other teachers in their program. Survey responses from all teacher groups indicate that special education teachers are far more likely to collaborate with VPI teachers than with primary Montessori teachers.*

The Early Childhood Office supports and encourages Pre-K staff to collaborate with each other to provide optimal experiences for young learners. This has been encouraged through collaborative trainings, collaborative walks (observations), and other opportunities. Because Pre-K programs are spread throughout 23 sites, it is important for staff to have the opportunity to be involved in a professional learning community with others sharing the same curriculum.

As APS has been moving toward common planning time for collaborative learning teams (CLTs) and professional learning communities (PLCs) at each grade level through master scheduling, the Pre-K teachers in many schools have specials assigned at common times of the day, which allows for collaboration and data sharing during their planning periods. Data sharing meetings are also scheduled with the Early Childhood Office throughout the year to review data and generate strategies for overall growth of students. VPI and special education teachers attend these meetings.

Collaboration between Pre-K and Specials Teachers

Figure 5 and **Figure 6** show responses to two parallel questions for specials and Pre-K teachers: "**How frequently do you collaborate with Pre-K/specials teachers at your school in the following ways?**"

Survey responses indicate that the most commonly occurring type of collaboration among all teacher groups is **sharing ideas.** Among specials teachers, 21%, 53%, and 43% of arts, music, and PE teachers, respectively, reported that they share ideas with Pre-K teachers either *daily*, *weekly*, or *a few times per month*. Among Pre-K teachers, 32%, 8%, and 24% of special education, Montessori, and VPI teachers, respectively, selected these frequencies. Art teachers and VPI teachers were the most likely to report that they frequently attend **team meetings** with either Pre-K teachers or specials teachers (21% for both groups). Montessori teachers were the least likely to report frequent collaboration in any category, with just 0-8% for any category. In most of these cases, *a few times a month* was selected more frequently than either *weekly* or *daily*.

Figure 5: Percentage of specials teachers selecting Daily, Weekly, A Few Times per Month: How frequently do you collaborate with Pre-K teachers at your school in the following ways?

Legend: Co-teaching, Co-planning, Sharing ideas, Team meetings

Art Teachers (n=14):
- Co-teaching: 7%
- Co-planning: 14%
- Sharing ideas: 21%
- Team meetings: 21%

Music Teachers (n=17-19):
- Co-teaching: 6%
- Co-planning: 0%
- Sharing ideas: 53%
- Team meetings: 0%

PE Teachers (n=20-21):
- Co-teaching: 25%
- Co-planning: 10%
- Sharing ideas: 43%
- Team meetings: 10%

Figure 6: Percentage of Pre-K teachers selecting Daily, Weekly, A Few Times per Month: How frequently do you collaborate with specials teachers (Art, Music, PE) at your school in the following ways?

Legend: Co-teaching, Co-planning, Sharing ideas, Team meetings

Special Education Teachers (n=25):
- Co-teaching: 16%
- Co-planning: 12%
- Sharing ideas: 32%
- Team meetings: 12%

Montessori Teachers (n=13):
- Co-teaching: 8%
- Co-planning: 8%
- Sharing ideas: 8%
- Team meetings: 0%

VPI Teachers (n=29):
- Co-teaching: 10%
- Co-planning: 3%
- Sharing ideas: 24%
- Team meetings: 21%

Collaboration within Teacher Groups

Across all three groups of Pre-K teachers and all types of collaboration, teachers were far more likely to report that they collaborated frequently with teachers in their program who were **at their school**[8], rather than at other schools. Frequent collaboration with teachers from other schools was reported by between 0-7% of teachers.

All three groups of teachers indicated that their most frequent type of collaboration with their school-based peers were **team meetings** and **sharing ideas**. VPI teachers were the most likely to report frequent collaboration of this type (96% for both team meetings and sharing ideas), followed by Montessori teachers (90% team meetings, 80% sharing ideas) and special education teachers (69%, 75%).

Special education teachers were the most likely to report that they frequently **co-teach** with other teachers in their program at their school (64%, compared to 35% of VPI teachers and 11% of Montessori teachers). Montessori teachers were the least likely to report that they frequently **co-plan** with other Montessori teachers at their school (44% compared to 65% of both VPI and special education teachers).

Collaboration between Special Education Teachers and Montessori or VPI Teachers

Figure 7 and **Figure 8** show responses to a series of parallel questions for special education and VPI/primary Montessori teachers:

Asked of special education Pre-K teachers:

- How frequently do you collaborate with primary Montessori teachers at your school in the following ways?
- How frequently do you collaborate with VPI teachers at your school in the following ways?

Asked of VPI and primary Montessori teachers:

- How frequently do you collaborate with special education Pre-K teachers at your school in the following ways?

Both graphs indicate that special education teachers are far more likely to collaborate with VPI teachers than with primary Montessori teachers. Between 75-83% of VPI teachers report frequent collaboration with special education teachers through **team meetings**, **sharing ideas**, and **co-planning**. These percentages were lower, but still relatively high, among special education teachers (51% for team meetings, 63% for sharing ideas, and 44% for co-planning). Just 22% of VPI teachers and 38% of special education teachers indicated that they frequently **co-teach** with the other type of teacher.

Montessori teachers were the most likely to report that they frequently **co-teach** with special education teachers (36%), and special education teachers were most likely to report that they frequently **share ideas** with Montessori teachers (30%).

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[8] School-based percentages in this section represent responses only for those respondents who indicated that there are other teachers from their program at their school.

Figure 7: Percentage of VPI and Montessori teachers selecting Daily, Weekly, A Few Times per Month: How frequently do you collaborate with Pre-K special education teachers at your school in the following ways?
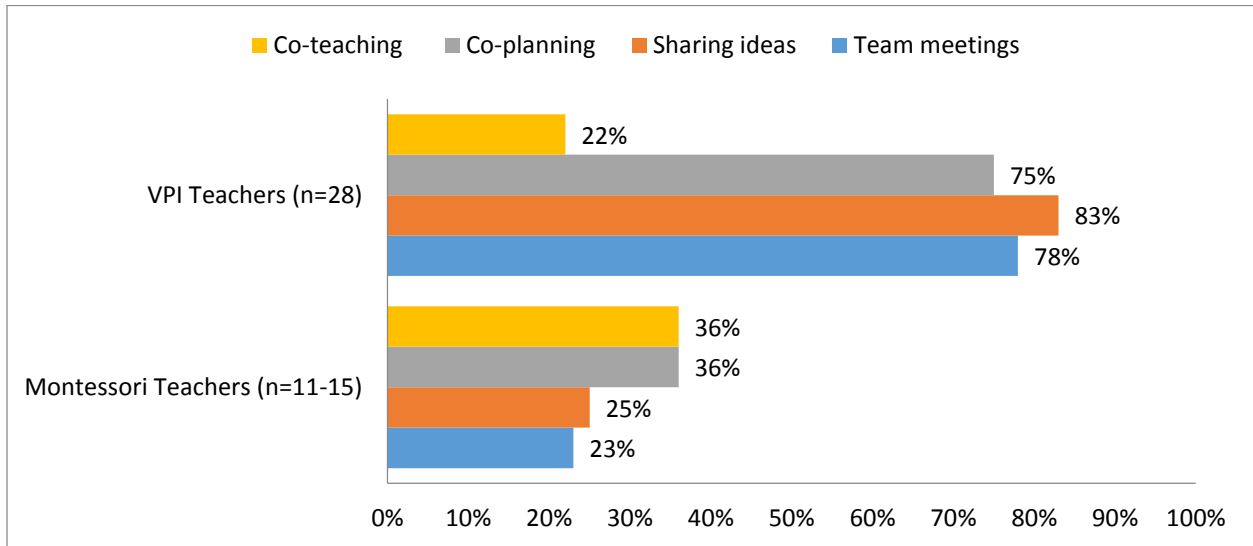
Figure 8: Percentage of special education teachers selecting Daily, Weekly, A Few Times per Month: How frequently do you collaborate with primary Montessori/VPI teachers at your school in the following ways? (n=16-17)
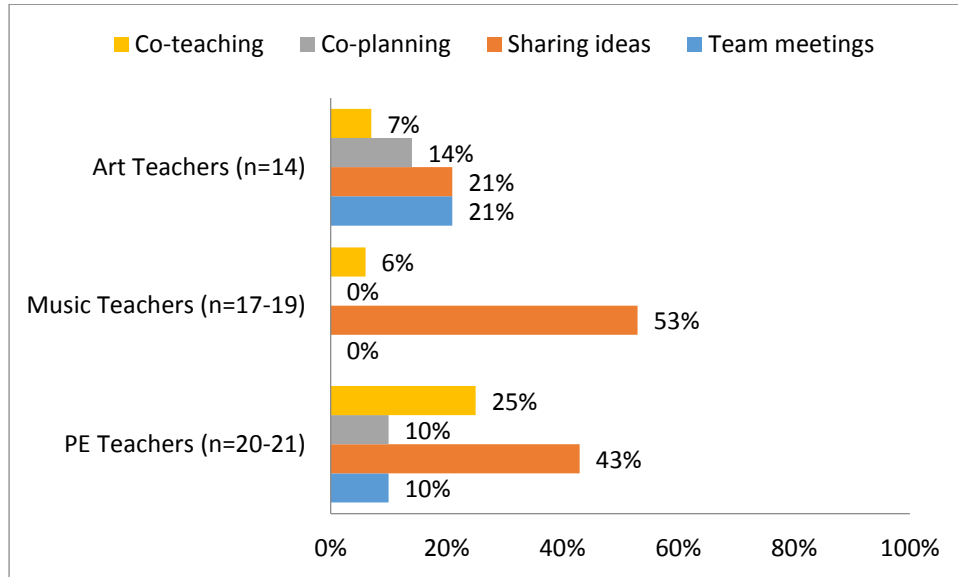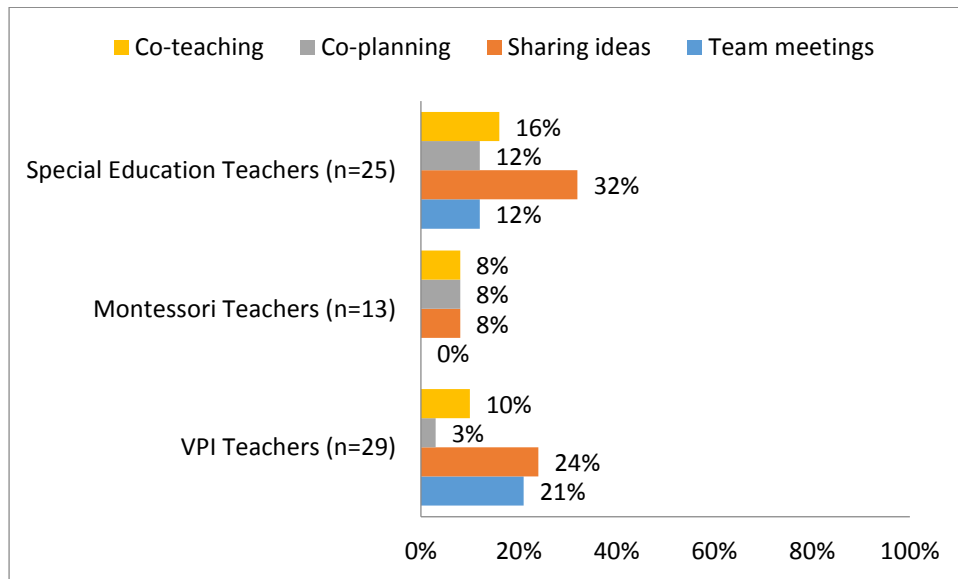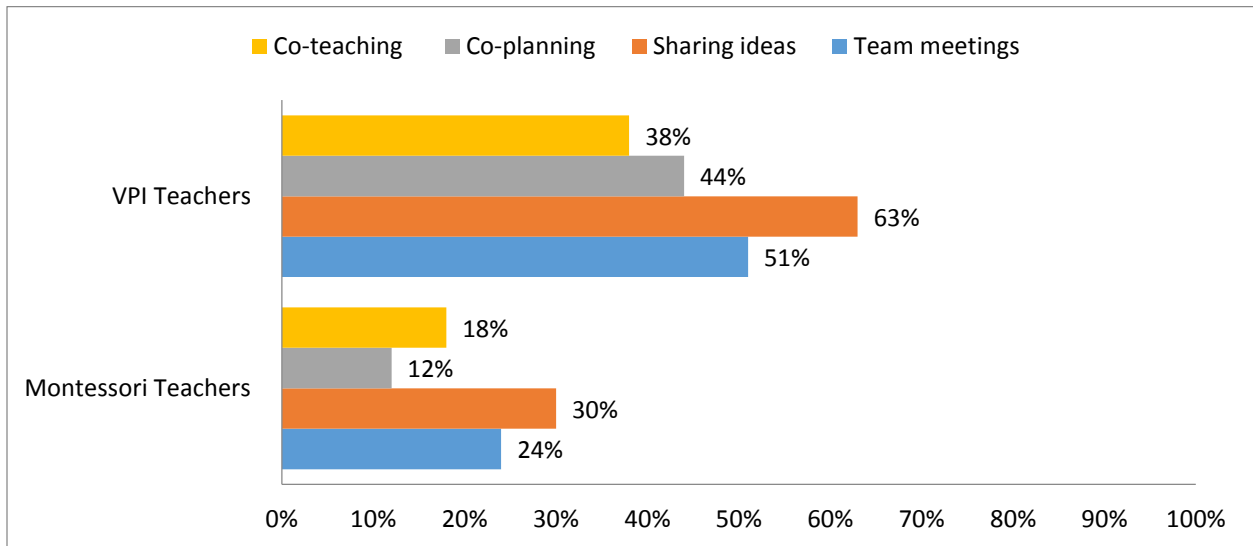

The full staff survey report is available in **Appendix D4.**

Program Fidelity

Participation in APS Pre-K Programs

> ***Most students served by the VPI program are LEP and qualify for free/reduced price meals, and the reverse is true for the Montessori program. The percentage of primary Montessori students who qualify for free or reduced price meals has decreased by 14 percentage points in the last five years.***

The APS Early Childhood Program is committed to increasing access to Pre-K programs for Arlington families, with a particular focus on those who would otherwise not have access to Pre-K; this includes families of lesser financial means and/or limited English proficiency.

VPI is a one-year program for four-year-old children and is free to all enrolled students, whose families must meet income requirements. The primary Montessori program is a three-year program for students ages three to five. Two-thirds of the available slots are reserved for students whose families qualify based on income requirements. Tuition for three-and four-year-old children is charged on a sliding scale based on family income, and no tuition is charged during the five-year-old year (kindergarten). Any Arlington family may apply for this program. **Table 6** shows the total enrollment in VPI from 2011-12 through 2015-16, and for primary Montessori from 2013-14 through 2015-16. Prior years are not included for Montessori due to unreliable data. For the three years available, the primary Montessori program appears to have been under-enrolled.

Table 6: Total Enrollment in VPI and Primary Montessori, 2011-12 through 2015-16

School Year	VPI Capacity	VPI Enrollment	Montessori Capacity	Montessori Enrollment
2015-16	544-612	569	437	407
2014-15	544-612	574	437	411
2013-14	544-612	585	437	413
2012-13	544-612	553	437	not available
2011-12	544-612	564	437	not available

LEP Students

Figure 9 shows the percentage of students in VPI and primary Montessori who were limited English proficient (LEP) for each of the last three or five years. Most students enrolled in the VPI program were LEP during this time. Between 2011-12 and 2013-14, LEP enrollment in VPI ranged from 62% to 70%. The last two years have seen increases both years, to 73% in 2014-15 and 78% in 2015-16.

In contrast, most students enrolled in the primary Montessori program were non-LEP, although a sizeable proportion of students are LEP. In 2015-16, 40% of primary Montessori students were LEP.

Figure 9: Percentage of Students who Are LEP, by Program

Legend: ■ Montessori ■ VPI

Year	Montessori	VPI
2011-12		70%
2012-13		62%
2013-14	36%	67%
2014-15	43%	73%
2015-16	40%	78%
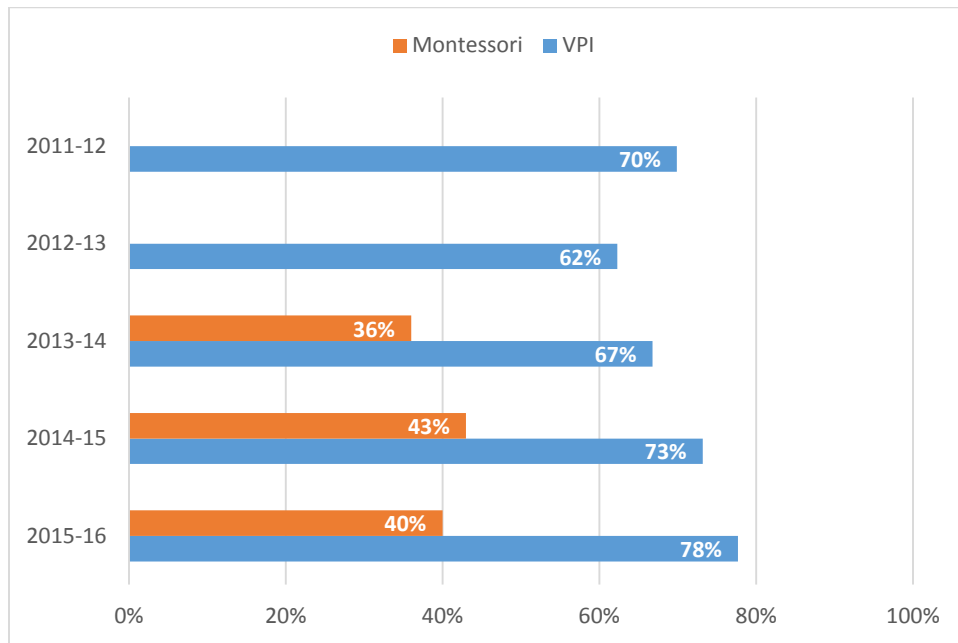
Economic Status

Figure 10 shows the percentage of students in VPI and primary Montessori who qualified for free or reduced price meals over the past three or five years. Following a similar pattern as with LEP students, a majority of students enrolled in VPI were economically disadvantaged, or eligible for free or reduced-price meals, while a majority of students enrolled in primary Montessori were not economically-disadvantaged. From 2011-12 to 2015-16, between 72- 79% of all VPI students were eligible for free/reduced-price meals, with the lowest percentage occurring most recently, in 2015-16.

In the primary Montessori program, the percentage of students who are eligible for free/reduced-price meals has decreased from 49% in 2013-14 to 35% in 2015-16.

It should be noted that income requirements for VPI eligibility and eligibility for two-thirds of seats in the primary Montessori program[9] are not aligned to eligibility for free or reduced-price meals, which are set at the federal level. Families are eligible for VPI if their household income is at or below 350% of the federal poverty level, and for free or reduced price meals if their household income is at or below 120% of the federal poverty level. Thus while all VPI students are considered low income in order to be eligible for the program, some do not meet federal guidelines for free/reduced-price meals.

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[9] The percentage of primary Montessori students whose household incomes fall at or below the two-thirds cut off of $86,000 is addressed in the next section of this report.

Figure 10: Percentage of Students who Qualify for Free/Reduced Price Meals, by Program

Legend: ■ Montessori ■ VPI

Year	Montessori	VPI
2011-12		76%
2012-13		77%
2013-14	49%	79%
2014-15	42%	78%
2015-16	35%	72%
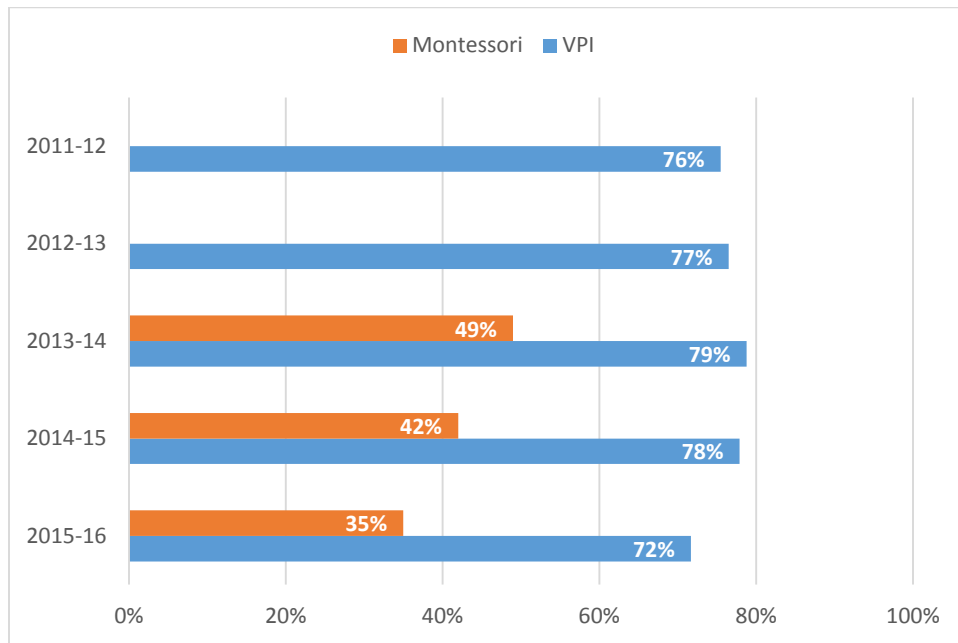
For both programs, there is variation by school in the proportion of students who are economically disadvantaged. In VPI, there is one school where 100% of students are disadvantaged. The proportion at other schools ranges from 51% to 88%.

Figure 11 shows the proportion of disadvantaged students at each primary Montessori site. The proportion of students eligible for free-reduced-price meals ranges from 14% at one school to 60% at another school.

Figure 11: Montessori Enrollment by School and Disadvantaged Status, 2015-16

School	Non-disadvantaged	Disadvantaged
School 1	86.4%	13.6%
School 2	80.0%	20.0%
School 3	66.3%	33.7%
School 4	59.4%	40.6%
School 5	68.2%	31.8%
School 6	68.2%	31.8%
School 7	40.9%	59.1%
School 8	47.6%	52.4%

Legend: ■ Non-disadvantaged ▦ Disadvantaged
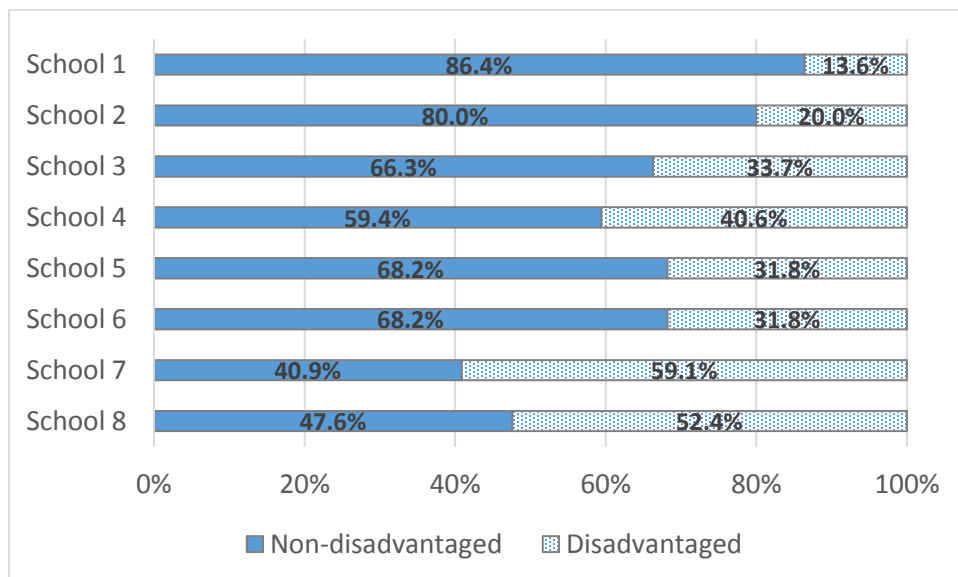
Two-thirds of primary Montessori seats are reserved for students whose families' household income falls at or below 80% of the median income in Arlington, which was $86,000 in 2015-16. This balance of two-thirds reserved and one-third open to any family is to be maintained at each primary Montessori site. Using family income data reported by families and collected by schools during the Pre-K application process for 2015-16, Planning and Evaluation analyzed family income data to determine if at least two-thirds of students at each site met the income requirements. Results are shown in **Figure 12**. Of the eight schools for which there was available data, four fall slightly below 66%, with between 59-64% of students meeting household income requirements. Note that this data includes all accepted applicants from one school year; since primary Montessori is a three-year program, not all primary Montessori students are included in this analysis.

Figure 12: Percentage of Primary Montessori Accepted Applicants with Family Income at or Below $86,000 in 2015-16
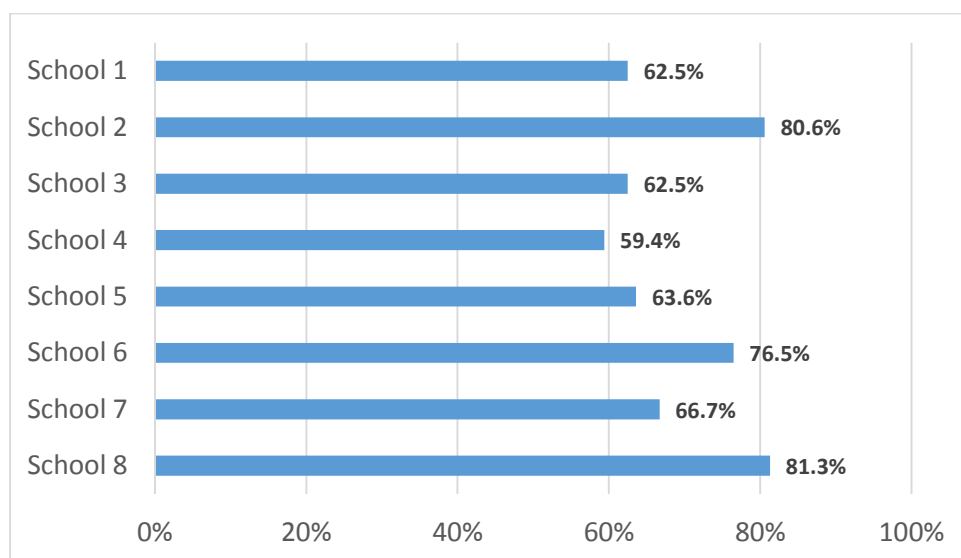
Race and Ethnicity

Racial and ethnic representation in VPI classes has remained fairly steady over the past five years, with a majority of Hispanic students, ranging from 55-57% each year. There have been small decreases in the proportion of VPI students who are Asian, from 13% in 2011-12 to 11% in 2015-16, and black, from 18% to 16%. There has been a corresponding increase in the proportion who are white, from 10% in 2011-12 to 13% in 2015-16.

The Montessori program has seen somewhat greater changes in racial and ethnic representation. **Figure 13** shows the proportion of Montessori students by race and ethnicity for each of the last three years. The proportion of Montessori students who are Hispanic has decreased from 35% in 2013-14 to 24% in 2015-16, while the proportions of students who are Asian or white have increased.

Figure 13: Montessori Enrollment by Race/Ethnicity
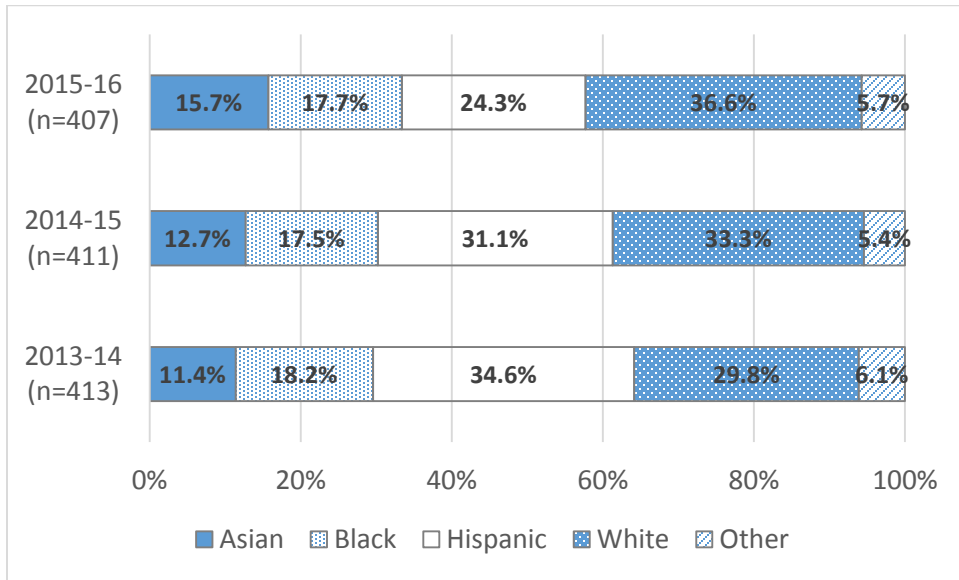
The full Pre-K enrollment report is available in **Appendix C1**.

Discontinuation of Montessori in Kindergarten Year

> **Kindergarten discontinuation is a larger issue at satellite schools than the countywide program at Drew Model School. Parents who choose to discontinue Montessori for their child's kindergarten year appear to be motivated primarily by factors of convenience rather than dissatisfaction with the program.**

The Montessori learning experience is cumulative; what a child learns in the kindergarten year builds on what was learned in previous Montessori years. The kindergarten year is the culmination of this learning when the child internalizes these early concrete experiences, building a strong educational foundation. The value of the first two years cannot be fully realized if the child does not continue working with the Montessori materials to complete the three-year cycle.

Over the past two years, between 35-38% of primary Montessori students discontinued the program and enrolled in a regular APS kindergarten classroom for their kindergarten year. Disaggregating the data by site shows a large difference between the countywide program at Drew Model School, and the satellite programs at neighborhood schools.

Figure 14 and **Figure 15** show the percentage of students who left Montessori for their kindergarten year by site in 2015-16 and 2014-15. While just 16-20% of Drew students left Montessori in kindergarten, between 42-48% of students at satellite programs did.

Figure 14: 2015-16 Percent of Students to Leave Montessori Program in the Kindergarten Year, Drew vs. Satellite Schools
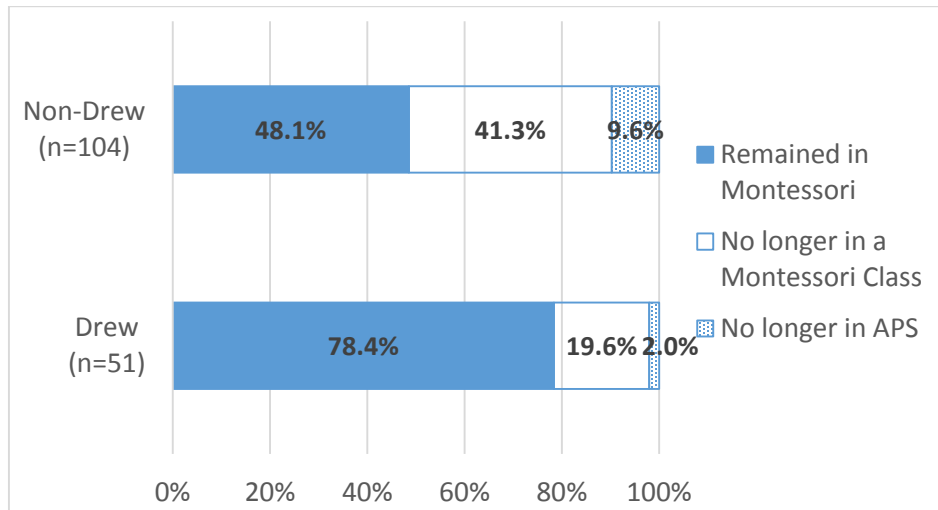
Figure 15: 2014-15 Percent of Students to Leave Montessori Program in the Kindergarten Year, Drew vs. Satellite Schools
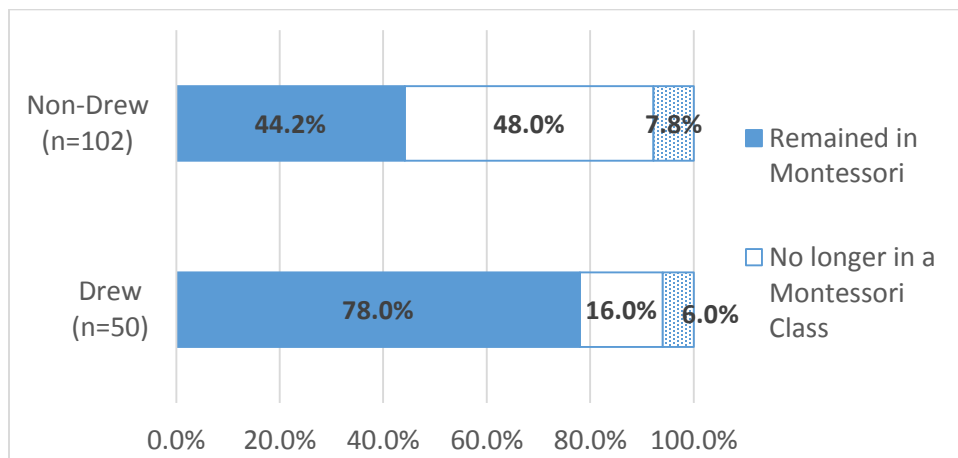
During the 2015-16 school year, the Office of Planning and Evaluation administered three[10] parent surveys as part of this evaluation. A survey was administered in the fall to parents of current kindergartners who had previously been enrolled in an APS primary Montessori class but discontinued Montessori for their kindergarten year. In the spring, a survey was administered to parents of all current APS pre-K students, as well as primary Montessori students in their kindergarten year.

In an effort to understand parents' reasons for choosing to discontinue the Montessori program for their child's kindergarten year, parent survey responses about the Montessori program were compared across two groups of parents of APS **kindergartners**:

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[10] Results for one of these surveys (parents of students who did not attend Pre-K) have been excluded due to a low number of responses.

- Those who were currently enrolled in a primary Montessori program (spring survey)
- Those who had previously been enrolled in a primary Montessori program but who discontinued Montessori for their kindergarten year (fall survey)

The response rate for the current parent survey was 25% with a margin of error of 4.81. The response rate for the Montessori discontinuation survey was 37%, with a margin of error of 17.55. Generally, survey results with a margin of error lower than five are considered reliable. The higher margin of error for the kindergarten discontinuation survey is due to the low overall population. The survey was sent to just 54 parents total, so while it attained a higher response rate than is typical for parent surveys, the margin of error is higher. Given this higher margin of error, broad descriptions are included in this report, but should be interpreted with caution. Full details are available in **Appendix D1**. A summary of findings follows:

- The most popular **reason for enrolling a child in the primary Montessori program** for each group of parents was *I am interested in the Montessori philosophy*, although this was selected more frequently among current Montessori parents than former Montessori parents.
- Former Montessori parents were more likely to indicate that they had **considered private Pre-K providers in addition to APS Montessori when they researched Pre-K options for their child**.
- Current Montessori parents were far more likely to select *cost/fees* and *reputation of program* as **factors that led them to ultimately choose the APS primary Montessori program**, while former Montessori parents were more likely to select *convenience*.
- Two-thirds of respondents who were former Montessori parents reported **household incomes** of $150,000 or higher while just over a third of respondents who were current Montessori parents reported this level of income.
- Among respondents who were former Montessori parents, the **top reasons for discontinuing Montessori for their child's kindergarten year** primarily related to issues of convenience rather than dissatisfaction with the program:
  - I have another child who attends our home school and it was more convenient to send both children to the same school.
  - My child's program was moved to another school.
  - I wanted my child to start at his/her home school during his/her kindergarten year

Montessori teachers and assistants responded to a series of questions about kindergarten discontinuation in the fall 2015 staff survey. Their responses follow the same pattern as the discontinuation data above. Staff at the satellite programs report that they lose *multiple kindergarten students every year* at a much higher rate than Drew staff (58% vs 14%).

Figure 16 shows responses to a follow-up question, "**How much of an impact does kindergarten attrition have on your ability to implement the Montessori program with fidelity**?" Twenty percent of satellite staff indicated that kindergarten attrition has a *major impact*, while the same proportion of Drew staff reported that it has *no impact*. The most popular response for both groups was *moderate impact* (50% for satellite programs and 60% for Drew).

Figure 16: How much of an impact does kindergarten attrition have on your ability to implement the Montessori program with fidelity?
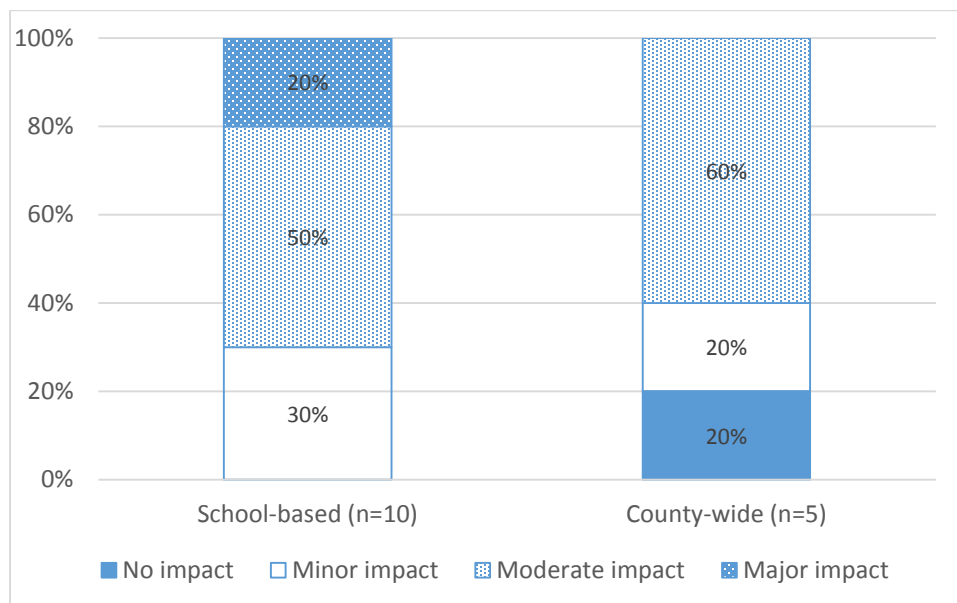
Out of twelve responses to an open-ended question about how kindergarten attrition impacts staff's ability to implement the Montessori program, most (six) pointed out that kindergarten students serve as role models in the primary Montessori classroom, which is important both to the younger students who learn from the older students, and to the older students who apply what they have learned by teaching the younger students.

> *Montessori is based on social learning and well balanced multi-age classroom environment. If we do not have this balance, we miss a key factor which is the older kids teaching the younger ones, the older kids being a role model, and the older kids having the opportunity to apply what is learned by teaching the little ones. This is a very important dynamic in Montessori.*

The second most popular answer (four) referred to the flip side of having too few kindergartners: having too many three-year-olds. Respondents felt that having a disproportionately high number of three-year-olds increases the demand on teachers and assistants to spend more focused time on these needier students.

> *It disrupts the ratio of ages. A majority of three year olds in a class makes it more difficult to have lengthy and focused lessons/discussions.*

> *Ideally a third of students are kindergartners. Having fewer means that the non-kindergarten students, who are less independent and limited in their work choices need more attention strictly because there are more of them. This can reduce the quality time that the teacher needs with the Ks.*

The full report on Montessori kindergarten discontinuation is available in **Appendix C3**. The staff survey report is available in **Appendix D4**, and the parent survey report is available in **Appendix D1**.

Meeting the Needs of the Whole Child

The Pre-K programs in APS strive to meet the needs of the whole child through various means. Because this is the first school experience for many Pre-K students, staff engage families on nutritional needs, establishing structures for children, and offering experiences to build background understanding for students. Because children learn through play, staff provide numerous experiences for children to engage in play and investigation during the pre-k experience.

Support and Services for Pre-K Students and Families

> ***Staff across programs generally feel that APS Pre-K students and their families receive the social-emotional/behavioral and practical/social supports they need. Many staff suggested that additional support could be provided by means of parent meetings and workshops, and counseling and social worker services for students. Special education teachers suggested home visits and counseling services for parents.***

APS offers the following supports to preschool age children enrolled in APS whose families are homeless:

- Transportation to school or origin if attending APS Pre-K program
- Right to immediate enrollment, including without initial presentation of immunization documents, birth certificate, etc.
- Free Extended Day
- Free school breakfast and lunch
- Participation in Backpack Buddies (weekend food program)
- Free summer school
- Priority given for enrollment in APS Pre-K programs and Head Start or Early Head Start
- Lola's Lab – Educational Camp (funds permitting and if available)
- Free haircuts at Career Center Cosmetology program
- 75% off Arlington Recreation classes
- School Social Worker interview to determine other needs and referrals such as clothing, recreation fees, school materials, backpacks, field trip fees, and referrals to other services in the community

The fall 2015 staff survey included a series of questions about the adequacy of the supports that Pre-K students and their families receive. **Figure 17** shows the percentage of each staff type who selected *strongly agree* or *somewhat agree* for the following statements:

- Students in my class/school and their families receive the **social-emotional/behavior** support and services they need for success in school.
- Students in my class/school and their families receive the **practical/social** support and services they need for success in school (e.g. clothes, food, supplies, etc.).

Staff are generally positive about the supports that students and their families receive, with a majority of all staff groups agreeing that that students and families receive the support they need for success in school.

Figure 17: Percentage Agree: Students in my class/school and their families receive the social-emotional/behavior, practical/social support and services they need for success in school.
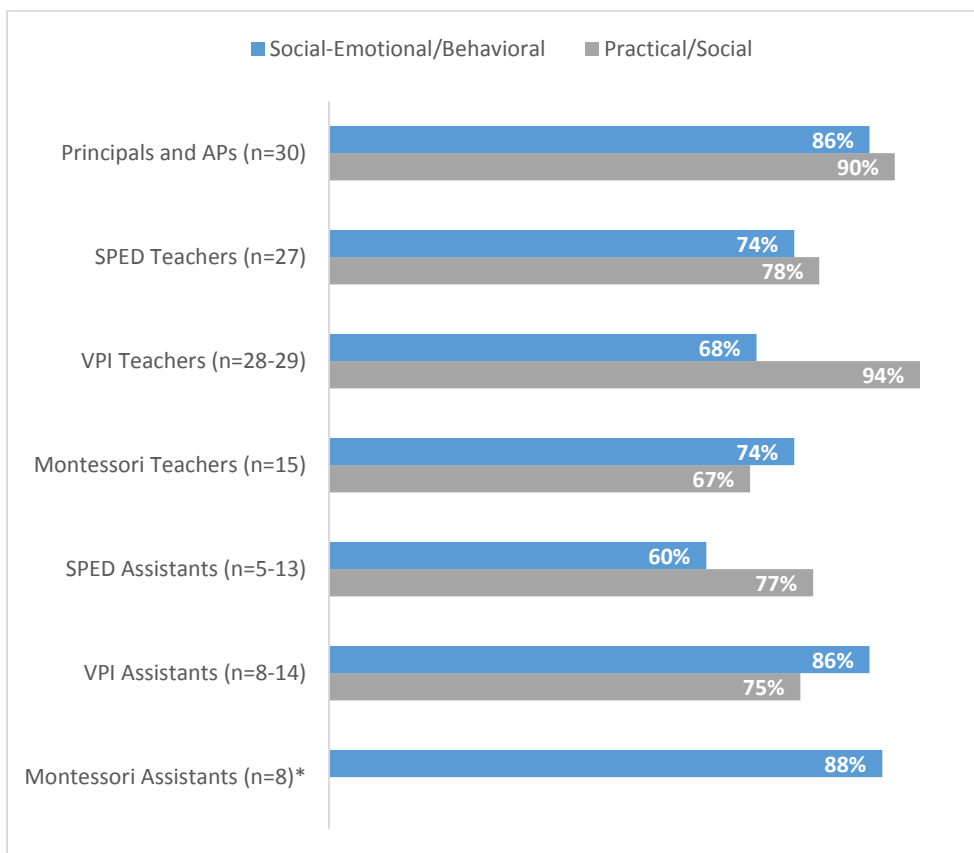
*Fewer than 5 Montessori assistants responded to the practical/social question; answers not reported.

In response to the open-ended question, "**What, if any, additional types of social-emotional/behavioral supports are needed?**" staff across programs suggested **parent meetings or workshops** and **counseling services**, either for students or – in the case of special education teachers – for parents. Three special education teachers also suggested that time for home visits be built into the program[11], and three administrators suggested that the school social worker should be available to Pre-K students and their families (planning factors for social workers and counselors are based on the K-5 population of each elementary school; schools vary in how they implement their staffing).

> *Many of the parents would benefit from some workshops in Conscious Discipline. – VPI teacher*

> *It would be helpful to have some type of home visit portion to the program. I often wish that our program ended at 2 PM with some time for home visits after school. – Special education teacher*

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[11] Home visits are a requirement of the VPI program and not the primary Montessori or special education program. For more information about VPI home visits, see Family and Parental Involvement Plan on page 7.

Counselors need to be involved and an outreach plan implemented – Montessori teacher

The Pre-K students need to be part of the planning factor for counselor allocation to schools. – Administrator

The school social worker needs to work with preschoolers. - Administrator

Social and Health Wellbeing

> *Pre-K teachers and assistants engage in a variety of methods to develop healthy eating and physical activity habits in their students.*

Pre-K teachers and assistants answered open-ended questions on the staff survey about how they teach their students healthy eating habits. Across programs and roles, the most commonly cited methods were:

- Discussing healthy foods
- Providing healthy snacks/meals
- Providing lessons or activities focused on nutrition
- Encouraging students to try new and healthy foods
- Modeling healthy eating

Teachers and assistants listed the following activities as ways that they incorporate physical activity into the day for their students:

- Exercise/movement activities as games or incorporated through the day
- Recess/playground/outside time
- Physical Education class
- Yoga/Stretching
- Dancing

Specials – Art, Music, and Physical Education

> *Among specials teachers, PE teachers were most likely to feel confident in their ability to provide developmentally appropriate instruction to Pre-K students, though open-ended responses show they are also the most likely to feel they receive no support in their instruction for Pre-K students. Montessori and VPI parents generally expressed a high level of satisfaction with their child's specials teachers, particularly parents of VPI students.*

The fall 2015 staff survey was sent to specials teachers as well as Pre-K teachers. Teachers of art, music, and physical education (PE) who indicated that they taught any classes with Pre-K students then responded to the question, "**How would you rate your level of confidence in providing developmentally appropriate instruction to Pre-K students?**" Responses are displayed in **Figure 18**. PE teachers were the most likely to indicate they are *extremely confident* (43%), compared to 26% of music teachers and 14% of art teachers, who were also the most likely to select *moderately confident* (57%) at the lower end of the scale.

Figure 18: How would you rate your level of confidence in providing developmentally appropriate instruction to Pre-K students (Specials teachers)?
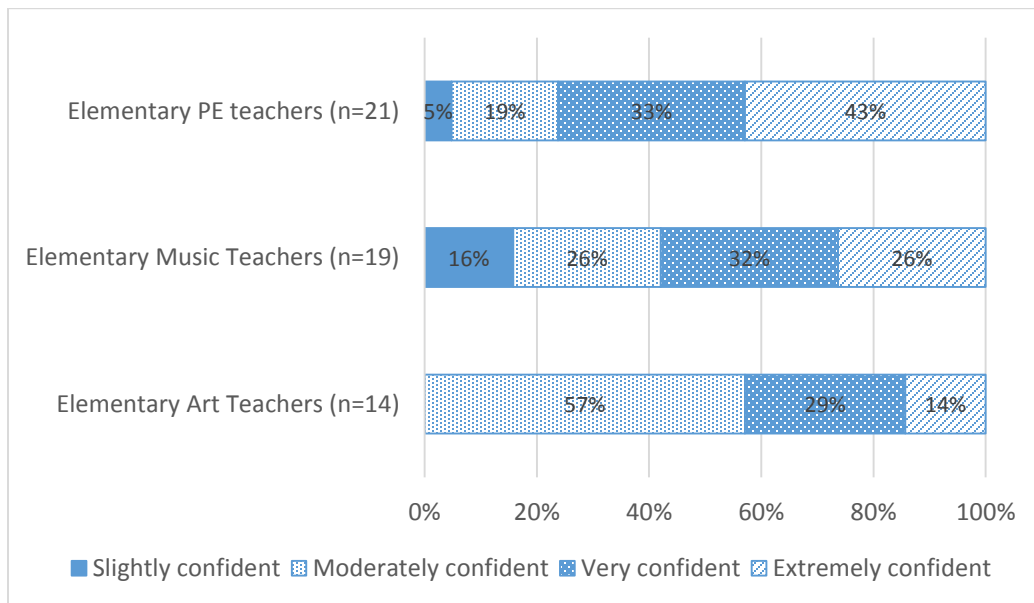
Montessori and VPI[12] parents generally expressed a high level of satisfaction with their child's specials teachers, particularly parents of VPI students. Between 83-85% of VPI parents indicated that they were *very satisfied* with their child's art, music, and PE teachers. Montessori parents selected *very satisfied* between 63-66% of the time for music and PE teachers, and 71% for art teachers. This seems to be less of an indication of dissatisfaction than lack of familiarity, as Montessori parents were far more likely to select *I don't know* than either *slightly satisfied* or *moderately satisfied* (between 13-20% for each teacher type).

Specials teachers who indicated that they taught any classes with Pre-K students also answered a series of open-ended questions about the **types of support they receive, or would like to receive, in providing developmentally appropriate instruction to Pre-K students**.

- PE and music teachers indicated that Pre-K assistants join their students and offer support in the PE or music class. Art teachers reported other ways they receive support from assistants, such as providing information about individual student needs or Pre-K content.
- Art teachers were the most likely to indicate that they receive support directly from the Pre-K teacher or that they meet and plan with the Pre-K teacher, although several music and PE teachers cited this as well.
- Some art and music teachers indicated that they have attended professional development specific to Pre-K offered by the Arts Education Office. Music teachers also indicated that they had received curriculum materials from the Arts Education Office.

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[12] Responses from parents of students in the special education program were removed from this analysis because they included responses from parents of dual enrolled students, who do not take specials in APS.

- PE teachers were the most likely to report that they receive no support in providing developmentally appropriate instruction to Pre-K students.

When asked what types of additional supports they would like to receive in the area of professional development, the most common answers were:

- Professional development focused on developmental stages
- Professional development focused specifically on appropriate art, music, or PE instruction for Pre-K students
- Time to plan with Pre-K teachers
- Time to observe other specials teachers who teach Pre-K students

In the area of resources, the most common responses were:

- Information about Pre-K curriculum to align with learning activities in the specials classroom
- Ideas for lessons or activities
- Music materials
- Suggested websites

Information about how specials teachers collaborate with Pre-K teachers can be found under *CLASS observation scores show* that **Language Modeling** was the strongest dimension within the **Instructional Support** domain, with mean scores of 3.5 in VPI and Montessori observations, and 3.3 in special education observations, ranging from 0.8 – 1.2 points higher than **Concept Development**. Language modeling is a key component of the SIOP model.

The full staff survey report is available in **Appendix D4,** and the full CLASS report is available in **Appendix B3.**

Collaboration among Pre-K Teachers on page 32.

The staff survey report is available in **Appendix D4**, and the parent survey report is available in **Appendix D1**.

Community and Parent Engagement

Pre-K Registration

> ***Most parents find the Pre-K application and registration process to be easy, and this is generally true across demographic factors such as home language, education level, and household income. The two most commonly recommended improvements frequently went hand in hand: Allow parents to apply and register online and centralize the application process.***
>
> ***Staff responses were more varied, depending on staff type. Front office staff were the most likely to report that the registration process as effective. There was little agreement on whether school-based or centralized registration is preferable.***

Staff were asked to rate the effectiveness of the application and registration process in helping to facilitate enrollment in Pre-K programs in APS schools. The application and registration process for

primary Montessori is described in detail on page 7. The VPI application and registration process is described on page 8.

As shown in **Figure 19**, responses varied substantially based on staff type. The most positive responses came from front office staff, 70% of whom rated the registration process as either *very effective* or *extremely effective*. Between 33-41% of VPI teachers, Montessori teachers, and administrators selected these responses, and over half of special education teachers selected *I don't know*.

Figure 19: Staff: Effectiveness of the Registration Process
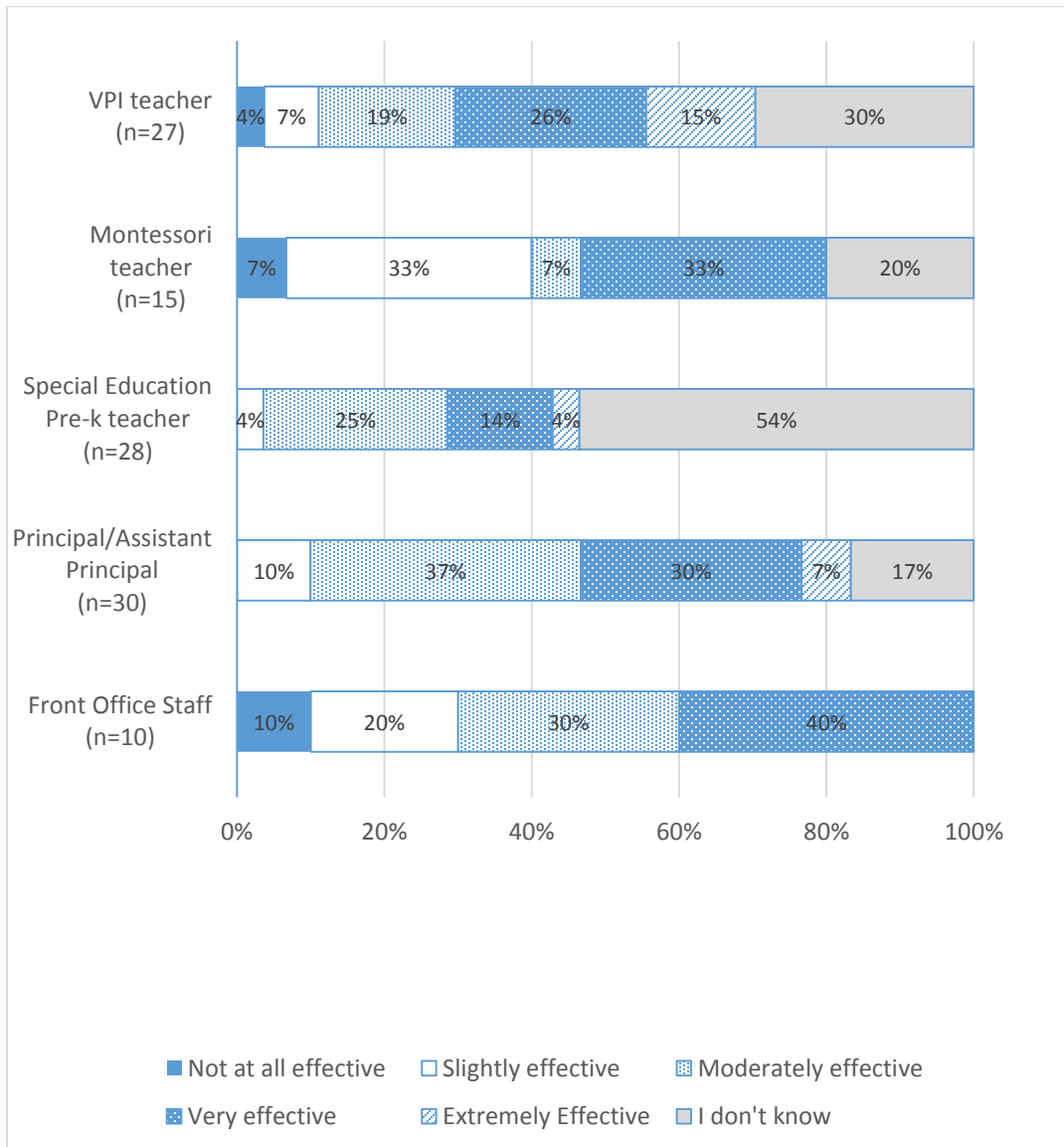
Staff answered two open-ended questions about the registration process:

- What components of the registration process do you feel work well?
- How can the registration process be improved in APS schools?

Responses indicated a sense of agreement across staff types that annual **Pre-K registration nights** for each program are an effective means of assisting parents with the registration process. There was a stark lack of agreement on whether **school-based or centralized registration** is preferable, and notably, staff appeared to have different perceptions about whether the process is school-based or centralized to begin with. This is most likely due to confusion whether "centralized registration" refers to applications and placement or actual registration in a program.

Two VPI teachers and four administrators mentioned centralized registration as a strength, while two VPI teachers and six administrators mentioned school-based registration as a strength.

> *Changes in recent years to centralize registration have made the process SO MUCH BETTER!!!* – VPI teacher

> *The centralization of the registration process has made it for an extremely effective way to get our families the information they need and registration guidance.* - Administrator

> *I think allowing the parents to register at the school site is helpful because for many families it is difficult to find time and transportation to get to the main APS buildings.* - VPI teacher

> *The ability for our families to register at the location where they would like to enroll their child gives us an opportunity to welcome prospective families.* – Administrator

There was a similar contrast within respondent groups regarding how the registration process can be improved, though this leaned more heavily towards a preference for centralized registration. Seven VPI teachers, three administrators, and one Montessori teacher suggested centralized registration as an improvement while two VPI teachers, three administrators, and one Montessori teacher suggested school-based registration.

> *Centralized registration instead of having to register at each school* – VPI teacher

> *Making a centralized registration for VPI and Montessori would ensure all spots are full at all sites* – Administrator

> *Keep the registration at the individual school.* - Administrator

Other popular suggestions for improving the registration process centered on communication with parents: **Increasing awareness** of the programs, and **helping parents to be better informed** about registration and program expectations.

Parents were positive about the ease of the application and registration process, with 89% indicating that the application process was *very easy* or *somewhat easy*, and 92% selecting these responses for the registration process. Minor differences emerged when disaggregated by home language, household income, and highest level of education. These responses are shown in **Figure 20**, **Figure 21**, and **Figure 22**. Parents who spoke a language other than English and parents who had less than an associate's degree were the most likely to indicate that they found the application and registration process *very* or *somewhat easy*, and parents with a household income at the lowest range ($0-51,000) were the most likely to find the application process *very* or *somewhat easy*. The only group who selected

very/somewhat easy less than 80% of the time were parents with a household income at the highest range ($150,001 or higher), only 55% of whom selected these responses for the **application** process.

Figure 20: Parents: Ease of Application and Registration Process by Language

Legend:
■ Language other than English (n=150-162)
■ English Only (n=129-132)

Registration: 95% / 88%
Application: 92% / 84%
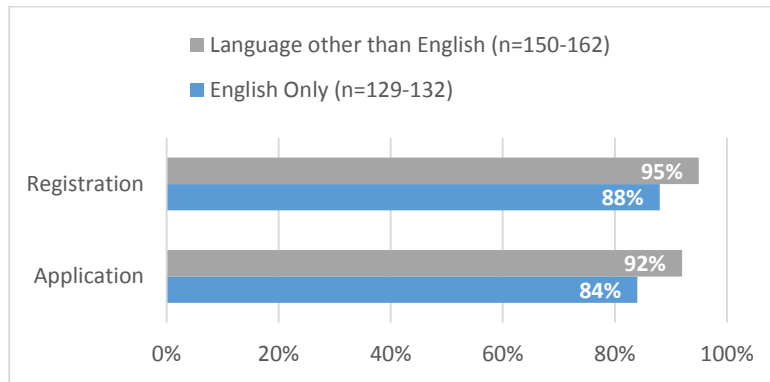
Figure 21: Parents: Ease of Application and Registration Process by Household Income

Legend:
■ $0 to $51,000 (n=85-99)   ■ $51,001 to $86,000 (n=64-65)
■ $86,001 to $150,000 (n=45-46)   ■ $150,001 or higher (n=74-76)

Registration: 93% / 89% / 89% / 95%
Application: 95% / 87% / 86% / 55%
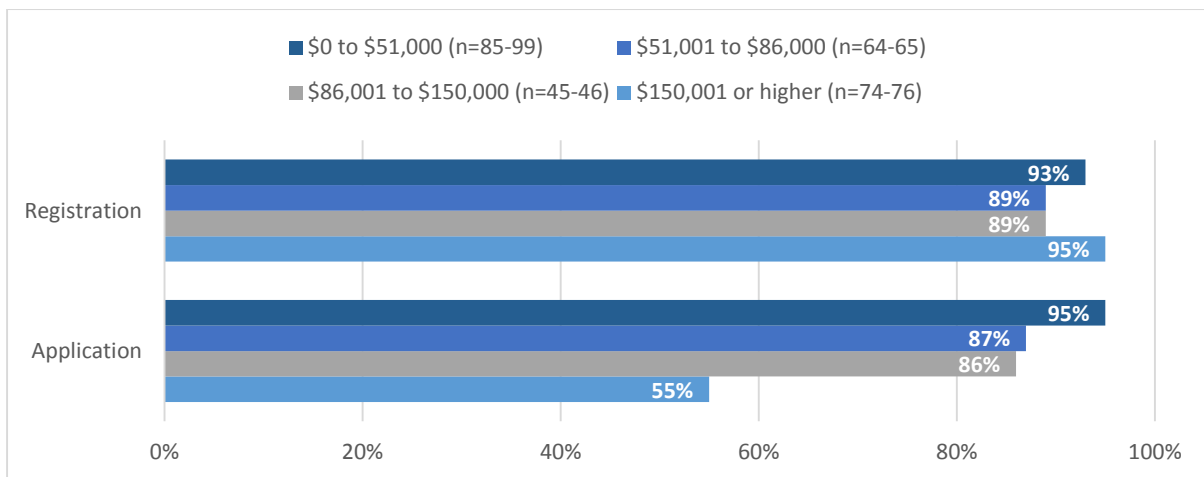
Figure 22: Parents: Ease of Application and Registration Process by Highest Level of Education

Legend:
■ Less than associates or bachelor's degree (n=60-68)
■ Bachelor's/associate's degree (n=80-83)
■ Advanced degree (n=141-146)

Registration: 92% / 89% / 94%
Application: 97% / 91% / 83%

51
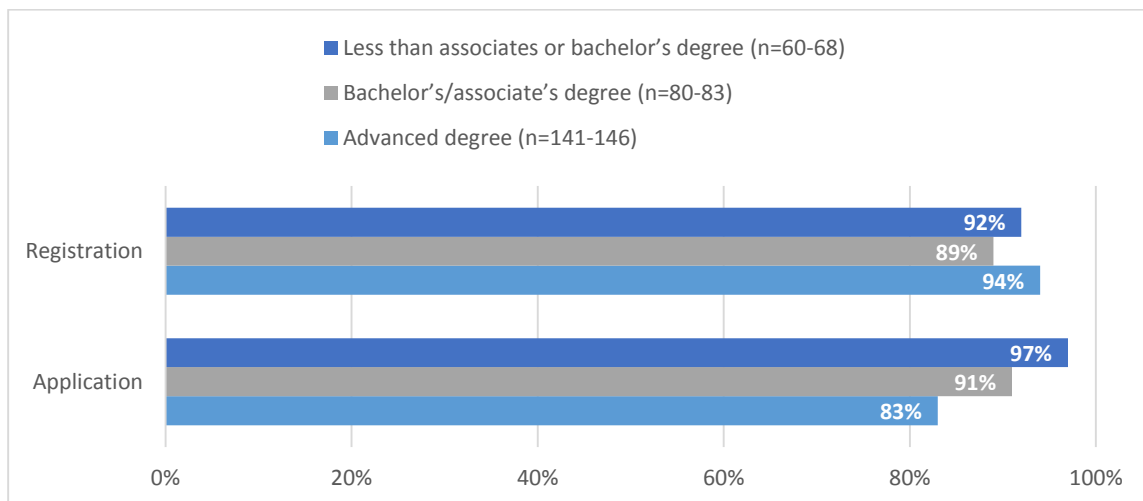
Open-ended responses reiterated that parents generally find the application and registration process to be easy, but several parents offered suggestions for how to improve either the application or registration process. Most of the responses (43) indicated that **the process was easy** or that they had no recommendations for improvement. The two most commonly recommended improvements frequently went hand in hand: Allow parents to **apply and register online** (27) and **centralize the application process** (24).

> *It would be much more convenient if there was an online option. You have to figure out which schools are within your zone. Complete up to 3 applications - one for each school. Mail or deliver them to the school and keep your fingers crossed they arrive if using mail. And then each school handles it differently. One school mailed a confirmation postcard that the application arrived. The others didn't. One school notified us right away, others didn't.*

> *There should a single electronic application.*

> *I had to submit seven different applications to different schools during regular work hours. It was extremely difficult for me to make it during those hours. Not to mention the hassle of filing out the same applications seven times.*

Twenty parents expressed that the process is overly **cumbersome**.

> *A lot of required documents make it difficult*

> *Parameters for the application process changed during the process which complicated the process this year.*

> *Registration was more difficult only because it required more details/paperwork.*

Of those parents, six were parents of students in the special education program who found the process of having their child screened or identifying appropriate services to be onerous.

> *Fewer evaluations. Evaluation appointments earlier in the day. I had to take a lot of time off work to complete the process. The whole process was hard to understand. A one-page summary of the steps would have been helpful.*

> *The application process for us was difficult because my daughter needed to go through the screening process to qualify for the special education program, so I'm not sure how you would have made that easier.*

> *It was difficult getting in touch with the right person APS who could help us. We moved from out of state, had not yet closed on our house and our son had an IEP. We were passed around from residency, special education, and Pre-K quite a bit before getting any help.*

Eighteen parents recommended improvements to **communication and/or outreach**, and nine suggested **shortening the timeline** between application and registration.

> *We had to put money down at a private program to ensure he got a Montessori slot. An earlier lottery date similar to the deadline of local private Montessori schools would have helped.*

Parents know that the deadline is April 15, but there is not clarity about when the lottery is held after that and when parents will be notified. EARLIER REGISTRATION - private preschools require application and deposits much earlier.

Knowing when to expect responses from schools (at least when the lottery would be held and when you would hear from the school).

The staff survey report is available in **Appendix D4**, and the parent survey report is available in **Appendix D1**.

Parent Engagement

> **Both parents and staff are positive about whether schools do a good job of keeping parents informed. Parents across demographic groups also reported that they feel comfortable interacting with staff at their child's school. Survey responses and data collection from teachers both indicate that most parents participate in a school-based activity such as conferences, field trips, or classroom events. Those with higher incomes and higher levels of education were the most likely to have volunteered in the classroom.**

Interaction with Schools

Both the staff and parent surveys included a series of questions addressing communication and interaction between parents and schools, as displayed in **Table 7**.

Table 7: Parent Engagement Questions on Parent and Staff Surveys

Parent Survey	Staff Survey
My child's school does a good job of informing me about my child's progress.	My school does a good job of informing parents about their Pre-K students' progress.
My child's school does a good job of informing me about Pre-K events, volunteer opportunities, etc.	My school does a good job of informing parents of Pre-K students about events, volunteer opportunities etc.
I have a good understanding of the goals, design, and philosophy of my child's Pre-K program (Montessori, VPI, or special education).	Parents have a good understanding of the goals, design and philosophy of their child's Pre-K program.
I am comfortable interacting with staff at my child's school.	n/a

Responses are displayed in **Figure 23**. All response groups were generally positive with a majority indicating agreement for each statement. Answers are fairly consistent across groups for the two questions about **how well schools inform parents** of their child's progress and of events, although Montessori teachers stand out as being least likely to agree that their school does a good job of informing parents about their child's progress (86%).

There was less consistency among groups for the statement regarding **whether parents have a good understanding of the goals, design, and philosophy** of their child's Pre-K program. Parents and administrators were the most likely to agree with this statement (92-94%), followed by special education teachers (83%). VPI and Montessori teachers were least likely to agree at 61-64%.

Figure 23: Parent Engagement Questions: Percentage Indicating Strongly/Somewhat Agree

Legend:
- Parents (n=283-286)
- VPI Teacher (n=29)
- Montessori Teacher (n=14-15)
- SPED Teacher (n=28)
- Principal/AP (n=30)

Schools do good job informing parents about child's progress.
- Parents: 93%
- VPI Teacher: 100%
- Montessori Teacher: 86%
- SPED Teacher: 96%
- Principal/AP: 97%

Schools do good job informing parents about pre-K events, volunteer opportunities, etc.
- Parents: 89%
- VPI Teacher: 94%
- Montessori Teacher: 94%
- SPED Teacher: 96%
- Principal/AP: 90%

Parents have good understanding of the goals, design, and philosophy of child's Pre-K program
- Parents: 92%
- VPI Teacher: 83%
- Montessori Teacher: 64%
- SPED Teacher: 61%
- Principal/AP: 94%

I am comfortable interacting with staff at my child's school.
- Parents: 97%

Minor differences among parents emerged when disaggregated by program, home language, household income, and highest level of education. Disaggregating responses by **program**, VPI parents were the most likely to agree that their school does a good job of informing them about events and volunteer opportunities (94% vs 86-88%). Other responses were more consistent across program types.

By small margins, parents who spoke a **language** other than English were more likely than parents who spoke only English at home to express agreement with each statements, except "**I am comfortable interacting with staff at my child's school**," which showed 97% agreement among both groups of parents. These responses are displayed in **Figure 24**. Interestingly, the largest gap (nine percentage points) between these two groups of parents was for the statement, "**My child's school does a good job of informing me about Pre-K events, volunteer opportunities, etc.**"

Figure 24: Parent Engagement Responses by Language

Legend: ■ Language other than English (n=146) ■ English Only (n=131)

Statement	Language other than English	English Only
I am comfortable interacting with staff at my child's school.	97%	97%
I have a good understanding of the goals, design, and philosophy of my child's Pre-K program (Montessori, VPI, or special…)	94%	91%
My child's school does a good job of informing me about pre-K events, volunteer opportunities, etc.	93%	84%
My child's school does a good job of informing me about my child's progress.	94%	90%

No consistent patterns emerged when the responses were disaggregated by **household income**, but disaggregating by level of **education** shows some differences, as shown in **Figure 25**. Parents with higher levels of education were more likely than those with lower levels of education to agree with statements about their own comfort interacting with staff and their understanding of their child's program, and less likely to agree with statements about the how well their child's school keeps them informed.

Figure 25: Parent Engagement Responses by Education

Legend: ■ Less than associates or bachelor's degree (n=55) ■ Bachelor's/associate's degree (n=80) ■ Advanced degree (n=145)

Statement	Less than associates or bachelor's degree	Bachelor's/associate's degree	Advanced degree
I am comfortable interacting with staff at my child's school.	96%	98%	100%
I have a good understanding of the goals, design, and philosophy of my child's Pre-K program (Montessori, VPI, or special education).	91%	93%	96%
My child's school does a good job of informing me about pre-K events, volunteer opportunities, etc.	96%	90%	85%
My child's school does a good job of informing me about my child's progress.	98%	90%	91%

Parent Participation

Parents indicated whether they had participated in a series of activities, which are listed below in order of percentage responding *yes*:

- School/classroom Pre-K events (e.g. field trips, classroom celebrations) (71%)
- Volunteering in the classroom (24%)
- None (23%)
- Countywide Pre-K events (14%)
- Other (5%)

Participation rates varied by program and demographic variables. **Figure 26** shows responses by Pre-K program. Parents of students in the special education program were the most likely (39%) to select *none*, followed by VPI (21%) and Montessori (16%). VPI and Montessori parents were almost equally likely to have participated in school or classroom events, while Montessori parents were considerably more likely to have volunteered in the classroom (35% in comparison to 15% of VPI parents and 16% of special education parents).

Figure 26: Have you participated in any of the following activities? By Pre-K Program
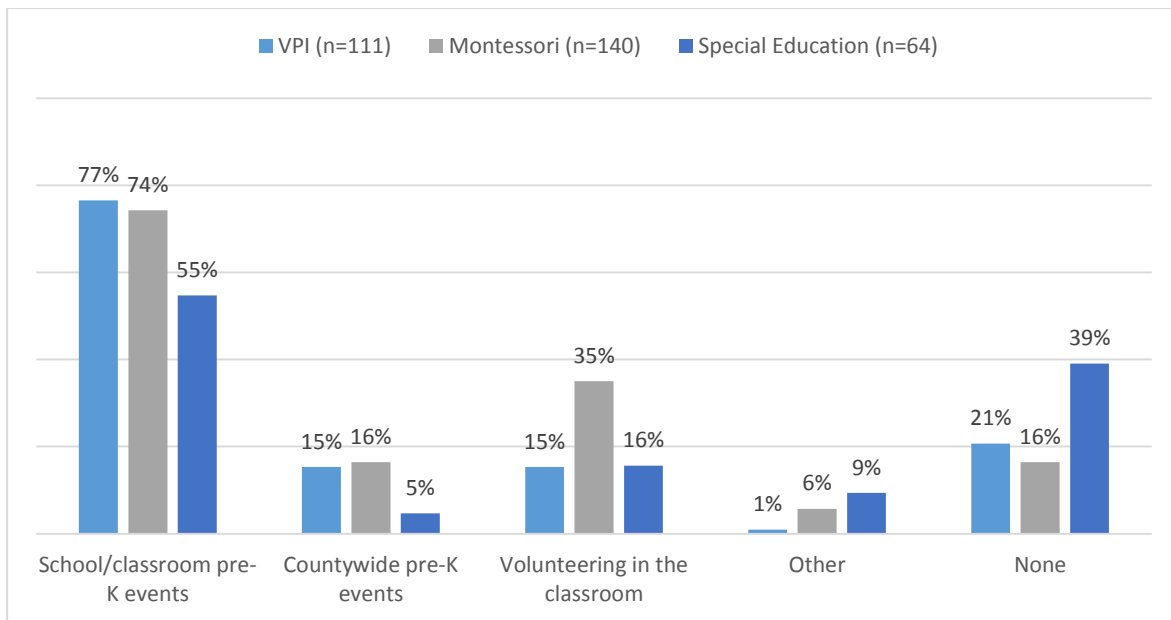
Differences between parents who spoke English and those who spoke another language were small. Parents who spoke English were more likely to volunteer in the classroom (28% vs 22%) and less likely to have participated in school or classroom events (69% vs 74%). Parents at the highest income level ($150,001 or higher) were the most likely to have volunteered in the classroom (39% vs 17-26%); other differences among income levels were smaller. Similarly, those at the highest level of education (advanced degree) were more likely to have volunteered in the classroom (31% vs 11% of those with less than an associate's degree and 22% of those with an associates or bachelors), while other differences by education were small. **Figure 27** shows responses about participation by race and ethnicity. Generally, Asian and black parents were less likely to have participated in an activity than Hispanic and white parents.

In addition to survey data, the Office of Planning and Evaluation collected data from all Pre-K teachers throughout the 2015-16 school year regarding events and activities that parents of students in their class had participated in. A class list was provided to teachers to check off whether a child's parent had participated in a list of events and activities that occurred throughout the year, and this was submitted on an ongoing basis via a google sheet. A child's parent was counted as participating if he/she had participated at least one time. **Figure 28** shows the results for all three programs.

When interpreting this data, two differences among the programs should be kept in mind:

- **Home visits** are a requirement of the VPI program and not the primary Montessori or special education program. For more information about VPI home visits, see *Family and Parental Involvement Plan* on page 7.

- Both Montessori and VPI families participate in the two APS elementary conference days per school year to discuss student progress. VPI families are asked to participate in an additional end-of-year conference in June. At this final conference, the teacher shares the student portfolio with the parent and celebrates student success. For this reason, there is no data available for **end-of-year conferences** for Montessori parents.

Other than VPI home visits, the events with the highest rates of participation were parent conferences. 90-92% of VPI and Montessori students' parents, and 77% of parents of students in the special education program, attended the fall parent conference. This participation rate remained steady for mid-year conferences, but fell for VPI and special education parents in the end-of-year conference in June (62% VPI, 43% special education).

Mirroring the parent survey, Montessori parents were the most likely to have **volunteered in the classroom** (28%), followed by special education (17%) and VPI (10%).

While the survey asked parents about their attendance at "school/classroom" events, teachers reported data for these two types of events separately. Montessori parents were more likely to have attended a **classroom-based event** (69%) while VPI parents were more likely to have attended a **school-based event** (54%). Special education parents had the lowest rate of participation in both types of events, 41% for classroom-based and 32% for school-based.

Figure 28: Percentage of Students Whose Parents Participated at Least Once in Activity, 2015-16
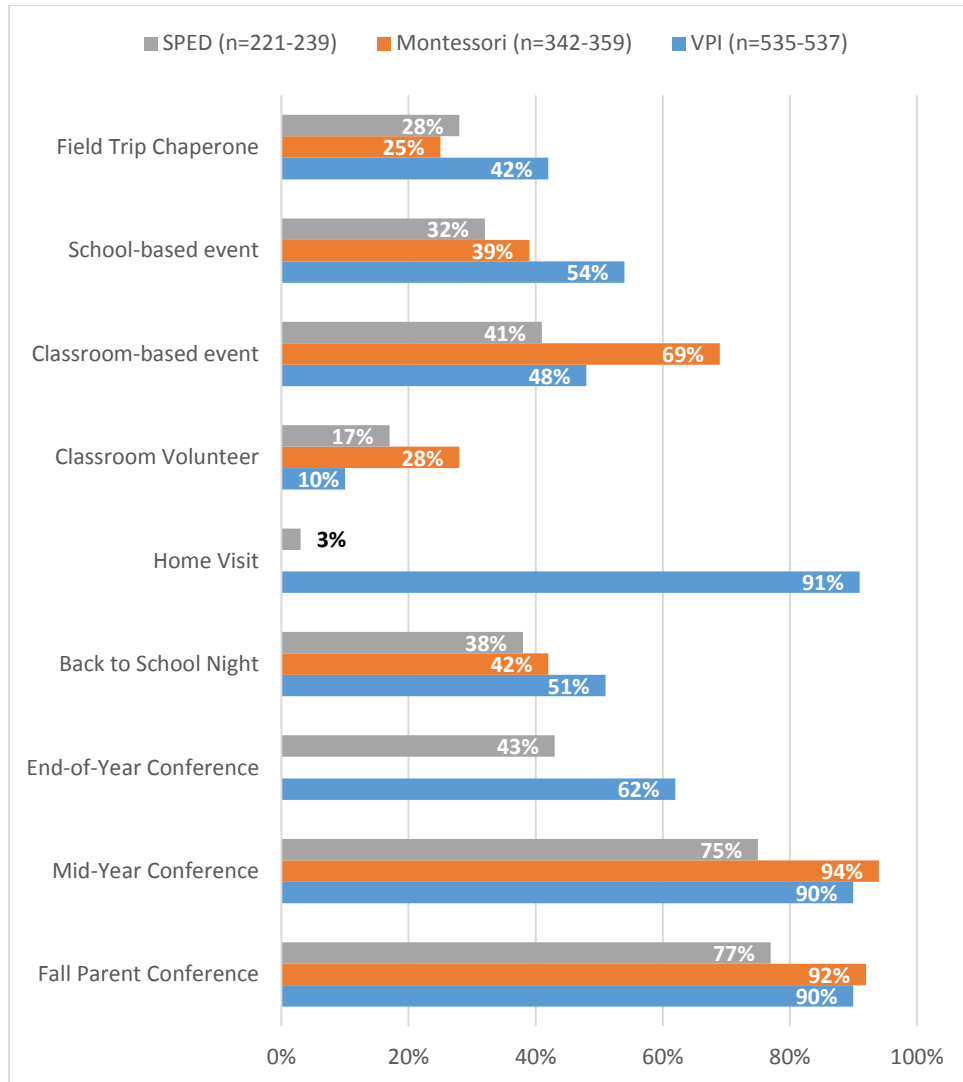
The parent survey report is available in **Appendix D1**. The full report on parent participation data collected in 2015-16 is available in **Appendix C2**.

Effective Use of Resources

Costs of VPI and Montessori Programs

> *Due to slightly higher average salary and benefits costs for VPI assistants and lower student-staff ratios, per-pupil staffing costs are higher for VPI ($8,702) than for primary Montessori ($7,331). At*

> *the same time, average salary and benefits costs for primary Montessori teachers are higher than for VPI teachers. Startup costs at the individual classroom level, including furniture and instructional material purchases, are considerably higher for the primary Montessori program than for VPI. Tuition fees required for the primary Montessori program vary widely by household income level and make up a greater percentage of a family's income at the middle income levels than at higher income levels.*

The Office of Planning and Evaluation contracted with Hanover Research (Hanover) to conduct a cost analysis for the VPI and primary Montessori programs. Planning and Evaluation provided Hanover with data from the student information system, as well as data provided by the Finance Department, Transportation, and the Office of Early Childhood:

- 2015-16 VPI and Montessori enrollment
- 2015-16 VPI grant funds
- 2015-16 central professional development and curriculum development budget for primary Montessori
- Salary and benefit information for VPI and primary Montessori teachers and assistants for 2015-16
- Credentials, endorsements, and years of teaching experience for VPI and primary Montessori teachers in 2015-16
- Teacher-reported data on which Pre-K students took the bus in 2015-16
- List of Pre-K students who were eligible for bus service in 2015-16
- Estimate of per-pupil bus transportation costs for 2014-15 (most recent available)
- Estimate of Pre-K bus attendant staffing and wages for 2015-16
- Startup costs for most recent new primary Montessori classroom (2013-14)
- Startup costs for most recent new VPI classroom (2010-11)
- Montessori fee schedule (2015-16)

Staff Teaching Experience and Costs

A summary of staff allocation and costs are provided in **Table 8** below.

- Teachers in the primary Montessori program, on average, have more **years of teaching experience** than those in the VPI Pre-K program.
- **Per-pupil staff costs** are slightly higher for VPI ($8,702) than for primary Montessori ($7,331). However, average salary and benefits costs for primary Montessori teachers are higher than for VPI teachers ($117,401 and $97,196, respectively).
- Higher per-pupil costs for the VPI program can be attributed to slightly higher average salary and benefits costs for the assistants in the VPI program, as well as smaller class sizes and lower **student-teacher and student-assistant ratios**. The VPI program requires a maximum class size of 16 to 18 students, while the maximum class size for Montessori Primary classrooms is 23 Pre-K and kindergarten students. It should be noted that the average class size for mixed-age

Montessori Primary classrooms is 21.5 students, suggesting that some school sites may be under-enrolled, particularly among Kindergarten students.

Table 8: Staff Seniority and Costs by Program, 2015-16

Program	Number of Teachers	Average Years of Teacher Experience	Student-Teacher Ratio	Number of Assistants	Total Student-Staff Ratio	Per-Pupil Staff Costs**
VPI	34	14.4 years	16.1:1	34	8:1	$8,702
Montessori*	19	20.6 years	21.5:1	19	10.7:1	$7,331

*Note: Student-staff ratios and per-pupil costs for the Montessori program are calculated using the full program enrollment, including both Pre-K and Kindergarten students.

**Note: Per-pupil personnel costs include total salary and benefits for all teachers and assistants in each program.

Other Program Costs

Startup costs at the individual classroom level, including furniture and instructional material purchases, are considerably higher for the primary Montessori program than for VPI. This is largely because Montessori classrooms require specialized materials that adhere to program principles. The most recent new primary Montessori classroom, which was established in 2013-14, required $31,391 for furniture and supplies. Comparatively, the most recent VPI Pre-K classroom, established in 2010-11, required an investment of $10,761 for furniture and supplies.

External Income

Each program derives a proportion of total spending from **external revenue sources**, including Montessori tuition for the three- and four-year-old years, and a state matching grant for VPI. In 2015-16, the primary Montessori program had tuition revenue of $1,070,244. Comparatively, the VPI Pre-K program received $1,677,000 in external grant funding for academic year 2015-2016. The majority of grant funding (82%) supported personnel costs, while the remaining 18% supported parental involvement, field trips and food services, professional development, and other program operating expenses.

Montessori Fees

Two-thirds of seats in primary Montessori classrooms are reserved for children with family incomes at or less than 80% of the median income for a family of four in Arlington County, which was $86,000 in 2015-16. Families of four-year-old children in these reserved seats do not pay tuition. Tuition is charged for the remaining third of four-year-old students and **all** three-year-old students on an income-based fee schedule. Families of Montessori students enrolled in kindergarten do not pay tuition.

Table 9 shows the 2015-16 fee schedule that lists annual tuition for all three-year-olds and the one-third of four-year-olds whose families are above $86,000, by household income. Tuition fees required for the Montessori Primary program vary widely by income level. Families earning between $51,000 and

$110,000 per year pay fees that consist of approximately 10% of their household income. This percentage shrinks to 5.7% of household income or less for families that earn more than $200,000 per year. Because families who pay the full tuition amount ($11,443) do not have to provide income verification information, APS does not currently have information about the total income levels for full-paying students.

Table 9: Primary Montessori Fee Schedule, 2015-16

Household Income	Full-Day Fee	Percentage of Household Income*
Income to $24,000	$741	3.1% or more
$24,001 - $27,000	$1,010	4.20%
$27,001-$30,000	$1,310	4.90%
$30,001 - $33,000	$1,737	5.80%
$33,001 - $37,000	$2,217	6.70%
$37,001 - $41,000	$2,847	7.70%
$41,001 - $46,000	$3,556	8.70%
$46,001 - $51,000	$4,345	9.40%
$51,001 - $57,000	$5,212	10.20%
$57,001 - $62,000	$6,290	11.00%
$62,001 - $67,000	$7,463	12.00%
$67,001 - $72,000	$8,734	13.00%
$72,001 - $77,000	$9,354	13.00%
$77,001 - $82,000	$10,018	13.00%
$82,001 - $86,000	$10,065	12.30%
$86,001 - $90,000	$10,065	11.70%
$90,001 - $96,000	$10,113	11.20%
$96,001 - $110,000	$10,161	10.60%
$110,001 - $125,000	$10,408	9.50%
$125,001 - $150,000	$10,660	8.50%
$150,001 - $175,000	$10,916	7.30%
$175,001 - $200,000	$11,177	6.40%
$200,001 and up	$11,443	5.7% or less

*Calculated for the minimum income level within each range, except for household income of $24,000.

Transportation

- Approximately one-third of Montessori Pre-K students and one-half of VPI students receive transportation services at APS. Based on an estimate of per-pupil costs provided by the Transportation Office, the total cost of Pre-K transportation is $171,661, including $45,026 for the Montessori program and $126,635 for the VPI program. Note that this cost estimate does not include students who receive exclusive transportation bus services for special education, or

incorporate the added cost of bus attendants, who are required at three school sites: Campbell, Drew, and Hoffman-Boston.

The full Hanover cost comparison report is available in **Appendix E1**.

Recruitment of Highly Qualified Teachers

> *All teachers in the VPI and primary Montessori programs hold one or more endorsement related specifically to early childhood education. Primary Montessori teachers had an average of 20.6 years of teaching experience, compared to 14.4 years for VPI teachers. Most administrators find the process of recruiting and hiring VPI teachers to be easy, while most find the process of hiring primary Montessori teachers to be difficult. Administrators are more split on the ease or difficulty of hiring special education Pre-K teachers. The primary difficulty cited in recruiting and hiring both primary Montessori and special education Pre-K teachers is the limited number of applicants with the necessary credentials and experience.*

Teaching Experience and Credentials

The Hanover cost analysis included a summary of teacher qualifications for both the primary Montessori program and VPI. In 2015-16, VPI teachers had an average of 14.4 years of teaching experience, including in APS, Virginia, and other states. Primary Montessori teachers had an average of 20.6 years of experience.

Figure 29: Distribution of Years of Teaching Experience by Program, 2015-16*
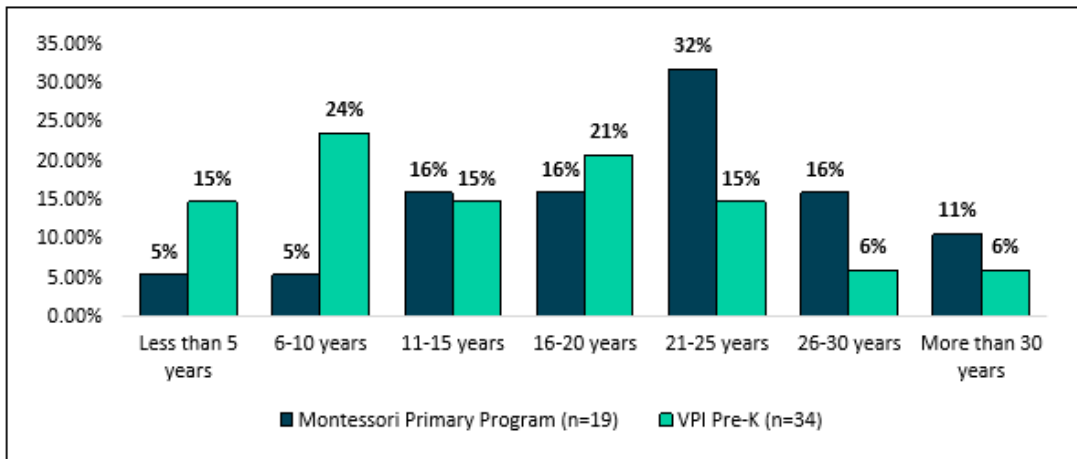
*Averages include all years teaching experience, including in APS, Virginia, and other states.

VPI and primary Montessori teachers hold a variety of licenses and teaching endorsements, as seen in **Table 10** below. All teachers in both programs hold one or more endorsement related specifically to early childhood education. The most common endorsement is Early/Primary Education PreK-3 (53% of primary Montessori teachers and 44% of VPI teachers).

Table 10: Teacher Licenses and Endorsements by Program

Endorsement/License	Primary Montessori Teachers		VPI Teachers	
	Number	%	Number	%
License Type				
Collegiate Professional	5	26%	13	38%
Postgraduate Professional	13	68%	20	59%
Provisional	1	5%	1	3%
Teacher Early Childhood Education Endorsements*				
Early/Primary Education PreK-3	10	53%	15	44%
Elementary Education PreK-4	2	11%	10	29%
Early Education NK-4	3	16%	5	15%
Early Childhood Special Education	1	5%	3	9%
Early Education PreK-3	3	16%	1	3%
Elementary Grades PreK-6	0	0%	3	9%
Elementary Grades NK-8	1	5%	0	0%
Total Teachers with a Pre-K Endorsement (Unduplicated)	19	100%	34	100%

*Note: Number of teachers may sum to more than the total for each program because teachers may hold more than one endorsement.

Principals and assistant principals who indicated that they are involved in the recruitment and hiring process for each type of Pre-K teacher were asked to rate the ease or difficulty of hiring and recruiting teachers for each Pre-K program. Their responses are displayed in **Figure 30**. While most administrators involved in recruitment and hiring for VPI teachers rated the process as *somewhat* or *very easy* (81%), the reverse is true for Montessori, with 64% rating the process as *very difficult* and just 27% rating the process as *somewhat easy*. Administrators were more split on special education hiring, with 52% rating the process *difficult* and 48% rating the process *easy*.

Figure 30: Principals and Assistant Principals level of difficulty for hiring and recruiting teachers

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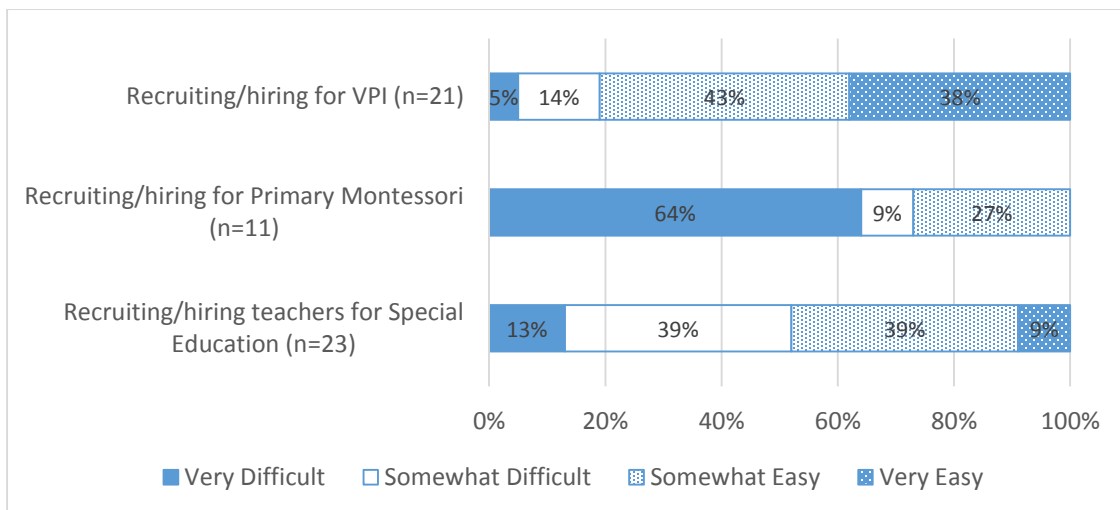
These administrators were also asked an open-ended question: "**What challenges do you encounter in recruiting and hiring qualified teachers for VPI/Primary Montessori/Special Education Pre-K?**" Answer categories are listed below, with the number of respondents providing an answer in that category listed in parentheses. Administrators mentioned a **limited pool of qualified applicants** as a challenge for both primary Montessori and special education Pre-K.

VPI

- None (2)
- Finding a bilingual applicant (2)

Primary Montessori

- Limited applicants/limited number of applicants with necessary certification and experience. (6)
- Hard to find Montessori teachers who feel comfortable with the public school mandates (2)

Special Education Pre-K

- None (3)
- Limited applicants with experience in specified disability areas (5)

Parent Satisfaction

The parent survey shows a high level of satisfaction with teachers from all three programs. A large majority of parents indicated that they were *very satisfied* with their child's Pre-K teacher, as shown in **Figure 31**.

Figure 31: Satisfaction with child's Pre-K teacher, by program
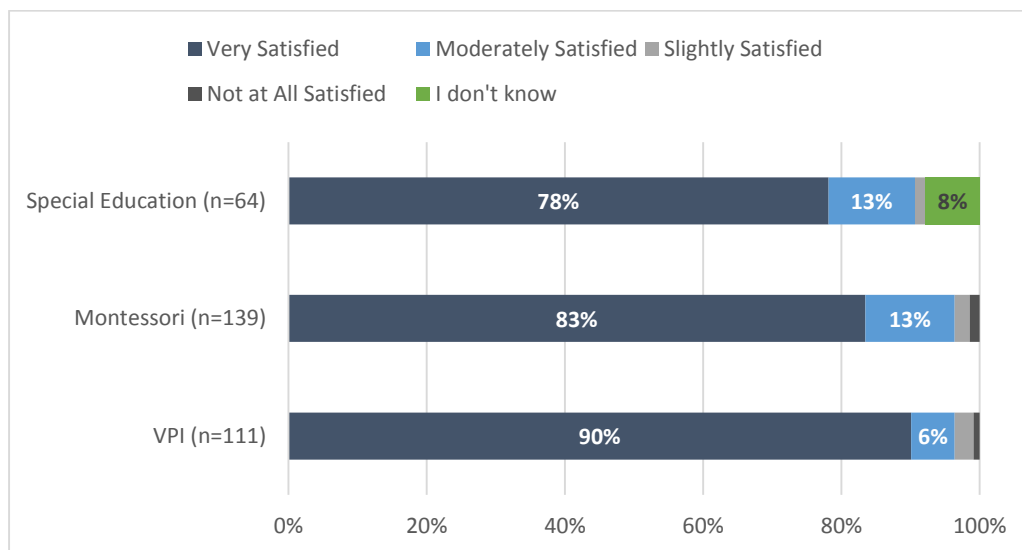
The full Hanover cost comparison report is available in **Appendix E1**. The staff survey report is available in **Appendix D4**, and the parent survey report is available in **Appendix D1**.

> ***VPI teachers were far more likely than Montessori teachers to report that professional development offered by the Early Childhood Office was relevant to their work, and that they frequently apply what they learn in professional development offered by the Early Childhood Office.***

Teachers and assistants responded to a series of questions about the relevance of professional development they had participated in, as well as how frequently they apply what they have learned in professional development. **Figure 32** shows responses to three questions: **How relevant to your work with Pre-K students is the professional development provided by**
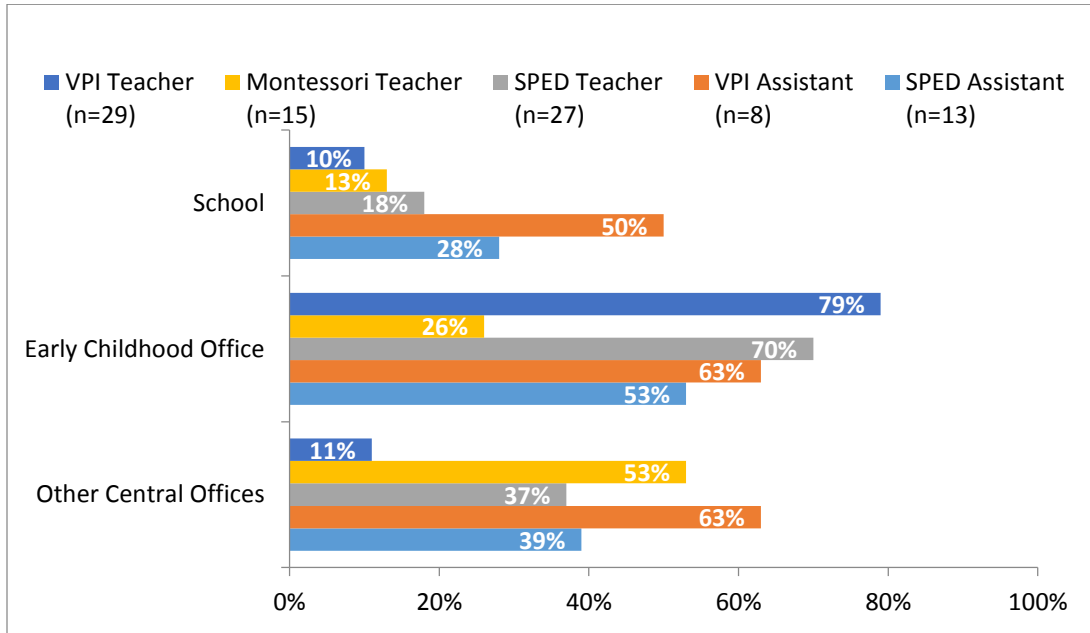
- Your school
- The Early Childhood Office
- Other Central Offices

Among all response groups, professional development offered by the school was the least likely to be rated *very* or *extremely relevant*. As for professional development offered by the Early Childhood Office or by other central offices, VPI and Montessori teachers responded in direct contrast to each other. VPI teachers were far more likely to report that **professional development offered by the Early Childhood Office** was *extremely* or *very relevant* (79%) than Montessori teachers (26%), whereas Montessori teachers were more likely to report that **professional development offered by other central offices** was *extremely* or *very relevant* (53%) than VPI teachers (11%). Notably, 52% of VPI teachers reported that they had *never participated* in professional development offered by other central offices.

This contrast between VPI and Montessori teachers may be explained in part by the evolving nature of professional development provided to Montessori teachers by the Early Childhood Office. In recent years, the office has diversified its approach to meet the unique professional learning needs of all primary Montessori teachers. In 2012-13 and 2013-14, the Early Childhood Office provided substitutes and trainers from two different Montessori training institutes. Starting in 2014, the Early Childhood Office instead supported registration costs for optional attendance at outside Montessori workshops and trainings. Additionally, Montessori teachers have been invited to participate in countywide Pre-K trainings.

Special education teachers were almost as likely as VPI teachers to view professional development offered by the Early Childhood Office as *very* or *extremely relevant* (70%), and fell in between VPI and Montessori teachers regarding professional development offered by other central offices (37%).

Figure 32: How Relevant to Your Work with Pre-K Students Is the Professional Development Provided by School, EC Office, Other Central Offices? (Percent Extremely/Very Relevant)*
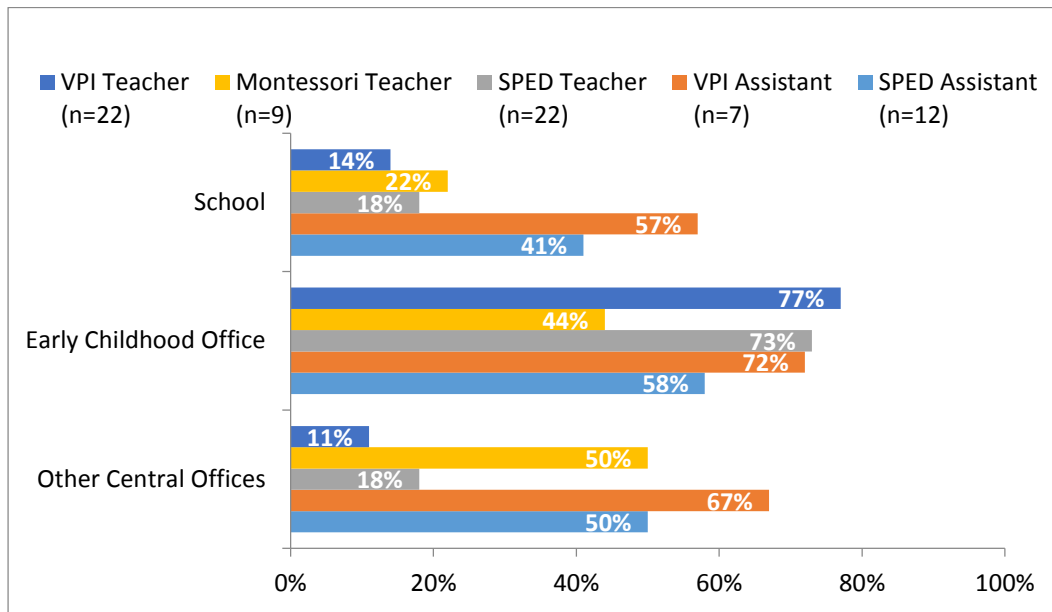

*Montessori assistants not included; fewer than five responses

Figure 33 shows responses to three questions: **How frequently would you say you apply what you learn in professional development provided by your school/the Early Childhood Office/other central offices to your work with Pre-K students**? Similar to the relevance questions, there is a contrast between VPI and special education teachers, and Montessori teachers, with a greater percentage of VPI/special education teachers reporting that they apply what they learn in professional development offered by **the Early Childhood Office** *always* or *often* (73-77% vs 44%), and a greater percentage of Montessori teachers reporting that they apply what they learn in professional development offered by **other central offices** *always* or *often* (50% vs 11-18%).

All groups were more likely to report that they apply what they learn *always/often* from professional development offered by the Early Childhood Office than from professional development offered by their school.

*Montessori assistants not included; fewer than five responses

In response to an open-ended question asking for **suggestions for how professional development for early childhood staff could be improved**:

- By far, the most common response among Montessori teachers was a desire for more **Montessori-specific** professional development.
- Special education and VPI teachers suggested more of a focus on **how to implement strategies**. Others suggested **time to collaborate with and observe** other teachers.
- Two special education teachers specifically mentioned that they appreciate being included in the professional development offered by the Early Childhood Office.

The full staff survey report is available in **Appendix D4**.

Division-Level Support

> *VPI teachers were the most likely to express satisfaction with support from the Early Childhood Office in any area.*

Teachers and assistants from all programs indicated their satisfaction with support from the Early Childhood Office. Responses are displayed in **Figure 34**. Among teachers, VPI teachers were the most likely to express satisfaction (*extremely* or *very satisfied*) with support in any area. The same held true for VPI assistants among all the assistant groups. Only around a quarter of Montessori teachers expressed satisfaction with support for **curriculum**, **professional development**, and **advocacy**. The

largest gap in satisfaction between Montessori teachers and VPI teachers was in the area of **resources**, with 93% of VPI teachers expressing satisfaction compared to 43% of Montessori teachers.

Interestingly, substantial proportions of assistants selected *I don't know* for all areas except professional development. This response was typically more common among special education assistants (ranging from 29-36%), followed by Montessori assistants (20-40%), and VPI assistants (13-25%). This indicates that lower satisfaction rates may have more to do with a lack of familiarity than with dissatisfaction.

Figure 34: Please Rate Your Level of Satisfaction with Division-Level Support for the Following from the Early Childhood Office (Percent Extremely/Very Satisfied)
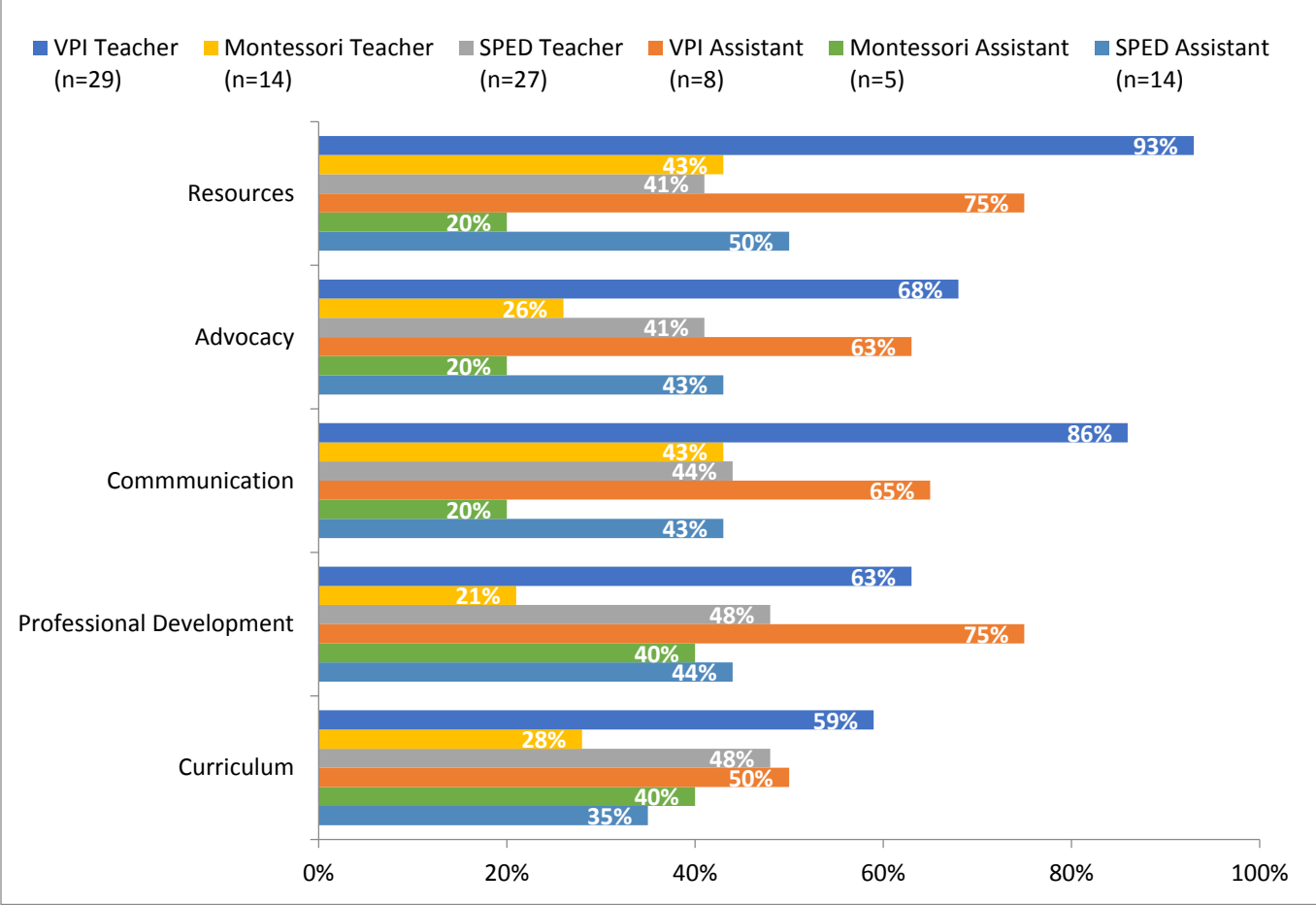
Staff were also asked an open-ended question, **"What other support would like to receive from the Early Childhood Office?"**

Most VPI teachers who responded to this question (six) expressed that they are **happy with the current level of support** from the Early Childhood Office. Three requested **more professional development or curriculum support**, and two suggested **increased opportunities to meet with other VPI teachers**.

Among Montessori teachers, three made suggestions related to **increased clarity or control over funds** for their classroom. Three suggested **more support or advocacy related to Montessori best practices**, and two requested **support for ensuring that primary classrooms maintain balanced age groups**.

Three special education teachers made suggestions related to **professional development**. Two teachers requested **support for increasing awareness/understanding of the Peer Model Program**, two requested **more planning time**, and two requested **more funding**.

Three administrators stated that they are **happy with the current level of support** from the Early Childhood Office, while two requested **fewer professional development sessions held during the school day**. Other suggestions included (from one administrator each):

- Larger variety of professional development offered to the staff in the program
- Guidance on parental involvement
- Additional support with registration process
- Observations and input into evaluations

The full staff survey report is available in **Appendix D4**.

Evaluation Question #2: What were the outcomes?

Kindergarten Readiness

Emergent Literacy and Numeracy Skills

> *Student literacy and numeracy outcomes indicate that APS Pre-K programs make a positive difference for participating students in comparison to students with no Pre-K experience. This pattern is strong in Pre-K and kindergarten, while less clear long-term. PALS PreK scores indicate a high level of growth in the Pre-K year, and fall PALS-K scores show a strong advantage for students who had participated in an APS Pre-K program in comparison to students who had attended no formal Pre-K program. Both of these measures see a greater impact of Pre-K for LEP and economically disadvantaged students.*
>
> *Likewise, both the Pre-K math assessment shows strong growth from fall to spring, and the kindergarten math assessment shows an advantage for APS Pre-K participants in comparison to those who had no formal Pre-K experience. Similar to literacy measures, the data suggests a greater impact for LEP and economically disadvantaged students.*
>
> *Long-term outcomes are less clear. In a report that included longitudinal analyses of two APS kindergarten cohorts, Hanover Research found a pattern of consistently positive outcomes for the earlier cohort of students through 12th grade, suggesting that participating in an APS Pre-K program had had a positive impact on the success of LEP and economically disadvantaged students. Results for the more recent cohort were less conclusive.*

Phonological Awareness Literacy Screening

The Phonological Awareness Literacy Screening (PALS) provides a comprehensive assessment of young children's knowledge of the important literacy fundamentals that are predictive of future reading success. PALS is the state-provided screening tool for Virginia's Early Intervention Reading Initiative (EIRI) and is used by 99% of school divisions in Virginia on a voluntary basis.

PALS consists of three instruments, PALS-PreK (for preschool students), PALS-K (for kindergartners), and PALS 1-3 (for students in Grades 1-3). PALS assessments are designed to identify students in need of additional reading instruction beyond that provided to typically developing readers. PALS also informs teachers' instruction by providing them with explicit information about their students' knowledge of literacy fundamentals. Mid-year assessment and PALS Quick Checks allow for ongoing student progress monitoring throughout the year.

PALS PreK

PALS PreK data is available for students in the VPI and special education program. **Figure 35** shows the percentage of VPI students whose PALS scores fell within the Pre-K developmental range for each subtest in the fall and spring of 2015-16. Each subset saw substantial growth from fall to spring, with 87% or more of all students falling within the developmental range by spring. The subtests that showed the most growth were **Nursery Rhyme Awareness**, with a 68-point increase from fall to spring, and **Print and Word Awareness** with a 63-point increase. This pattern holds true for prior years as well. The full Pre-K PALS report, including results for 2013-14 and 2014-15, is available in **Appendix F1**.
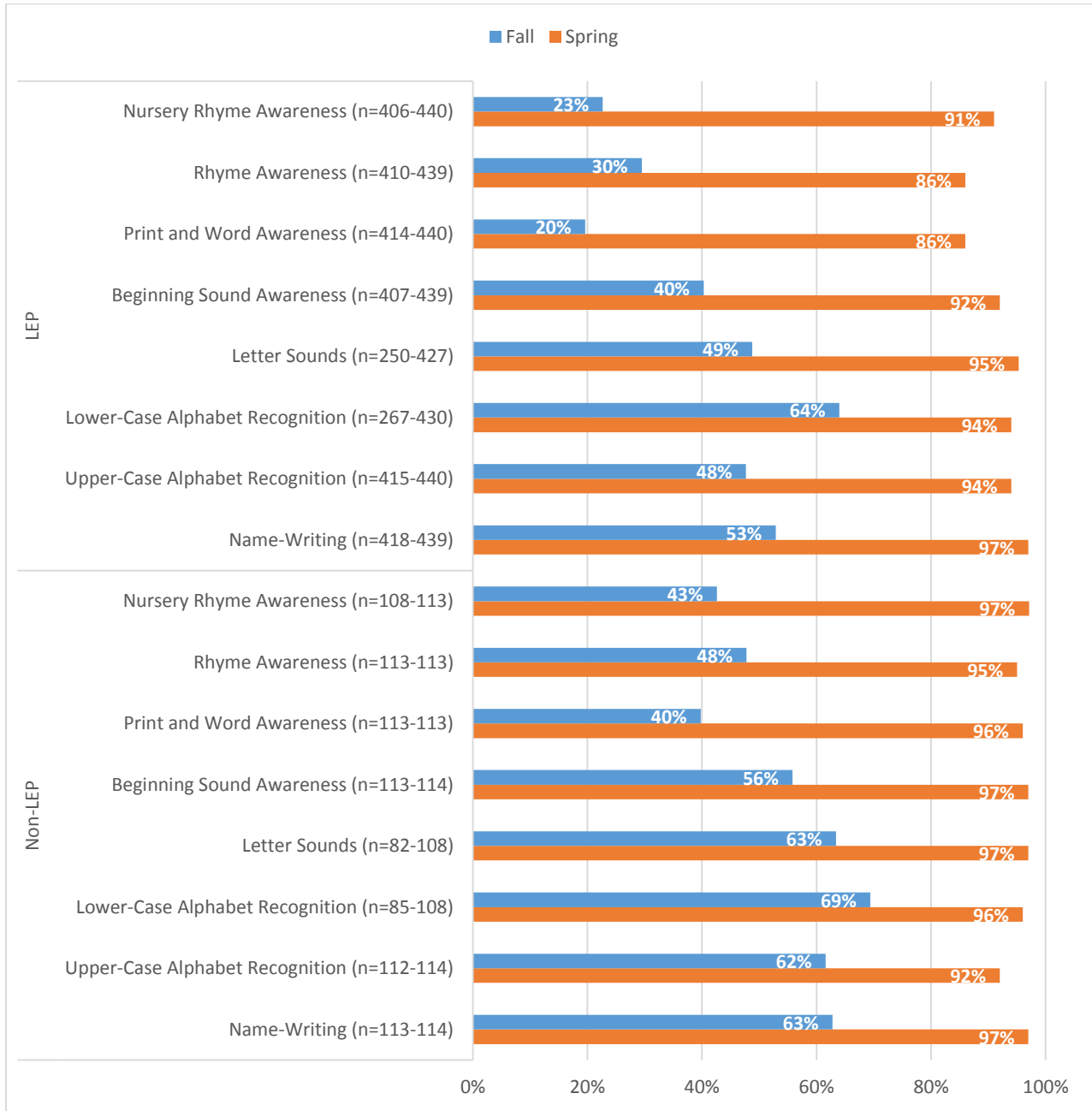
Figure 35: Percentage of VPI Students Meeting PALS Pre-K Developmental Ranges, Fall and Spring 2015-16*
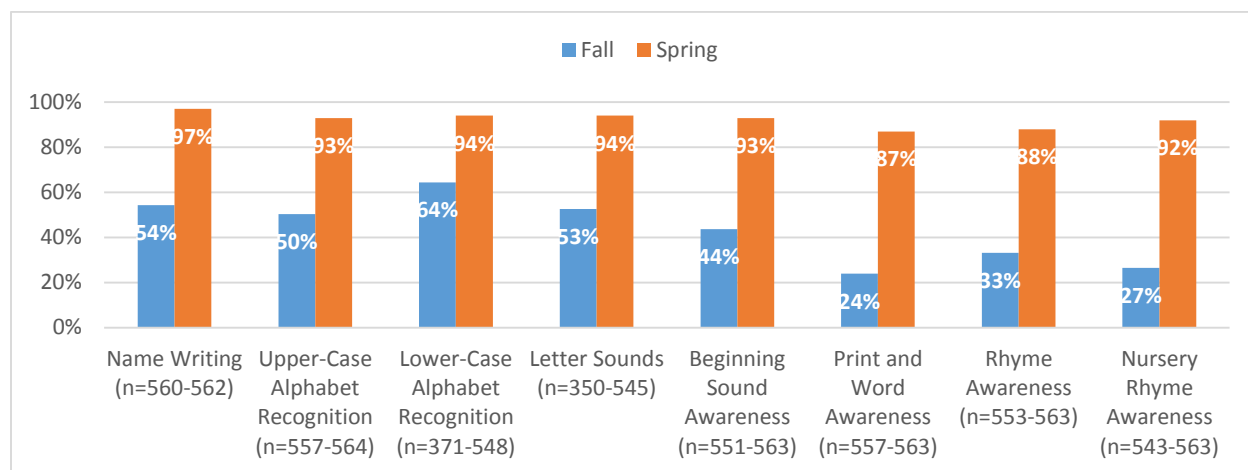
*n represents fall number followed by spring number. For example, for Name Writing, 560 students were assessed in the fall, and 562 were assessed in the spring. Note that n's for Lower-Case Alphabet Recognition are lower in the fall because that subtest is not administered unless students meet a certain benchmark on Upper-Case Alphabet Recognition. Likewise, Letter Sounds is not administered unless students meet a benchmark on Lower-Case Alphabet Recognition.

Figure 36 shows the percentage of VPI students whose PALS scores fell within the Pre-K developmental range for each subtest in the fall and spring of 2015-16, disaggregated by LEP status. While both non-LEP and LEP students show large gains from fall to spring, the increase in LEP students meeting developmental ranges is larger than the increase for non-LEP students. This difference ranges from three percentage points for **Lower-Case Alphabet Recognition** to 16 points for **Upper-Case Alphabet Recognition**.

Figure 36: Percentage of VPI Students Meeting PALS Pre-K Developmental Ranges, Fall and Spring 2015-16, by LEP Status*

*n represents fall number followed by spring number. For example, for Name Writing, 418 LEP students were assessed in the fall and 439 LEP students were assessed in the spring.

Figure 37 shows the percentage of VPI students whose PALS scores fell within the Pre-K developmental range for each subtest in the fall and spring of 2015-16, disaggregated by economic status. Similar to LEP students, the increase in economically disadvantaged students meeting developmental ranges is larger than the increase for non-disadvantaged students. This difference ranges from 11 percentage points for **Name Writing** to 27 points for **Beginning Sound Awareness.**
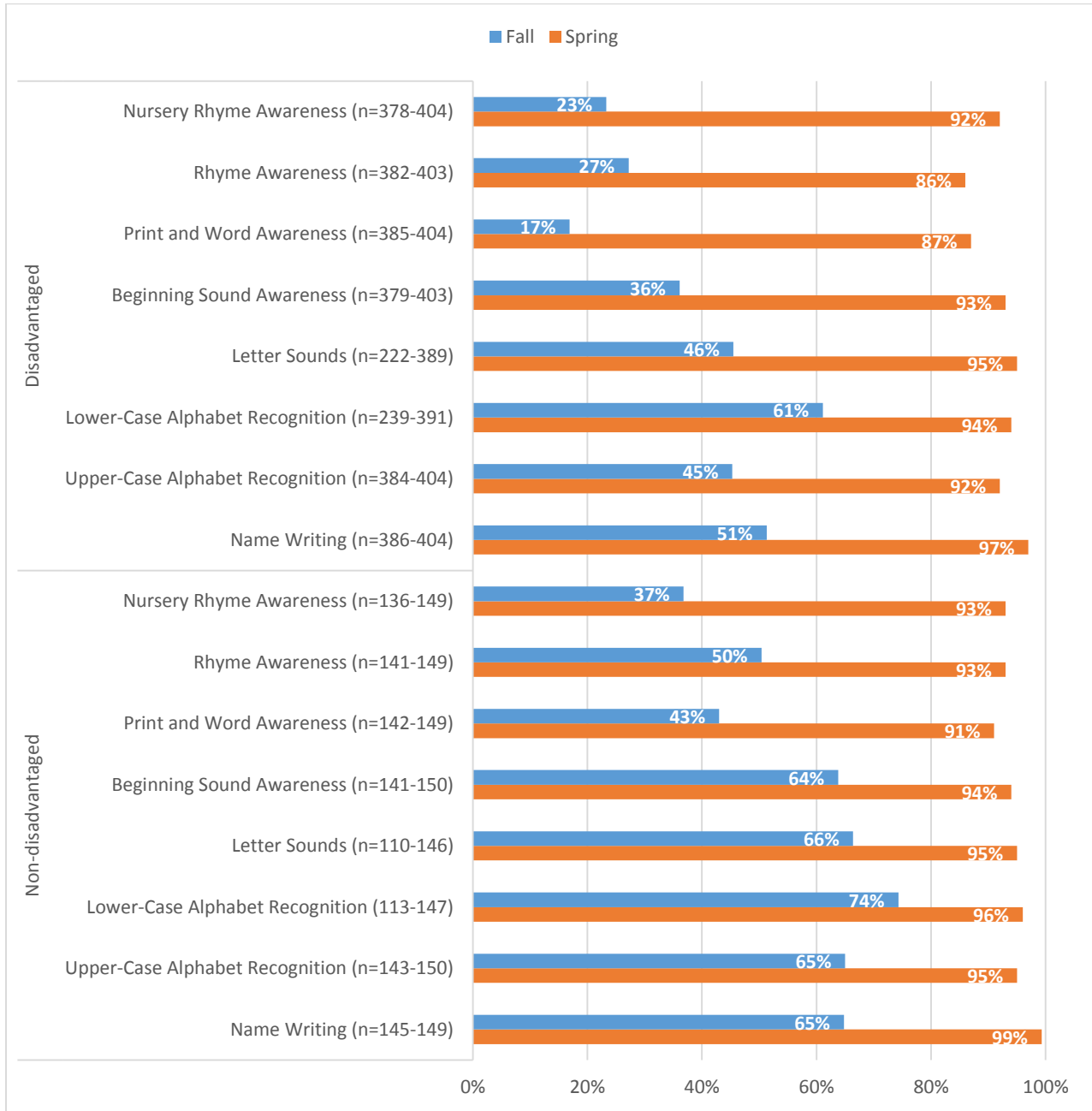
Figure 37: Percentage of VPI Students Meeting PALS Pre-K Developmental Ranges, Fall and Spring 2015-16, by Economic Status*

*n represents fall number followed by spring number. For example, for Name Writing, 386 economically disadvantaged students were assessed in the fall and 404 disadvantaged students were assessed in the spring.

Figure 38 shows the percentage of students in the special education program whose PALS scores fell within the Pre-K developmental range for each subtest in the fall and spring of 2015-16. Each subset saw substantial growth from fall to spring, with 72% or more of all students falling within the developmental range by spring. The subtests that showed the most growth were **Rhyme Awareness** and **Name-Writing**,

with a 30-point increase from fall to spring. Data is available for 2014-15 in **Appendix F1**, and follows a similar pattern.

Figure 38: Percentage of Students in Special Education Program Meeting PALS Pre-K Developmental Ranges, Fall and Spring 2015-16*
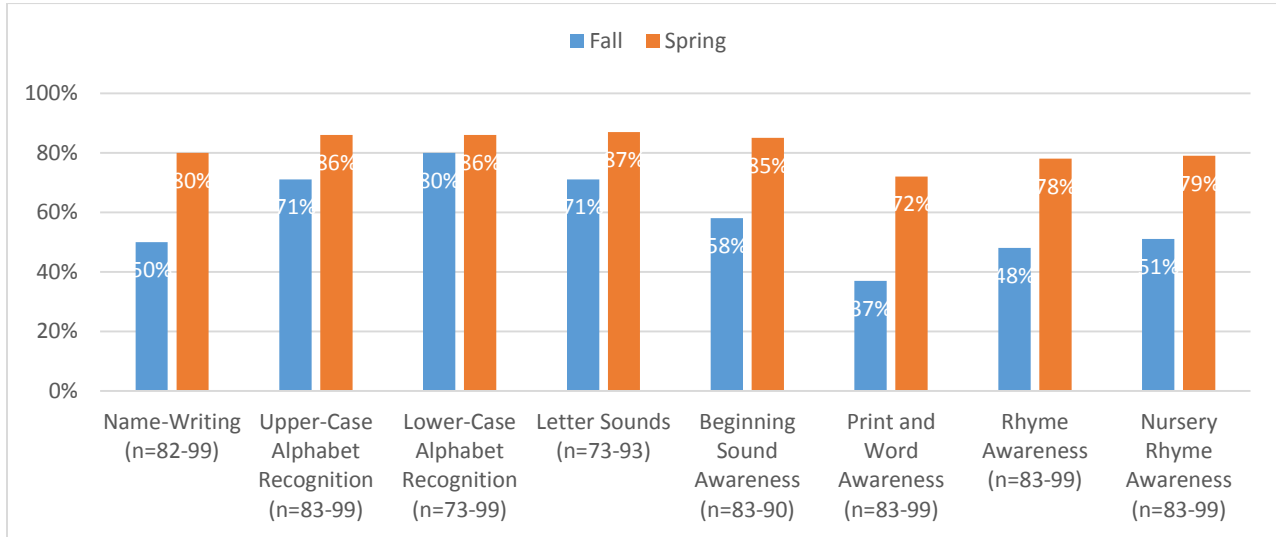

*n represents fall number followed by spring number. For example, for Name Writing, 82 students were assessed in the fall, and 99 were assessed in the spring. Note that n's for Lower-Case Alphabet Recognition are lower in the fall because that subtest is not administered unless students meet a certain benchmark on Upper-Case Alphabet Recognition. Likewise, Letter Sounds is not administered unless students meet a benchmark on Lower-Case Alphabet Recognition.

Figure 39 shows the percentage of students in the special education program whose PALS scores fell within the Pre-K developmental range for each subtest in the fall and spring of 2015-16, disaggregated by LEP status. Similar to VPI students, both non-LEP and LEP students show large gains from fall to spring, and the increase in LEP students meeting developmental ranges is larger than the increase for non-LEP students, with just one exception. This difference ranges from six percentage points for **Name-Writing** to 34 points for **Nursery Rhyme Awareness**.
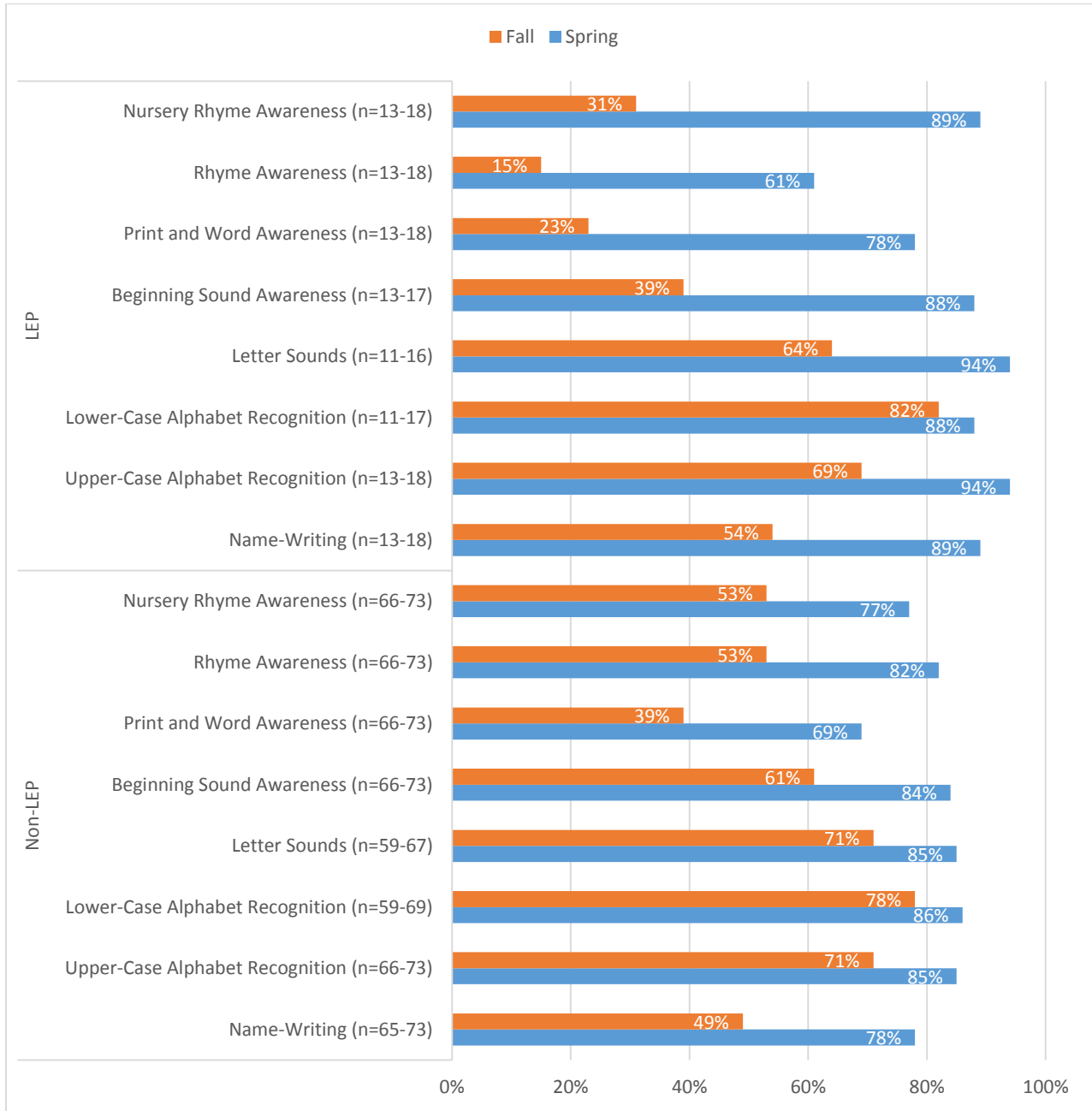
Figure 39: Percentage of Students in the Special Education Program Meeting PALS Pre-K Developmental Ranges, Fall and Spring 2015-16, by LEP Status*

Legend: ■ Fall ■ Spring

LEP
- Nursery Rhyme Awareness (n=13-18): Fall 31%, Spring 89%
- Rhyme Awareness (n=13-18): Fall 15%, Spring 61%
- Print and Word Awareness (n=13-18): Fall 23%, Spring 78%
- Beginning Sound Awareness (n=13-17): Fall 39%, Spring 88%
- Letter Sounds (n=11-16): Fall 64%, Spring 94%
- Lower-Case Alphabet Recognition (n=11-17): Fall 82%, Spring 88%
- Upper-Case Alphabet Recognition (n=13-18): Fall 69%, Spring 94%
- Name-Writing (n=13-18): Fall 54%, Spring 89%

Non-LEP
- Nursery Rhyme Awareness (n=66-73): Fall 53%, Spring 77%
- Rhyme Awareness (n=66-73): Fall 53%, Spring 82%
- Print and Word Awareness (n=66-73): Fall 39%, Spring 69%
- Beginning Sound Awareness (n=66-73): Fall 61%, Spring 84%
- Letter Sounds (n=59-67): Fall 71%, Spring 85%
- Lower-Case Alphabet Recognition (n=59-69): Fall 78%, Spring 86%
- Upper-Case Alphabet Recognition (n=66-73): Fall 71%, Spring 85%
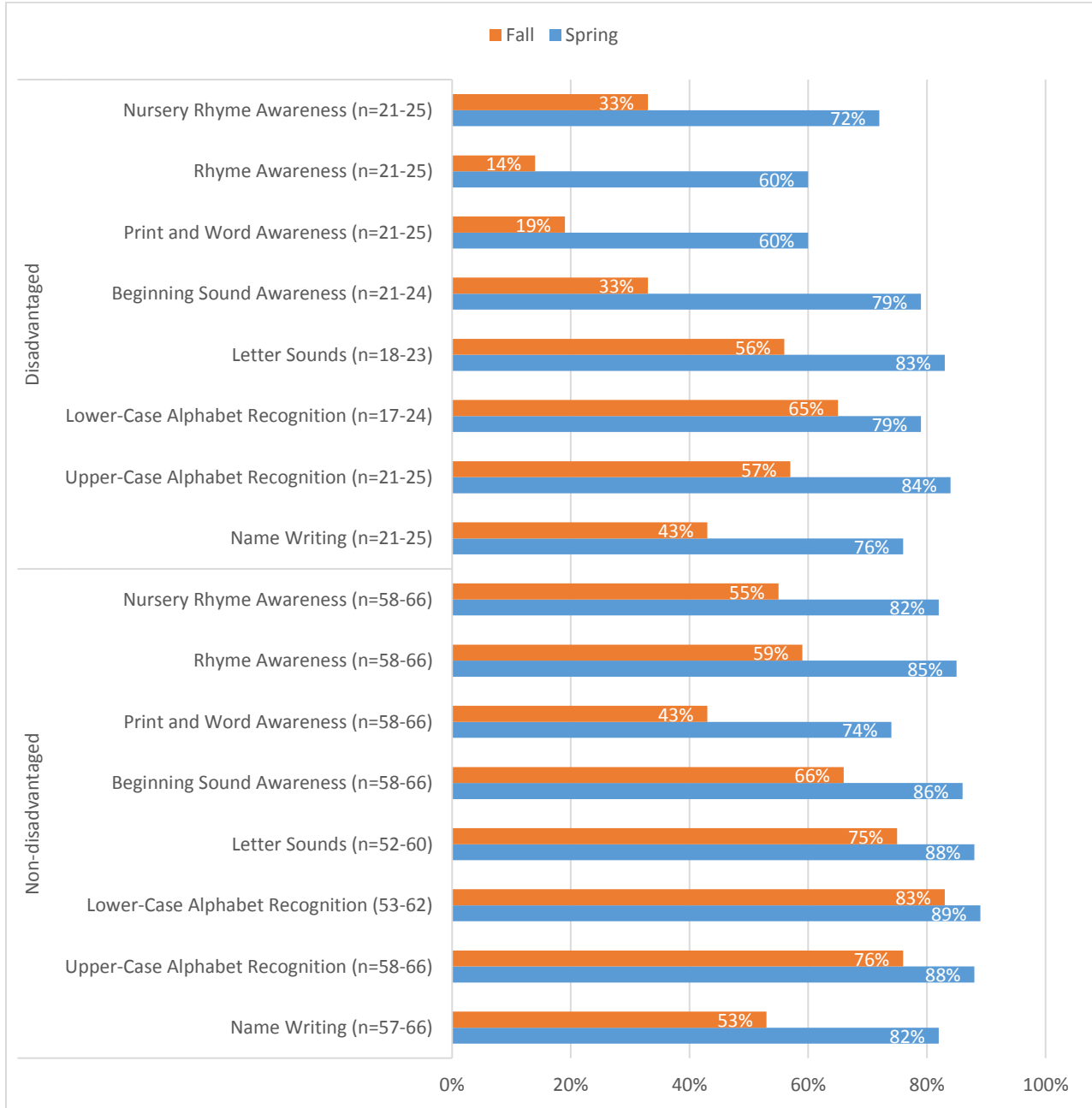- Name-Writing (n=65-73): Fall 49%, Spring 78%

*n represents fall number followed by spring number. For example, for Name Writing, 13 LEP students were assessed in the fall and 18 LEP students were assessed in the spring.

Figure 40 shows the percentage of students in the special education program whose PALS scores fell within the Pre-K developmental range for each subtest in the fall and spring of 2015-16, disaggregated by economic status. Similar to LEP students, the increase in economically disadvantaged students meeting developmental ranges is larger than the increase for non-disadvantaged students. This

difference ranges from four percentage points for **Name Writing** to 26 points for **Beginning Sound Awareness.**

Figure 40: Percentage of VPI Students Meeting PALS Pre-K Developmental Ranges, Fall and Spring 2015-16, by Economic Status*

*n represents fall number followed by spring number. For example, for Name Writing, 21 economically disadvantaged students were assessed in the fall and 25 disadvantaged students were assessed in the spring.

The full report on Pre-K PALS data is available in **Appendix F1**.

In order to determine how well participation in an APS Pre-K program prepares students for kindergarten, this evaluation includes an analysis of fall PALS-K results for all kindergarten students in 2013-14 through 2015-16, comparing results for those who attended an APS Pre-K program with those who attended private Pre-K, no Pre-K at all, or Head Start.

Figure 41 shows the percentage of kindergartners whose fall PALS scores were at or above the benchmark during the past three years, disaggregated by Pre-K experience[13]. In 2015-16, students who had attended an **APS Pre-K program** (VPI, Montessori, or special education) were almost as likely to meet the PALS benchmark as students who had attended a **private Pre-K program** (97% for all APS programs, 99% for private providers). Students who had attended **Head Start** or who had attended **no formal Pre-K** at all were less likely to meet the benchmark, ranging from 79-81%.

Figure 41: Percentage of Kindergartners at or above Kindergarten Fall PALS Benchmark, by Pre-K Experience
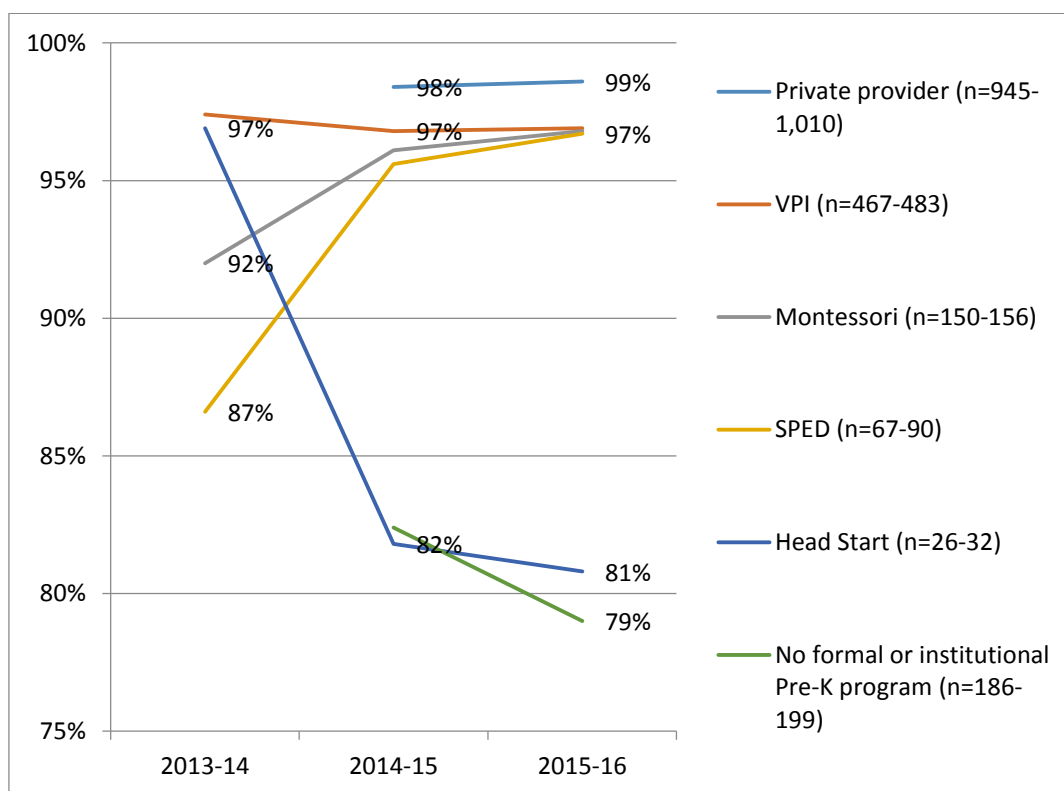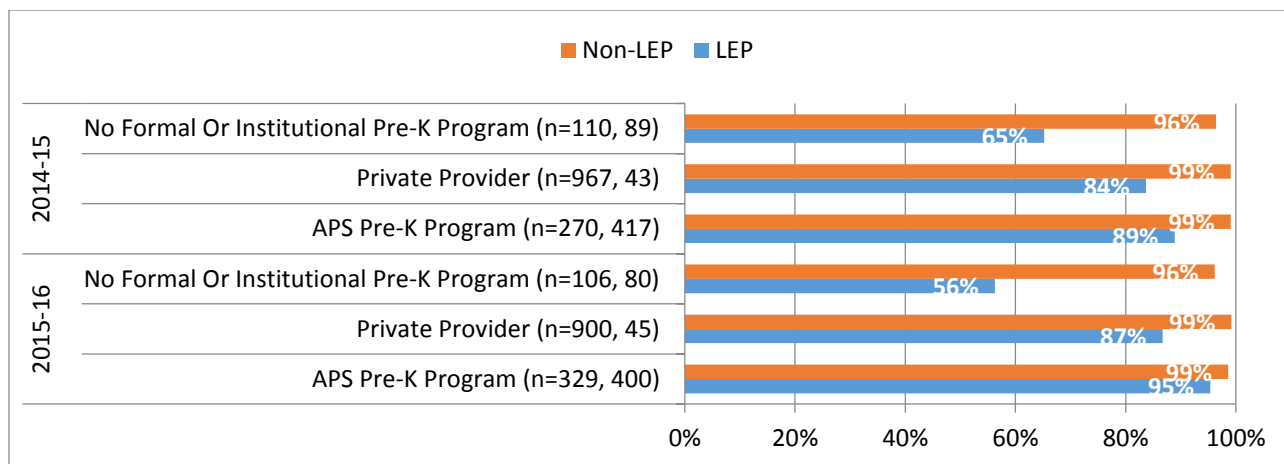

Figure 42 shows the percentage of kindergartners whose fall PALS scores were at or above the benchmark in the past two years, disaggregated by LEP status and Pre-K experience. In this graph, "APS Pre-K program" refers to VPI, Montessori, or special education. In both years, LEP students who attended an APS Pre-K program were far more likely to meet the kindergarten PALS benchmark than

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[13] 2013-14 data does not include the Pre-K experiences of "no formal or institutional Pre-K program" or "private provider" due to unreliable data for those categories. In addition, this graph excludes the categories of "coordinated special education" and "Other-Only APS is Peer Model." These categories include small numbers of students and data for these students is included in Appendix F4.

those who had not attended any Pre-K program. Between 56-65% of LEP students who had not attended any Pre-K met the benchmark either year, compared to 89-95% of LEP students who attended an APS Pre-K program. LEP students who attended a private Pre-K provider fell in the middle, with between 84-87% of LEP students meeting the benchmark.

Figure 42: Percentage of Kindergartners at or above Kindergarten Fall PALS Benchmark, by Pre-K Experience and LEP Status*

*n represents non-LEP number followed by LEP number. For example, in 2014-15, 110 non-LEP students and 89 LEP students had no formal or institutional Pre-K Program experience.

Figure 43 shows the percentage of kindergartners whose fall PALS scores were at or above the benchmark in the past two years, disaggregated by economic status and Pre-K experience. Similar to LEP students, economically disadvantaged students seem to have been best prepared by APS Pre-K programs, with between 92-94% meeting the benchmark either year, compared to 63-67% of those who had attended no formal Pre-K program. Sixty-nine percent of economically disadvantaged students who attended a private provider met the benchmark in 2014-15, and 83% met the benchmark in 2015-16.

Figure 43: Percentage of Kindergartners at or above Kindergarten Fall PALS Benchmark, by Pre-K Experience and Economic Status
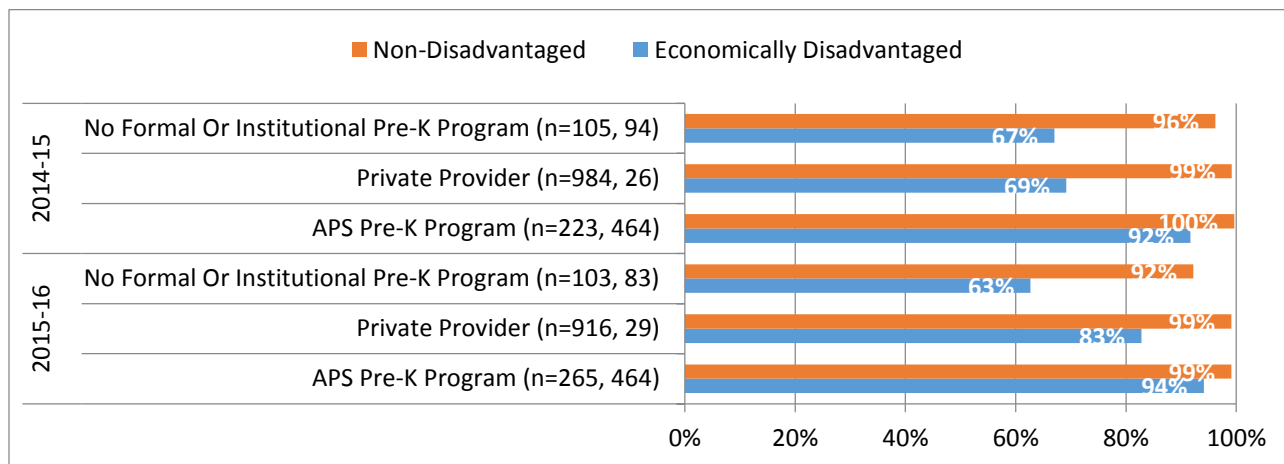
*n represents non-disadvantaged number followed by economically disadvantaged number. For example, in 2014-15, 105 non-disadvantaged students and 94 economically disadvantaged students had no formal or institutional Pre-K Program experience.

Figure 44 shows the percentage of kindergartners whose fall PALS scores were at or above the benchmark in the past two years, disaggregated by race/ethnicity and Pre-K experience. The groups that see the greatest difference among Pre-K experiences are Asian and Hispanic students, who are generally much more likely to meet the PALS benchmark if they attended an APS Pre-K program (95-100% each year) than if they attended no formal Pre-K program (61-67% in 2015-16; 65% of Hispanic students in 2014-15).

Figure 44: Percentage of Kindergartners at or above Kindergarten Fall PALS Benchmark, by Pre-K Experience and Race/Ethnicity
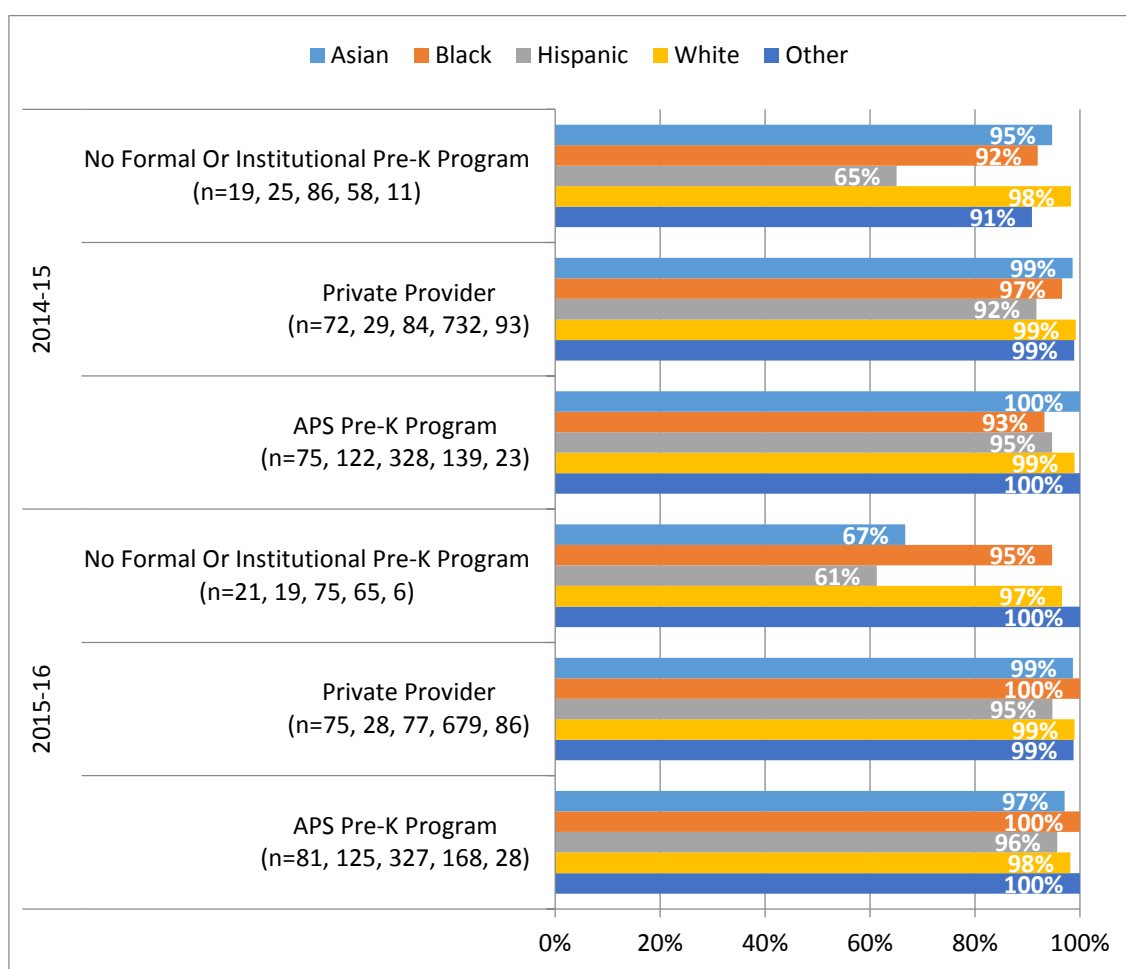
*n represents each race/ethnicity in the order listed in the legend (Asian, black, Hispanic, white, other).

The kindergarten PALS report is available in **Appendix F4**.

Developmental Math Assessment

In 2011-12, a committee of VPI teachers reviewed formal math assessments and determined the Developmental Math Assessment (DMA) to be the best tool to evaluate the mathematical

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understanding of students in the program. The DMA is used with all VPI students as well as 3- through 5-year old special education Pre-K students. Given the unique nature of the Montessori program, those students are not formally assessed until the kindergarten year when they take APS kindergarten assessments.

DMA assessments are given at three points in the Pre-K year: fall, mid-year and spring. Three years of DMA data for the VPI program were provided to Planning and Evaluation by the Early Childhood Office. The Special Education Office provided DMA scores for 2015-16. Due to limitations in the data, this analysis includes overall scores only and no disaggregation by demographic variables. Students can place at one of three levels on the DMA:

- **Emergent**- students requiring instruction in Pre-Kindergarten number concepts.

- **Pre-K**- students developing Pre-Kindergarten number concepts

- **Kindergarten**- students demonstrate Kindergarten readiness concepts

Figure 45 shows the percentage of VPI students who placed at each DMA level in fall, mid-year, and spring of 2015-16. Students show growth throughout the year, with just 4% of students testing at the kindergarten level in the fall and 61% doing so in the spring. The pattern is almost identical for 2013-14 and 2014-15; data for those years is available in **Appendix F2**. In the three years included in this analysis, between 93-98% of VPI students who placed at the Emergent level in the fall had improved at least one level by spring, and between 81-86% of students who placed at the Pre-K level in the fall had moved to the Kindergarten level by spring.

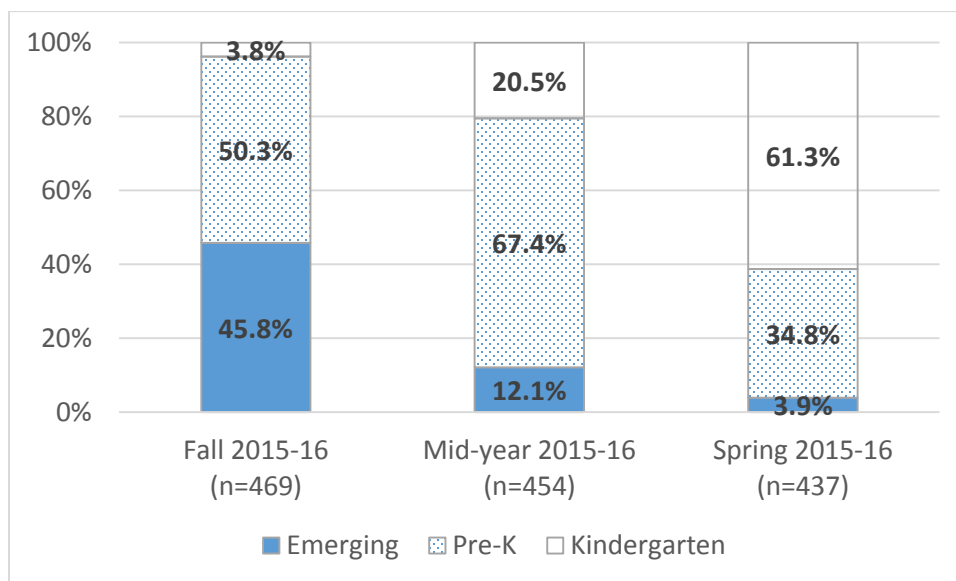**Figure 45: 2015-16 Percentage of VPI Students at each DMA Level**

Figure 46 shows the percentage of students in the special education program who placed at each DMA level in fall, mid-year, and spring of 2015-16. The percentage of students placing at the kindergarten level increases from 7% in the fall to 49% in the spring. Of the students in the special education program

who placed at the Emergent level in the fall, 64% had improved at least one level by spring. Of those who placed at the Pre-K level in the fall, 68% had moved to the Kindergarten level by spring.

Figure 46: 2015-16 Percentage of Students in the Special Education Program at Each DMA Level
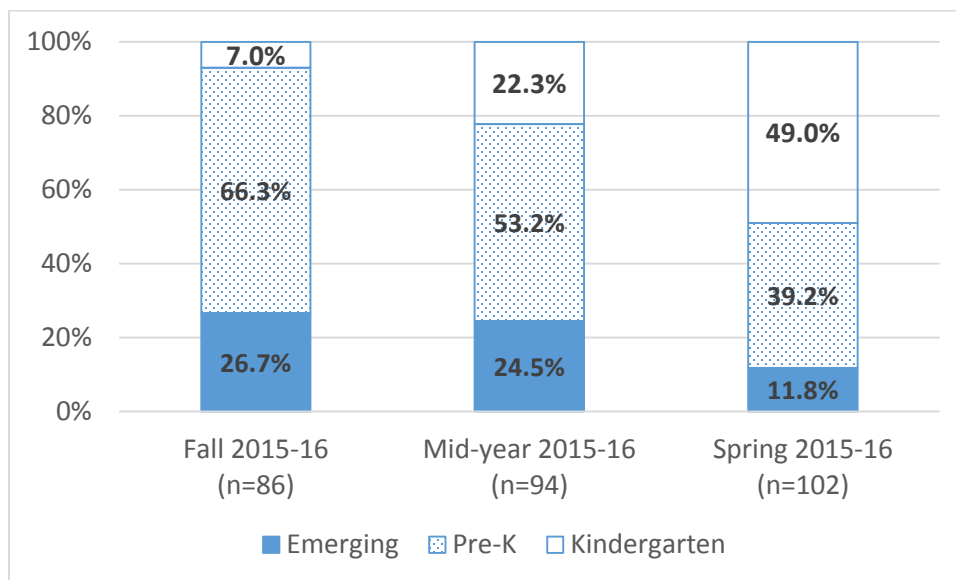
The full report on DMA results is available in **Appendix F2**.

Kindergarten Beginning of Year Math Assessment

APS uses an APS-developed math assessment in kindergarten which includes items in the following mathematical categories:

- Number and number sense
- Computation and estimation
- Geometry
- Patterns, functions and algebra
- Probability and statistics

The kindergarten math assessment is unlike the PALS in that there is no benchmark and the score is a simple percentage of correct responses. In addition, the test is administered at multiple points throughout the year and students are expected to increase their score, or percentage correct, as the year progresses, meaning that they are not expected to achieve a high score at the beginning of the year.

In order to determine how well participation in an APS Pre-K program prepares students for kindergarten, this evaluation includes an analysis of fall kindergarten math assessment results for all kindergarten students in 2012-13 through 2015-16, comparing results for those who attended an APS Pre-K program with those who attended private Pre-K, no Pre-K at all, or Head Start. Data for 2013-14 has not been included in this analysis due to unreliable data for the categories of "no formal or institutional Pre-K program" or "private provider." In addition, this analysis excludes the small categories

of "coordinated special education" and "Other-Only APS is Peer Model." Data for these students is included in **Appendix F3.**

Table 11 shows the average scores (percentage correct) for the kindergarten beginning of year math assessment by Pre-K experience. Students who attended APS Montessori and students who attended a private Pre-K provider had the highest average scores each year, ranging from 52-58% for students who attended a private provider, and 48-61% for Montessori students. Average scores ranged from 38-44% for VPI students. Students who attended an APS special education Pre-K program scored an average of 35-39% through 2014-15, and 49% in 2015-16. Those with lowest average scores had attended no formal Pre-K at all (32-38%) or Head Start (28-36%).

Table 11: Average Kindergarten Beginning of Year Math Scores by Pre-K Experience

Pre-K Experience	2012-13		2013-14		2014-15		2015-16	
	N	Avg. Score	N	Avg. Score	N	Avg. Score	N	Avg. Score
VPI	483	38%	469	44%	462	44%	471	41%
Montessori	139	48%	152	61%	146	55%	155	59%
SPED	63	37%	68	35%	58	39%	84	49%
No formal or institutional Pre-K program	192	32%	*	*	197	38%	187	37%
Private provider	986	52%	*	*	1,007	57%	939	58%
Head Start	37	28%	30	34%	33	36%	26	35%

*Pre-K experience data not available for these categories in 2013-14

Figure 47 shows the average scores for the kindergarten beginning of year math assessment by Pre-K experience and LEP status. In all three years, LEP students who attended an APS Pre-K program or a private provider had higher average scores than those who had not attended any formal Pre-K.

Figure 47: Average Kindergarten Beginning of Year Score, by Pre-K Experience and LEP Status

Figure 48 shows the average scores for the kindergarten beginning of year math assessment by Pre-K experience and economic status. Similar to LEP students, economically disadvantaged students who attended an APS Pre-K program or a private provider had higher average scores than those who had not attended any formal Pre-K in all three years included in the analysis.

Figure 48: Average Kindergarten Beginning of Year Score, by Pre-K Experience and Economic Status

Figure 49 shows the average scores for the kindergarten beginning of year math assessment by Pre-K experience and race/ethnicity. Generally, Asian, black, and Hispanic students who attended an APS Pre-K program had higher average scores than those who had not attended any formal Pre-K.

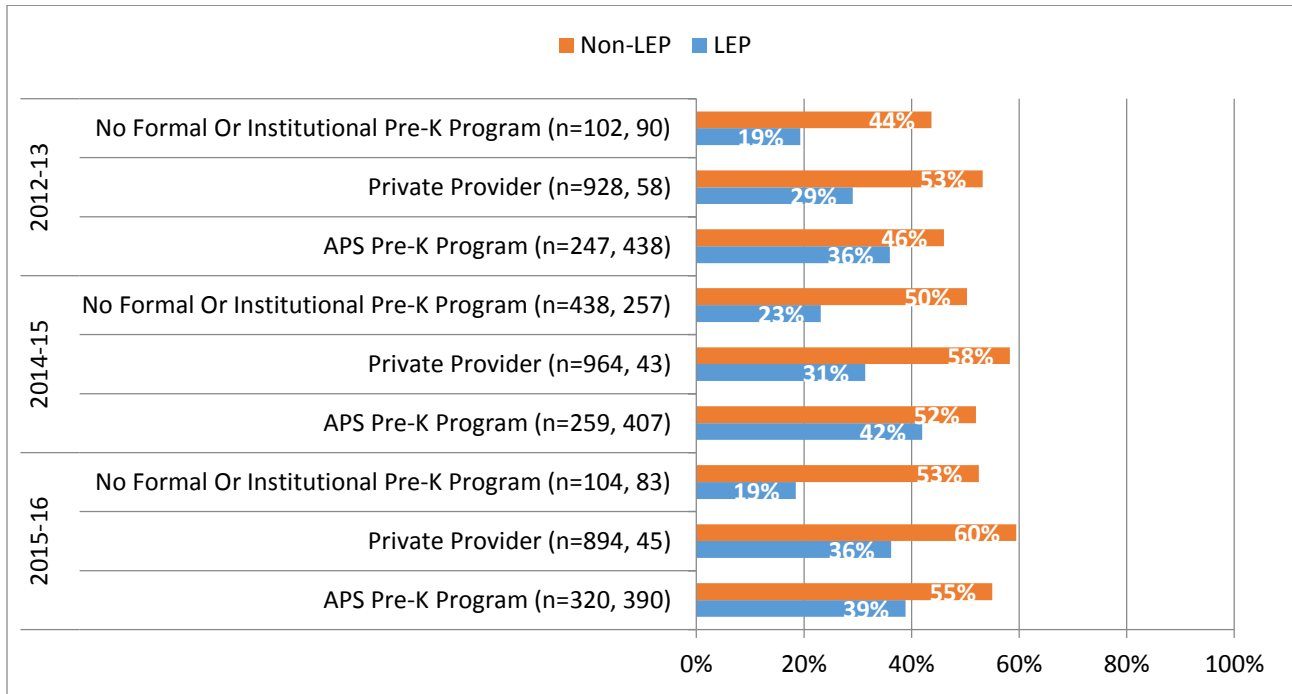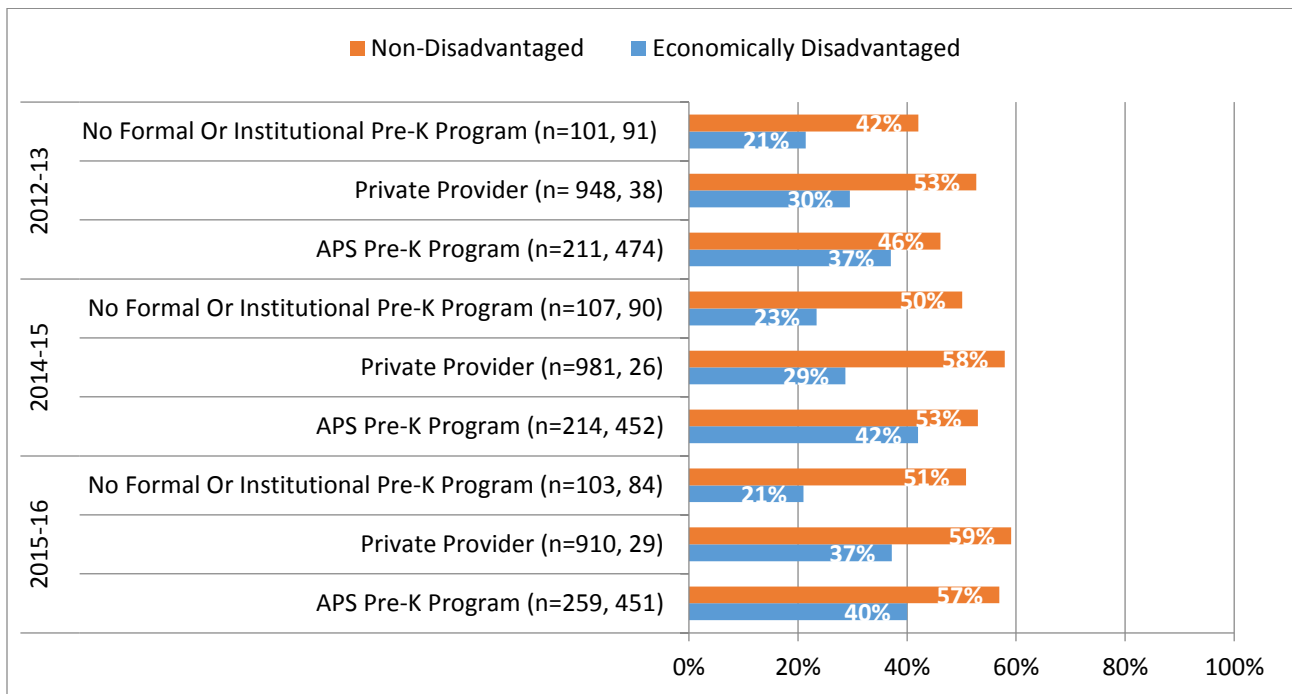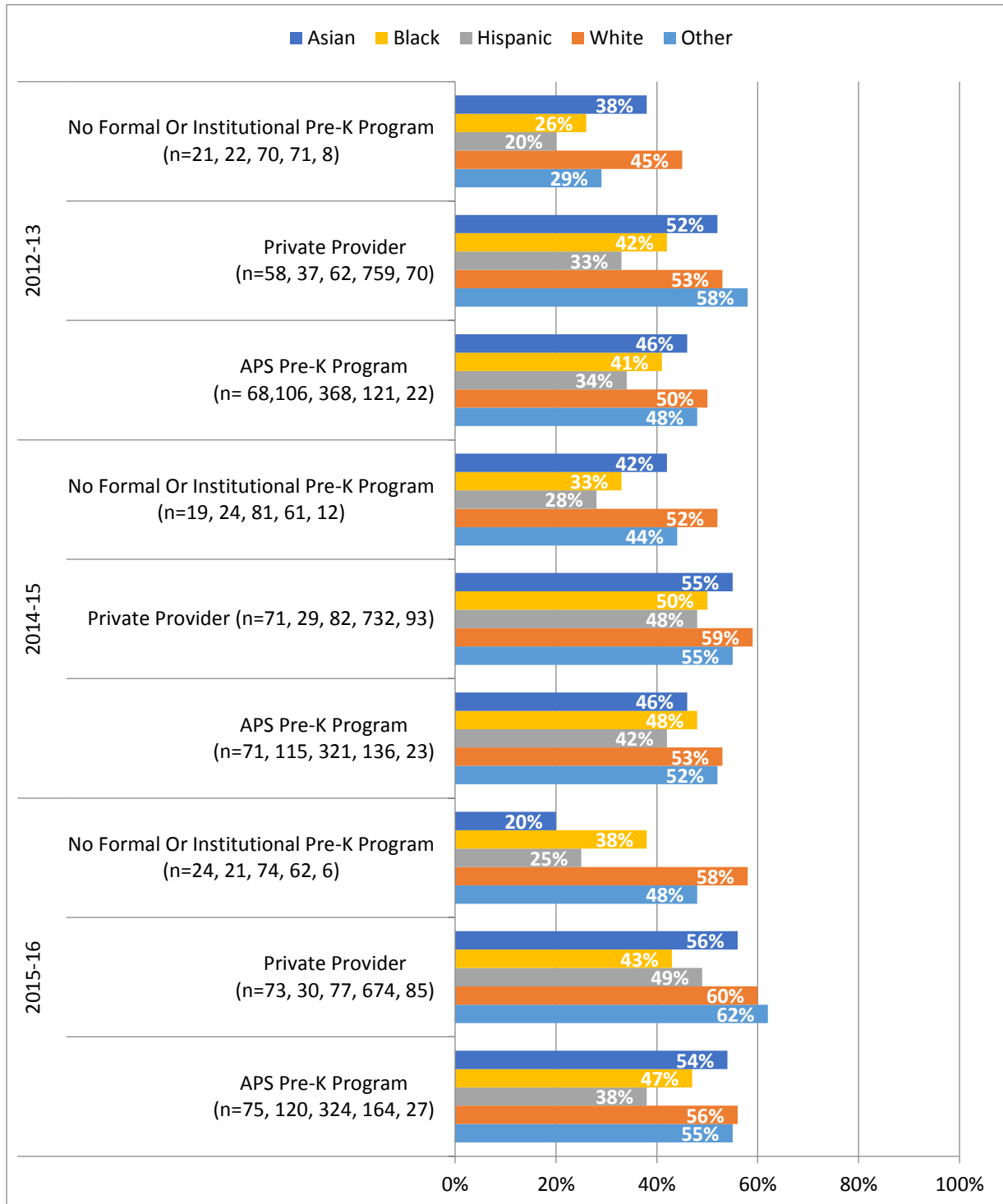**Figure 49: Average Kindergarten Beginning of Year Math Score, by Pre-K Experience and Race/Ethnicity**

The full report on the kindergarten math assessment is available in **Appendix F3**.

Parent Perceptions of Kindergarten Readiness

> **Parents from all APS Pre-K programs, and across demographic groups, expressed confidence that their child would be ready for kindergarten.**

Across programs, parents expressed confidence that their child would be ready for kindergarten. VPI parents were the most likely to indicate that they *strongly* or *somewhat agree* with the statement, "**My child will be ready for kindergarten**," with almost all (98%) selecting these responses. Ninety-one percent of Montessori parents selected these responses, followed by 81% of special education parents.

Figure 50: Percent Selecting Strongly Agree/Somewhat Agree: My child will be ready for kindergarten.*
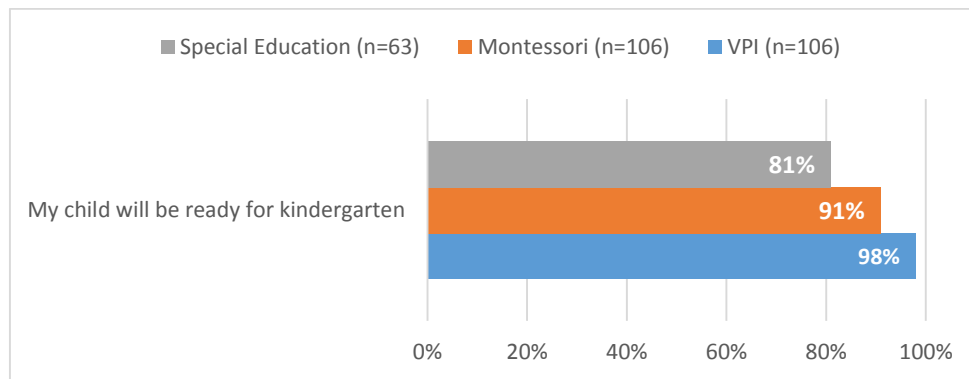
*Parents of kindergarten students in the Montessori program did not answer this question.

Disaggregating responses by demographic variables shows that parents were slightly more likely to express agreement if they belonged to the following groups:

- **Language other than English** (95% vs 86% of English only households)
- **$0 to $51,000** (96% vs 88-92% of households with higher income levels)
- **Less than associates or bachelor's degree** (98% vs 88-90% of households with higher levels of education)

In addition, parents of white students were the least likely to express agreement, at 88% compared to 92-97% of parents of Asian, black, and Hispanic students.

The full parent survey report is available in **Appendix D1**.

Social-Emotional Outcomes

> **Students in the VPI program appear to make greater gains in social-emotional outcomes from fall to spring than four-year-olds in Montessori or special education. The primary Montessori program is a three-year continuum and thus students may make these gains in their third year.**
>
> **In all programs, Self-Concept and Social Problem Solving had the lowest percentage of students rated as meeting in the spring, and in the special education program, the area of Self-Control was**

> *relatively lower as well. Parents from all programs expressed satisfaction with their child's growth in personal/social skills during the school year.*

In a typical school year, VPI and special education Pre-K teachers record social-emotional indicators for each student twice annually on the Pre-K progress report to share with parents at the spring and end-of-year conferences. The progress report includes other academic indicators as well. For purposes of this evaluation, the Office of Planning and Evaluation collected this data centrally from all teachers, including Montessori, and added an additional data collection period in the fall so that baseline data would be available for all students.

The five social-emotional areas are:

- **Self-Concept**: The child will demonstrate self-confidence and self-reflection.
- **Self-Control**: The child will show self-direction and responsibility.
- **Approach to Learning**: The child will show eagerness and persistence as a learner.
- **Interactions with Others**: The child will interact easily with other children and with familiar adults.
- **Social Problem Solving**: The child will use non-physical ways to resolve conflict.

Teachers assessed their students on each area using the following rubric:

- **Meeting**: Child consistently meets behavior or skill. Student independently demonstrates an understanding of the key concepts and skills.
- **Progressing**: Child is in the process of developing a behavior or skill. Student demonstrates or applies key skills, strategies, or concepts inconsistently. Student partially meets the standard.
- **Not Yet**: Child in not yet demonstrating behavior or skill.

Figure 51 shows the percentage of four-year-old students in each program who were assessed to be at the "meeting" level in fall, mid-year, and spring of 2015-16. For this analysis, three- and five-year-old students were excluded to allow for comparison across all programs, though it should be noted that the primary Montessori program is a three-year continuum and thus students may make these gains in their third year.

Students in the VPI program appear to make greater gains in social-emotional outcomes from fall to spring with an increase of 50 to 55 percentage points for each area. In the Montessori program, increases ranged from 21 points for **Social Problem Solving** to 42 points for **Self-Concept**. In special education Pre-K classrooms, most areas saw increases of 28 to 31 percentage points. The one exception was **Self-Concept**, with an increase of just 20 percentage points.

In all programs, **Self-Concept** and **Social Problem Solving** had the lowest percentage of students rated as *meeting* in the spring. These percentages ranged from 66-68% of VPI students, 51-53% of Montessori students, and 45-47% of students in the special education program. In the special education program, the area of Self-Control was relatively lower as well, with 47% of students rated as *meeting*.

Figure 52 shows responses from the spring 2016 survey of current Pre-K parents to the question, "**Please indicate how satisfied you are with your child's growth in personal/social skills during the 2015-16 school year.**" Parents from all programs responded positively, with between 93-94% of VPI and Montessori parents selecting *very satisfied* or *moderately satisfied*, and 87% of special education parents selecting these responses.

Figure 52: Parents: Satisfaction with growth in personal/social skills, by program
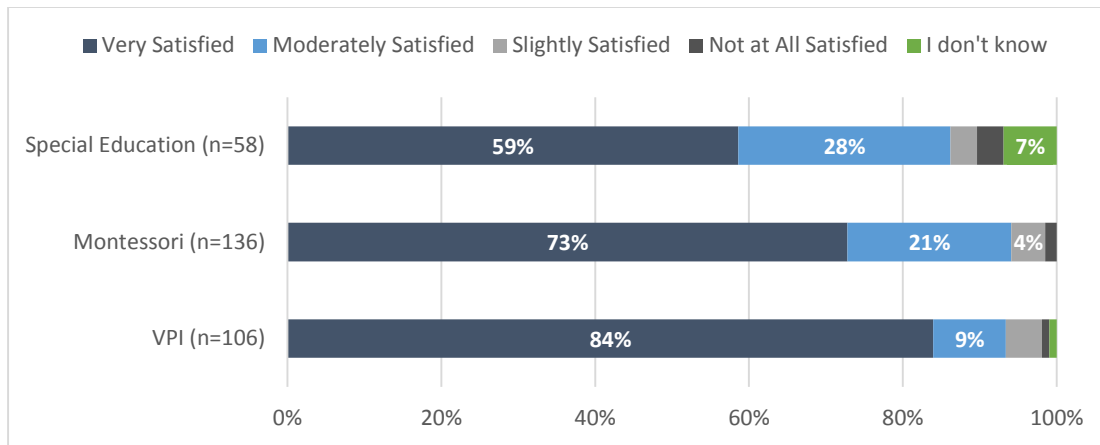
The full report on social emotional outcomes is available in **Appendix F6**. The parent survey report is available in **Appendix D1**.

Fine and Gross Motor Development

> ***APS does not currently have a systematic approach to measuring growth in fine and gross motor development. Most parents from all programs were satisfied with their child's growth in fine and gross motor development in the Pre-K year.***

One goal of this evaluation was to assess students' growth in fine and gross motor development, but APS does not currently have a systematic approach to measuring growth in this area. As a result, objective measures of fine and gross motor development have not been included in the evaluation, but parent perceptions were gauged on the parent survey.

Figure 53 shows parents' level of satisfaction with their child's growth in fine and gross motor development over the school year. Between 96-97% of VPI and Montessori parents reported being *very satisfied* or *moderately satisfied*, while 87% of special education parents selected these responses.

Figure 53: Satisfaction with growth in fine/gross motor development, by program
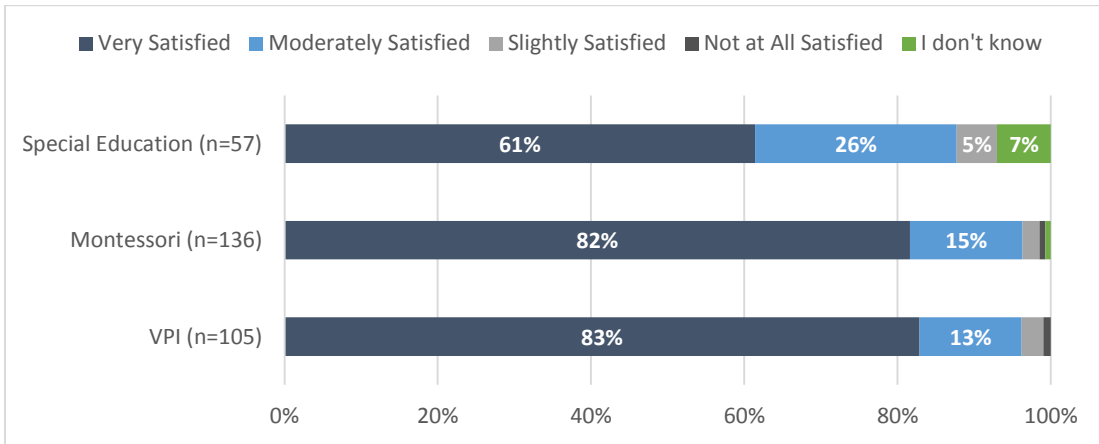
The parent survey report is available in **Appendix D1**.

Student Health Wellbeing

> *Almost half of VPI parents indicated that their child's willingness to try new foods, especially fruits and vegetables, had increased since entering Pre-K.*

APS Pre-K classrooms strive to introduce new healthy snack choices to students in ways that are fun and engaging. One of the goals of VPI is to educate children and families on healthy eating choices. Foundation Block 6 outlines the following: "The child will identify healthy and unhealthy foods, and simple practices and habits that promote health and prevent illness." Students in Montessori classrooms are expected to prepare their own snack during the work block at their own discretion. This encourages independence and interest in new snack choices.

Figure 54 shows responses to the question, "**Have you noticed any increase in your child's willingness to try new foods, especially fruit and vegetables, since entering Pre-K?**" Parents of VPI students were the most likely to indicate that their child's willingness to try new foods had *increased* (44%), followed by special education (34%) and Montessori (29%).
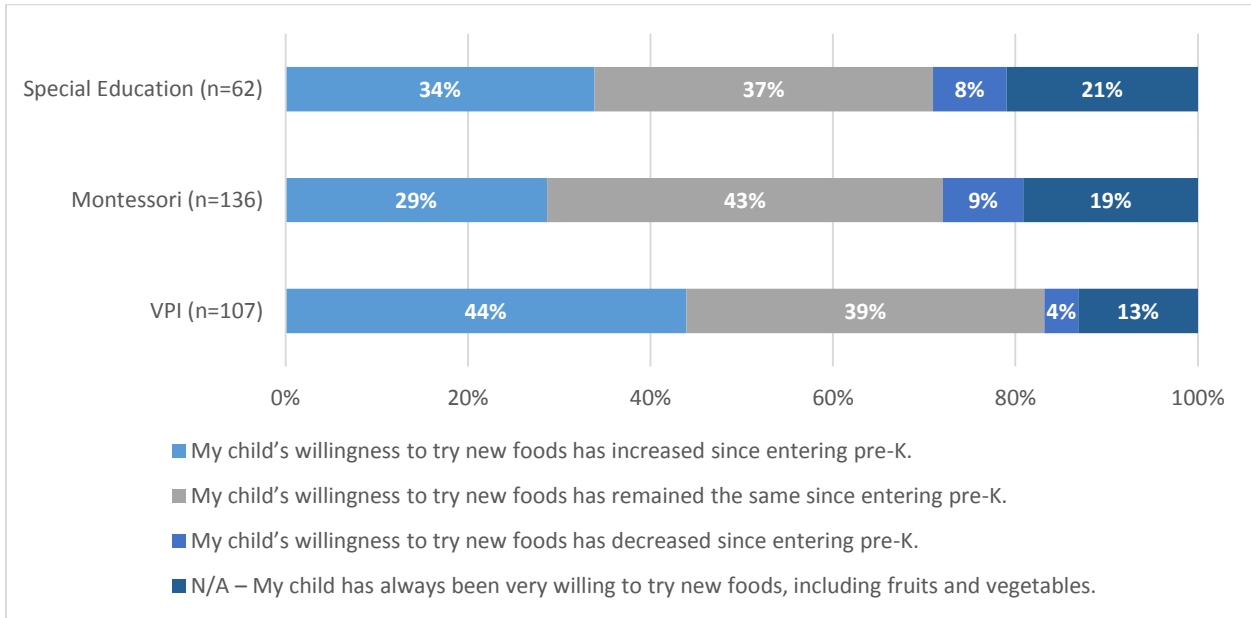
The parent survey report is available in **Appendix D1**.

Long-term Outcomes

As a follow-up to two prior studies of longitudinal outcomes for APS Pre-K students, the Office of Planning and Evaluation contracted with Hanover Research (Hanover) to conduct two analyses:

- **Cohort 1**: High school outcomes for the original cohort included in the two prior analyses, which had previously included elementary and middle school outcomes. This cohort attended kindergarten in 2001-02. Students in this cohort would have graduated in 2013-14 following a typical trajectory.
- **Cohort 2**: elementary and middle school outcomes for a new cohort of students who attended kindergarten in 2007-08. Students in this cohort would have completed 8th grade in 2015-16 following a typical trajectory.

The primary goal of each analysis was to determine if participating in an APS Pre-K program held long-term benefits for LEP students and economically disadvantaged students, compared to LEP and economically disadvantaged students who had no Pre-K experience at all. There are a few differences in how the analysis was approached for each cohort:

- Data on Pre-K experience was less reliable for students in cohort 1. As a result, the analysis focuses solely on APS Pre-K participants and non-participants, but it is unknown whether students in the non-participant group had experience with a private Pre-K provider, or no Pre-K experience at all.
- Richer Pre-K experience data was available for cohort 2, which allowed for a comparison among students who had participated in an APS Pre-K program, a private Pre-K program, Head Start, or

an "other" Pre-K program such as the APS Peer Model program. There were limitations to the Pre-K experience data for this cohort for special education categories, so the cohort 2 analysis excludes students with special education Pre-K experience categories from the analysis.

Summary of Findings for Cohort 1

> ***Longitudinal outcomes for economically disadvantaged and LEP students who participated in an APS Pre-K program in 2000-01 consistently show advantages in comparison to economically disadvantaged and LEP students who did not participate in an APS Pre-K program.***

SOLs

- **Economically disadvantaged students**: APS Pre-K participating students on average perform better than their non-participating peers. For all four high school grades, participants outperform non-participants in nine assessments, while non-participants do better on six assessments.
- **LEP students**: LEP participants of Pre-K APS programs do even better relative to their peers than economically disadvantaged students. In this subsample, participants receive higher SOL scale scores on average for 12 assessments across four grades. Conversely, non-participants outperform them on only three occasions.

GPA

- **Economically disadvantaged students**: Participants consistently outperform their non-participating economically disadvantaged peers. The gap between two groups ranges from 0.13 points to 0.28 points.
- **LEP students**: While LEP students earn lower GPAs than the overall cohort, LEP students who attended APS Pre-K programs outperform those who did not.

AP/IB Participation

- **Economically disadvantaged students**: Participants take more AP/IB classes than their peers who did not attend an APS Pre-K program in Grade 9-12.
- **LEP students**: LEP students who participated in APS Pre-K programs take more AP/IB classes in Grades 10-12 than their LEP non-participant peers.

Attendance

- **Economically disadvantaged students**: Economically disadvantaged students who participated in APS Pre-K had higher attendance rates than their peers. The difference is more pronounced in this subsample, reaching roughly 2 percentage points in Grade 10.
- **LEP students**: LEP students had higher attendance if they participated in the APS Pre-K programs, relative to those who did not.

On-time Graduation and Post-Graduation Plans

- **On Time Graduation**: All APS Pre-K participants graduated on time, while 2.1 percent of non-participants did not graduate on time in the overall sample. This holds true for ED and LEP

samples, but 5.6 and 4.8 percent of non-participants did not graduate on time in these subgroups, respectively.

- **Post-Graduation plans**: APS Pre-K participants are more likely to choose a four-year college as their post-graduation plan than non-participants across all three samples.

Summary of Findings for Cohort 2

> ***Longitudinal outcomes for economically disadvantaged and LEP students who participated in an APS Pre-K program in 2006-07 show mixed results, with participants outperforming their peers who had no formal Pre-K experience on some measures but not all.***

PALS

- **Economically disadvantaged students**: Those who participated in the APS Pre-K programs perform better in Kindergarten fall semester and fall of Grade 1, while falling behind in the spring semester of Grade 1. This pattern is present in both mean scores and percentage of students who performed below benchmark in both fall and spring semesters. For instance, in the fall semester of Kindergarten, only 16% of participants perform below benchmark, compared to 47% of students with no Pre-K experience. In comparison, in Grade 2 spring semester, 19% of participants do not reach the benchmark level, while only 15% of students with no Pre-K experience fail to reach this level. It appears that the APS Pre-K cohort has not improved in terms of reaching the benchmark level over the course of three years, while their peers have.

- **LEP students**: Similar to economically disadvantaged students, APS Pre-K program participants perform better on the PALS assessment in terms of mean scores relative to those with no Pre-K experience in Kindergarten and Grade 1. However, the gap shrinks as students progress through the grades. For instance, APS Pre-K participants are less likely to perform below benchmark by 27 percentage points relative to students with no Pre-K experience when they are in the fall semester of Kindergarten, but they are less likely to do so by only 7 percentage points when they are in the spring semester of Grade 1.

Degrees of Reading Power (DRP)

- **Economically disadvantaged students**: APS Pre-K participants and those with no Pre-K experience perform similarly.

- **LEP students**: LEP students who participated in any of the APS Pre-K programs consistently outperform their peers in Head Start, but underperform in comparison to LEP students in other groups, including those with no Pre-K experience. The difference in mean DRP scores are more pronounced for this sample compared to the economically disadvantaged sample.

SOLs

- **Economically disadvantaged students**: There is no consistent pattern comparing APS Pre-K participants to students with no Pre-K experience.

- **LEP students**: There is no consistent pattern comparing APS Pre-K participants to students with no Pre-K experience.

GPA

- **Economically disadvantaged students**: Economically disadvantaged students who participated in the APS Pre-K programs outperform their peers without Pre-K experience and those in Head Start in Grades 6 and 7. However, by Grade 8, those with no Pre-K experience catch up with and ultimately pass them.
- **LEP students**: APS Pre-K participants consistently earn higher GPAs than their peers in Head Start and students without Pre-K experience.

Participation in Advanced Math

- **Economically disadvantaged students**: Economically disadvantaged students who participated in APS Pre-K programs were more likely to enroll in an advanced math class than their disadvantaged peers who had no Pre-K experience, and this gap increased from three percentage points in 6th grade to 18 percentage points in 8th grade.
- **LEP students**: LEP APS Pre-K participants were more likely to enroll in an advanced math class in 7th and 8th grade than their LEP peers who had no Pre-K experience. The gap was 15 percentage points in 8th grade.

Attendance

- **Economically disadvantaged students**: APS Pre-K participants are more likely to have high attendance rates than other groups in Grades 1, 3, and 6-8.
- **LEP students**: Trends in attendance rates by Pre-K program type are not particularly consistent, with no group displaying a consistent advantage in attendance over the full range of grade levels.

The full Hanover report on longitudinal outcomes is available in **Appendix F5**.

SECTION 3: SUMMARY OF FINDINGS

Instruction and Student Outcomes

1. **The APS Early Childhood Program is committed to increasing access to Pre-K programs for Arlington families, with a particular focus on those who would otherwise not have access to Pre-K; this includes families of lesser financial means and/or limited English proficiency. Student academic outcomes indicate that APS Pre-K programs make a positive difference for participating students in comparison to students with no Pre-K experience. This pattern is strong in fall kindergarten outcomes, while less clear long-term.**

PALS PreK scores indicate a high level of growth in the Pre-K year, and fall PALS-K scores show a strong advantage for students who had participated in all APS Pre-K programs in comparison to students who had attended no formal Pre-K program. Both of these measures see a greater impact of Pre-K for LEP and economically disadvantaged students.

Likewise, the Pre-K math assessment shows strong growth from fall to spring, and the kindergarten math assessment shows an advantage for APS Pre-K participants in comparison to those who had no formal Pre-K experience. Similar to literacy measures, the data suggests a greater impact for LEP and economically disadvantaged students.

Short-term outcomes for students who participate in the special education Pre-K program tend to fall into lower ranges than for those who participate in VPI or Montessori, although this is not always true:
  - While high, growth in DMA levels and PALS PreK developmental ranges from fall to spring was less pronounced for students in the special education program than for VPI students.
  - In 2015-16, students who had attended an APS special education Pre-K program were just as likely as VPI, Montessori, or private preschool students to meet the fall K-PALS benchmark.
  - Students who had attended an APS special education Pre-K program had a higher average score on the fall kindergarten math assessment than VPI students, and a lower average score than Montessori students.

Long-term outcomes are less clear. In a report that included longitudinal analyses of two APS kindergarten cohorts, Hanover Research found a pattern of consistently positive outcomes for the earlier cohort of students through 12th grade, suggesting that participating in an APS Pre-K program had had a positive impact on the success of LEP and economically disadvantaged students. Results for the more recent cohort were less conclusive.

2. **Four-year-old students across programs show growth in social-emotional indicators from fall to spring.**

Students in the VPI program appear to make greater gains in social-emotional outcomes from fall to spring than four-year-olds in Montessori or special education. The primary Montessori program is a three-year continuum and thus students may make these gains in their third year.

In all programs, **Self-Concept** and **Social Problem Solving** had the lowest percentage of students rated as *meeting* in the spring, and in the special education program, the area of **Self-Control** was relatively lower as well. Parents from all programs expressed satisfaction with their child's growth in personal/social skills during the school year.

Generally, the percentage of students in the special education program rated as meeting various social-emotional indicators increased from fall to spring at a lower rate than those in the VPI and Montessori programs.

3. **Classroom observations indicate a strong level of emotional support and classroom organization, while also pointing to areas of focus for future professional development.**

CLASS observations across programs show a high level of emotional support and classroom organization, while instructional support scores fall into the low-mid range. Regard for Student Perspectives appears to be particularly strong in Montessori classrooms.

Montessori observations found that implementation of Montessori practices fell within a range of high developing to low effective. The strongest dimension was **Respectful Interactions with Children**. The Montessori observer noted with concern that many teachers did not give specific lessons, instead monitoring the room, stopping to assist children as needed.

4. **Collaboration among teachers occurs most frequently among teachers at the same school and among teachers within the same program.**

The most frequently occurring type of collaboration between Pre-K teaches and specials teachers (art, music, and PE) is **sharing ideas**. Other types of collaboration – co-teaching, co-planning, and team meetings – generally occurred at much lower rates, and Montessori teachers were the least likely to report frequent collaboration with specials teachers in any category, with just 0-8% for any category.

Within Pre-K programs, teachers were far more likely to report that they collaborated frequently with teachers in their program who were **at their school**, rather than at other schools. Frequent collaboration with teachers from other schools was reported by between 0-7% of teachers. All three groups of teachers indicated that their most frequent type of collaboration with their school-based peers were **team meetings** and **sharing ideas**. Special education teachers were the most likely to report that they frequently **co-teach** with other teachers in their program at their school.

Survey responses from all teacher groups indicate that special education teachers are far more likely to collaborate with VPI teachers than with primary Montessori teachers.

Meeting the Needs of the Whole Child

5. APS Pre-K programs provide a variety of social-emotional/behavioral and practical/social supports to students and families. Feedback from staff indicates some possible areas for expansion of supports.

Staff across programs generally feel that APS Pre-K students and their families receive the social-emotional/behavioral and practical/social supports they need. Many staff suggested that additional support could be provided by means of parent meetings and workshops, and counseling and social worker services for students. Special education teachers suggested home visits and counseling services for parents.

6. While parents are generally satisfied with their child's specials teachers, specials teachers vary by program area in their level of confidence in providing developmentally appropriate instruction to Pre-K students.

Among specials teachers, PE teachers were most likely to feel confident in their ability to provide developmentally appropriate instruction to Pre-K students, though open-ended responses show they are also the most likely to feel they receive no support in their instruction for Pre-K students. Montessori and VPI parents generally expressed a high level of satisfaction with their child's specials teachers, particularly parents of VPI students. Montessori parents' lower satisfaction ratings seem to be less of an indication of dissatisfaction than lack of familiarity.

Community and Parent Engagement

7. Feedback from parents indicates that the Early Childhood Program is doing a good job engaging parents across demographic groups.

Most students served by the VPI program are LEP and qualify for free or reduced-price meals. The reverse is true for the Montessori program. The percentage of primary Montessori students who qualify for free or reduced price meals has decreased by 14 percentage points in the last five years, and was 35% in 2015-16.

Survey responses indicate that parents feel that APS does a good job of keeping them informed of their child's progress and of opportunities to be involved in their child's education. Parents also reported that they feel comfortable interacting with staff at their child's school. Differences among demographic groups were minor; where there were differences, the satisfaction level tended to be higher among groups that might be considered to be at a disadvantage, such as those who speak a language other than English or those with lower levels of education.

Survey responses and data collection from teachers both indicate that most parents participate in a school-based activity such as conferences, field trips, or classroom events. Those with higher incomes and higher levels of education were the most likely to have volunteered in the classroom.

> **8. While most parents find the Pre-K application and registration process to be easy, feedback from parents and staff suggests some areas for improvement, though there was contradictory feedback about the benefits of centralized registration.**

Most parents find the Pre-K application and registration process to be easy, and this is generally true across demographic factors such as home language, education level, and household income. The two most commonly recommended improvements frequently went hand in hand: Allow parents to apply and register online and centralize the application process. Staff responses about the registration process were more varied. Among staff, there was little agreement on whether school-based or centralized registration is preferable.

Resources

> **9. Per-student staffing costs are higher for VPI than for Montessori, even while the average salary and benefit cost for primary Montessori teachers is higher than for VPI teachers.**

Due to slightly higher average salary and benefits costs for VPI assistants and lower student-staff ratios, per-pupil staffing costs are higher for VPI ($8,702) than for primary Montessori ($7,331). At the same time, average salary and benefits costs for primary Montessori teachers are higher than for VPI teachers. Startup costs at the individual classroom level, including furniture and instructional material purchases, are considerably higher for the primary Montessori program than for VPI.

> **10. The primary Montessori fee schedule appears to have a disproportionate impact on some families.**

Tuition fees required for the primary Montessori program vary widely by household income level and make up a greater percentage of a family's income at the middle income levels than at higher income levels.

> **11. All VPI and primary Montessori teachers meet criteria to be considered highly qualified. Administrators involved in recruitment generally have an easier time hiring VPI teachers than primary Montessori or special education Pre-K teachers.**

All teachers in the VPI and primary Montessori programs hold one or more endorsement related specifically to early childhood education. Primary Montessori teachers had an average of 20.6 years of teaching experience, compared to 14.4 years for VPI teachers. Most administrators find the process of recruiting and hiring VPI teachers to be easy, while most find the process of hiring primary Montessori teachers to be difficult. Administrators are more split on the ease or difficulty of hiring special education

Pre-K teachers. The primary difficulty cited in recruiting and hiring both primary Montessori and special education Pre-K teachers is the limited number of applicants with the necessary credentials and experience.

12. VPI teachers have a higher level of satisfaction with services and resources provided by the Early Childhood Office.

VPI teachers were the most likely to express satisfaction with support from the Early Childhood Office in any area: resources, advocacy, communication, professional development, and curriculum. They were also far more likely than Montessori teachers to report that professional development offered by the Early Childhood Office was relevant to their work, and that they frequently apply what they learn in professional development offered by the Early Childhood Office.

SECTION 4: FINDINGS AND ACTIONS

Primary Montessori Program

Finding #1: As the planning process to move the countywide elementary Montessori program from Drew Model School to a new location begins, several findings from this evaluation point to opportunities for possible restructuring:

- There are some key differences between the countywide and satellite programs:
    - Observations suggest that the centralized site is more likely than satellite sites to use Montessori materials without supplementing with non-Montessori materials.
    - Kindergarten discontinuation occurs at a greater rate at the satellite sites than at Drew.
- Kindergarten discontinuation appears to be more about convenience than dissatisfaction.
- Families in the middle range of household income pay a larger percentage of their income in Montessori fees than those in the highest range.
- Primary Montessori programs appear to be under-enrolled, with an average class size of 21.5 and a maximum class size of 23.
- There has been a decrease in the past three years in the percentage of primary Montessori students who meet eligibility requirements for free or reduced-price meals.
- Administrators report that recruitment and hiring of primary Montessori teachers is difficult.

Recommendation #1: **Review and recommend changes to the structure and delivery of APS primary Montessori options in the context of capacity and crowding decisions.**

STAFF RESPONSE:

Staff has developed the following plan to address the findings and implement the recommendations of the Early Childhood program evaluation. If any policy changes and/or budget requests are necessary during this process, staff will present them during the budget process or policy review process as appropriate.

Action Plan for Recommendation #1			
Recommendation #1	**Goal**	**Measures of Success**	**Action Steps**
Recommendation #1 Review and recommend changes to the structure and delivery of APS primary Montessori options in the context of capacity and crowding decisions.	Centralized registration	Accessible and convenient registration process for families	• Review current structures • Develop plan for centralized processes
	Revised fee structure	Consistent and fiscally responsible fee structure	• Review fee structure • Identify changes • Implement changes
	Program delivery	Montessori program that meets student needs and addresses system-wide capacity issues	• Review current structure of Montessori program at Drew Model, satellite Pre-K classes, and MS Montessori at Gunston • Make recommendations in context of move to Henry site in 2019

Pre-K Instruction and Student Outcomes

- **Finding #2**: Student outcomes indicate that APS Pre-K programs make a positive difference for participating students in comparison to students with no Pre-K experience. This pattern is strong for short-term outcomes, while less clear long-term. Observational data points to areas of focus for future professional development including instructional support for all programs, and work of the child in Montessori classrooms. In addition, Montessori teachers are less likely than VPI teachers to be satisfied with professional development and other support from the Early Childhood Office.

Recommendation #2: Provide professional development that offers:

- **A Montessori-certified trainer, specifically in the area of *Work of the Child,* for Montessori teachers.**

- **More opportunities for the development of professional learning communities among Montessori staff and more support for collaborative walks and observation.**
- **Training for all Pre-K staff on factors essential to strong instructional support, including quality of feedback, language modeling, and most importantly, concept development.**

STAFF RESPONSE:

Staff has developed the following plan to address the findings and implement the recommendations of the Early Childhood Program Evaluation. If any policy changes and/or budget requests are necessary during this process, staff will present them during the budget process or policy review process as appropriate.

Action Plan for Recommendation #2			
Recommendation #2	**Goal**	**Measures of Success**	**Action Steps**
Recommendation # Provide professional development targeted to the findings	Pre-K teachers will be provided targeted professional learning to improve instruction.	All Montessori teachers trained in Work of the Child	Provide Montessori teachers with a Montessori-certified trainer specifically in the area of Work of the Child
		Eliminate discrepancy between the countywide and satellite sites	Provide more opportunities for the development of professional learning communities among Montessori staff and support collaborative walks and observation
			Provide training for VPI and special education Pre-K staff on factors essential to strong instructional support, including quality of feedback, language modeling, and most importantly, concept development.

Special Education

Finding #3: Outcomes for students who participate in the special education Pre-K program tend to fall into lower ranges than for those who participate in VPI or Montessori, although this is not always true:

- While high, growth in DMA levels and PALS PreK developmental ranges from fall to spring was less pronounced for students in the special education program than for VPI students.
- In 2015-16, students who had attended an APS special education Pre-K program were just as likely as VPI, Montessori, or private preschool students to meet the fall K-PALS benchmark.
- Students who had attended an APS special education Pre-K program had a higher average score on the fall kindergarten math assessment than VPI students, and a lower average score than Montessori students.
- Generally, the percentage of students in the special education program rated as meeting various social-emotional indicators increased from fall to spring at a lower rate than those in the VPI and Montessori programs.
- Special education teachers appear to collaborate frequently with VPI teachers and less frequently with primary Montessori teachers.

Recommendation #3: **Continue efforts to increase inclusive practices in APS Pre-K programs through:**

- **Continued collaboration between the Office of Early Childhood and the Office of Special Education**
- **Continued strategic placement efforts for students in the special education program**
- **Continued opportunities for joint professional development with Special Education Pre-K, VPI and Montessori staff**

STAFF RESPONSE:

Staff has developed the following plan to address the findings and implement the recommendations of the Early Childhood Program Evaluation. If any policy changes and/or budget requests are necessary during this process, staff will present them during the budget process or policy review process as appropriate.

Action Plan for Recommendation #3			
Recommendation #3	**Goal**	**Measures of Success**	**Action Steps**

Recommendation #3	Increase in the documented hours students in the special education Pre-K program spend in general education settings.	Increased performance on Pre-K PALs, DMA, and other measures of development including IEP goal mastery	• Continued PD on differentiated instruction, strategies to meet the needs of SWD and co-teaching and collaboration
Continue efforts to increase inclusive practices in APS Pre-K programs			• Targeted technical assistance to specified school sites implementing or planning for co-teaching models