

# **Preliminary Evaluation of Pre-Kindergarten Education Programs to Promote Optimum Outcomes for Children and to Collect Data that Will Inform Future Decisions**

**Response to 16 VSA Sec 829(e)(10)**

**[Amended 2015 Act 11 Sec 13. Restart 5-yr clock at 2015]**

**REPORT**

**April 2018**

**Report to the General Assembly**

**Submitted by:**

**Acting Secretary of Education, Dr. Heather Bouchey**

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## Executive Summary

Act 166 (Universal PreK) was enacted on May 10, 2014. Universal PreK is jointly administered by Agency of Education and Agency of Human Services, Department for Children and Families. In 2015-16, approximately one-third of school systems implemented Universal PreK with two-thirds waiting until 2016-17 to begin full implementation. Many systems that decided to delay full implementation continued to voluntarily offer publicly funded prekindergarten authorized under pre-existing law. School systems that fully implemented Act 166 in 2015-16 were called 'early adopters'. Only one third of school systems implemented Universal PreK that year. The data in this report reflects PreK participation in the 2016-17 school year for all school systems. Some caution is advised in drawing conclusions based on two years of implementation.

Analysis of data from the first year of full implementation reveals the following:

### *Enrollment:*

1. **Table 1 and Graphic 1:** Enrollment in publicly funded PreK increased by 2,669 students from 2014-15 to 2016-17 with the full implementation of Act 166.
2. **Table 2:** In 2016-17, 42% of all students enrolled in publicly funded PreK were enrolled in Supervisory Unions/Districts in the Champlain Valley.
3. **Table 3:** The distribution of students enrolling in publicly funded PreK in terms of eligibility for Free and Reduced Lunch (FRL), special education (Individual Education Plan or IEP), and in terms of race/ethnicity in 2016-17 was consistent with enrollment patterns in 2014-15 and 2015-16.
4. **Table 4:** PreK enrollments suggest that students eligible for FRL are under-enrolled in PreK compared to other grade levels. However, when those students enroll in K the next year, FRL eligibility aligns to other grade levels. This suggests that FRL eligibility is not accurately captured in the PreK enrollment process.
5. **Table 5:** During 2016-17, 100% of all prequalified PreK programs fully met Act 166 quality standards.
  - a. The total number of participating programs increased by 41 programs.
    - i. 4 new prequalified public programs
    - ii. 37 new prequalified private programs
    - iii. Increases in number of programs with 5 and 4 STARS levels were seen, while the number of programs with 3 STARS decreased.
6. **Graphic 2:** All public and private programs enrolling children in publicly funded PreK in 2016-17 were required to be prequalified according to Act 166 standards and these are located throughout the state with a concentration of prequalified programs in the Champlain Valley area.

**Finances:**

7. **Table 6:** Total expenditures for publicly funded PreK increased by nearly \$10 million, but the expenditure per child decreased by approximately \$250.
8. **Table 7:** The vast majority of funds for PreK are expended on special and general education direct instruction services (76%) and student support services (10%). In addition, school systems are spending, on average \$ 7,204 per student in 2016-17. This figure includes PreK tuitions districts pay to other public districts and private providers.
9. **Table 8:** Per student expenditures by the SU/SDs for direct instruction in 2016-17 vary across regions from a low of \$4,705 in Southwest to a high of \$6,296 in the Northeast. Per student expenditures for direct instruction increased by approximately \$1000 per child in the Champlain Valley, while declining in the remaining four regions by \$200-650 per child.

**Educational Findings and Child Outcomes:**

10. **Table 9 and 10:** Overall more PreK students in the sample group met preschool expectations for literacy skills than for math skills on the end of year assessment (TSGOLD). Gaps in achievement of expectations were evident for several student groups.
  - a. 83.8% of PreK students in the sample group either met or exceeded expected Literacy Achievement Levels in the spring Teaching Strategies Gold (TSGOLD) assessment.
  - b. 78.4% of PreK students in the sample group either met or exceeded expected Math Achievement Levels in the spring TSGOLD assessment. This is an increase of nearly 10% more children meeting the expected level than in 2015-16.
  - c. TSGOLD achievements vary by free and reduced lunch eligibility, special education status and racial/ethnic background such that achievement gaps appear evident in the publicly funded PreK population.
11. **Table 11:** Performance on TSGOLD in both math and literacy is similar for programs that have 4 or 5-STARS or NAEYC accreditation.
12. **Table 12:** The performance of 3, 4 and 5-year old children on the literacy assessment are similar regardless of age. On the mathematics assessment, 3 and 4-year old children perform similarly and outperform 5-year old children.

**Recommendations:**

1. **Additional technical assistance re: data collection:** The capacity to evaluate impacts of Act 166 in this report is limited by inconsistencies in data reporting by PreK programs. 2016-17 produced more accurate data than the prior year, however improvements are still required. The AOE and AHS should continue to provide guidance and technical assistance for private providers and school systems to refine data collection processes and systems to generate more consistent, reliable, and accurate data.
2. **Additional technical assistance re: TSGOLD administration:** Child progress as measured by TSGOLD is influenced by the reliability of classroom teachers in conducting regular observations and accurately reporting student skill and proficiency. The AOE will provide training and technical assistance related to the administration of TSGOLD.

3. **Continued collaboration between the AOE and AHS on data collection:** It is critical for accountability and evaluation of Act 166 that school systems and private providers collect and report timely and consistent data. Through a new joint monitoring process, the AOE and the AHS will ensure that all participants comply with data collection protocols.
4. Identify potential obstacles for children living in poverty to enroll in PreK: Rate of participation in publicly funded PreK by students eligible for free and reduced lunch (FRL), eligible for preschool special education, and in minority populations has not increased or decreased in the first year of partial implementation of Act 166.

## **Report Organization**

1. Legislation Summary- A description of Act 166 and background information related to Act 166
2. Evaluation Methods- A description of the strategies employed in evaluating the current data.
3. Section 1: A description of the Pre-K student enrollment to give a broad overview of the current demographic characteristics in this grade and where PreK programs are operating across the state.
4. Section 2: A description of the financial expenditures made in PreK at the district level. (Note: these analyses do not include state level transaction costs.)
5. Section 3: The third section provides the analysis that is descriptive only of which students in which programs do not meet, meet, and exceed expectations on TSGOLD assessment.
6. Section 4: Specific recommendations for improving the capacity to evaluate the impact of universal PreK.

## Legislation Summary

Act 166 of 2014. *An act relating to providing access to publicly funded PreK education.*

### **Introduction:**

Act 166 requires the establishment of a system by which the AOE and the AHS/CDD shall jointly monitor and evaluate publicly funded Pre-K education programs to promote optimal outcomes for children and to collect data that will inform future decisions. The Agencies are required to report annually to the General Assembly in January. At a minimum, a system shall monitor and evaluate:

- (A) programmatic details, including the number of children served, the number of private and public programs operated, and the public financial investment made to ensure access to quality PreK education;
- (B) the quality of public and private PreK education programs and efforts to ensure continuous quality improvements through mentoring, training, technical assistance, and otherwise; and
- (C) the outcomes for children, including school readiness and proficiency in numeracy and literacy.

Act 166 (Universal PreK) of 2014 has an effective date for universal PreK enrollments of July 1, 2015. The law was enacted on May 10, 2014. The implementation of the law required the promulgation of administrative rules by the Vermont State Board of Education, and the timeline for adoption of the rules extended through September 2015. On November 25, 2014 an AOE/AHS memo was issued allowing school districts to choose to implement Act 166 as of July 1, 2015 or to wait one (1) year with full implementation July 1, 2016. Just under a third of school districts moved forward with implementing Universal PreK in the 2015-16 school year. School systems that fully implemented Act 166 in 2015-16 were referred to as “early adopters.”

At this time, much has been learned about the strengths, limitations and quality of existing data sets. Specific areas have been identified for improvement and plans have been laid to achieve those goals.

### **Act 166 Basics:**

1. Beginning in Fall 2016, all School Districts are mandated to *offer* PreK. However, *enrollment* and *participation* is a family choice.
2. All Vermont children who are three, four, or five years of age by the date established by the district of residence for Kindergarten eligibility, and who are not yet enrolled in Kindergarten, are eligible for this funding.
3. PreK is defined as at least 10 program hours per week, 35 weeks per year (during the school year).
4. Publicly-funded PreK services can be provided by prequalified public or private programs (homes and centers).

### **Criteria for Prequalified PreK Programs:**

Act 166 (Universal PreK) legislation and Rules require that a public school or private PreK

education program shall be considered prequalified only if it meets all of the following criteria:

1. The public or private program receives and maintains at least one of the following quality program recognition standards:
  - a. National accreditation through the National Association for the Education of Young Children (NAEYC);
  - b. A minimum of four stars in Vermont's Step Ahead Recognition System STARS program, with at least two points in each of the five arenas:
    - i. Regulatory History
    - ii. Staff Qualifications
    - iii. Families and Communities
    - iv. Program Practices
    - v. Administration;
  - c. Three stars in Vermont STARS if the program has a plan approved by the DCF Commissioner and the Secretary of Education to achieve four or more stars within two years, including at least two points in each of the five arenas.
2. The public or private program is currently licensed or registered, as applicable, by the DCF, and is in good regulatory standing;
3. The public or private program's curricula are aligned with the Vermont Early Learning Standards (VELS);
4. PreK students will have access to qualified, licensed teachers with an endorsement in either early childhood education or early childhood special education:
  - a. Public prequalified programs must offer a licensed teacher in each classroom for 10 hours of direct service to children each week.
  - b. Private prequalified programs that are center-based must have at least one educator on site at the center when students are present for the 10 hours of service.
  - c. Private prequalified programs that are registered or licensed family childcare home providers must employ licensed teachers in one of the following ways:
    - i. The operator holds a valid license in the required endorsement area.
    - ii. The operator employs or contracts with the services of a teacher who holds a valid license in the required endorsement area during the hours of PreK education paid for by tuition from district; or
    - iii. The program received regular, hands-on active training and supervision from a teacher who holds a valid license in the required endorsement area at least three hours per week, during each of the 35 weeks per year in which PreK education is paid for by tuition from districts; the operator shall maintain appropriate written documentation of the supervision on location.

## Evaluation Methods

As described in 2016, the Agency of Education plans to conduct path analysis to determine the effect of PreK on student outcomes. Path analysis is a statistical method that can help estimate whether a particular intervention (e.g. a type of PreK program) has the assumed causal effect on an outcome (e.g. a student's Kindergarten Readiness assessment (R4K!S) or Teaching Strategies Gold (TSGOLD) score). Essentially, path analysis will help us to know if the Pre- Kindergarten experience is leading to improved readiness for kindergarten in terms of social-emotional development, mathematics, and literacy skills. Eventually, we aim to be able to see if PreK participation leads to improved performance on third grade state-wide standardized test scores.

Path analysis will also help us evaluate the independent relationship of factors like student demographics, PreK program characteristics (e.g. accreditation and quality ratings), and program location on outcomes of interest. This kind of information will help us target program development and improvement in directions that show the greatest return on our state investment in early care and learning.

### *Data*

The type of data needed to fit this kind of model are collected and compiled within the AOE and the Bright Futures Information System at the AHS/DCF. In order to effectively evaluate the success of Act 166, the following data collections will be conducted in standardized ways:

1. Basic information regarding program structures- e.g. age spans, public/private, location, quality ratings, etc.
2. Student information including enrollment and exit dates, attendance, standard demographic data, etc.
3. Student assessment data including
  - a. The Teaching Strategies Gold (TSGOLD) assessment which measures the progress of children's knowledge, skills, and behaviors in all of the developmental domains (social/emotional, cognitive, and physical)
  - b. The recently validated Ready for Kindergarten Survey (R4K!S), which is completed by kindergarten teachers when students enter kindergarten. This tool measures student readiness in social and emotional development, communication, physical health, cognitive development, knowledge, and approaches to learning. The data collected with this tool are appropriate for monitoring kindergarten readiness of the incoming cohorts over time in order to inform early childhood policies, such as the alignment across PreK and early elementary curricula as well as professional development needs. It provides data about the teachers' assessment of students' skills and knowledge as the students start kindergarten.
4. Financial information detailing the distribution of PreK dollars and the services purchased with those dollars.

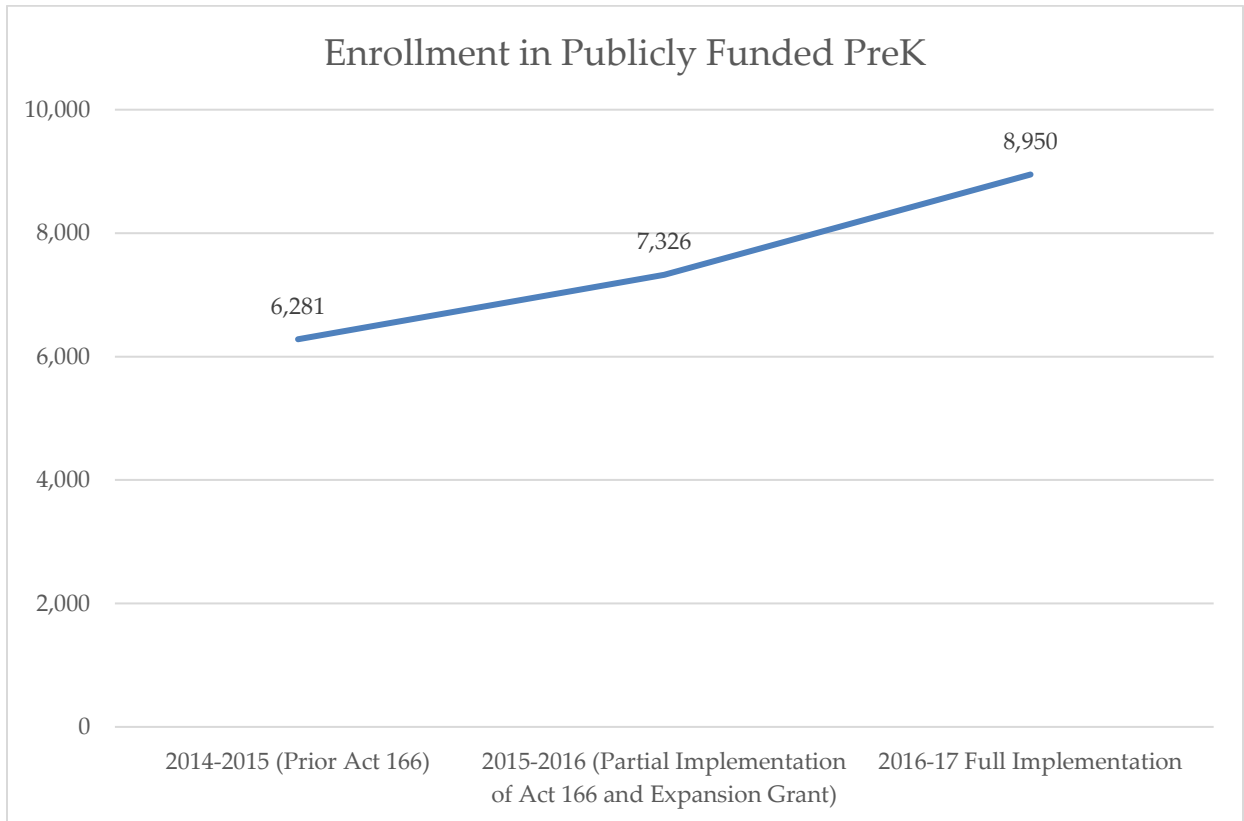
## Section 1: Demographic Picture of Publicly Funded PreK Population 2016-17

The data below come from the Public Student Census and the Child Count (special education) collections.

**Table 1: Enrollment in Publicly Funded PreK from 2014-15 to 2015-16 (partial Implementation) to 2016-17 (Full Implementation of Act 166 and Preschool Development Expansion Grant PDEG)**

School Year	Enrollment
2014-2015 (Prior to Act 166)	6,281
2015-2016 (Partial Implementation of Act 166 and PDEG)	7,326
2016-17 Full Implementation (Full Implementation of Act 166 and PDEG)	8,950
<i>Change (2014-15 to 2016-17)</i>	<i>+2,669</i>

**Graphic 1: Enrollment in Publicly Funded PreK from 2014-15 (no Act 166) to 2015-16 (Partial Implementation of Act 166 and PDEG) and in 2016-17 Full Implementation and PDEG.**





**Table 2: Enrollment in Publicly Funded PreK by Supervisory Union/District Region 2015-16 (Partial Implementation) and 2016-2017 (Full Implementation)**

School Year	Number or Percent	Champlain Valley	Northeast	Southeast	Southwest	Winooski Valley	Total
2015-16	#	3,194	827	1,065	945	1,295	7,326
2015-16	%	44%	11%	15%	13%	18%	100%
2016-17	#	3,785	989	1,350	1,249	1,577	8,950
2016-17	%	42%	11%	15%	14%	18%	100%

**Table 3a: Free and Reduced Lunch Status of Enrolled Publicly Funded PreK Students**

School Year	Number or Percent	Not Eligible for Free and Reduced Lunch	Eligible for Free and Reduced Lunch
2014-15	#	4,366	1,915
2014-15	%	70%	30%
2015-16	#	5,089	2,237
2015-16	%	69%	31%
2016-17	#	6,170	2,780
2016-17	%	69%	31%

**Table 3b: Disability Status of Enrolled Publicly Funded PreK Students**

School Year	# or Percent	Student Does Not have IEP	Student has an IEP
2014-15	#	5,199	1,082
2014-15	%	83%	17%
2015-16	#	6,165	1,161
2015-16	%	84%	16%
2016-17	#	7,836	1,114
2016-17	%	88%	12%

**Table 3c: Ethnicity of Enrolled Publicly Funded PreK Students**

School Year	# or Percent	Caucasian	Non-Caucasian
2014-15	#	5,756	525
2014-15	%	92%	8%
2015-16	#	6,767	559
2015-16	%	92%	8%
2016-17	#	8,213	737
2016-17	%	92%	8%

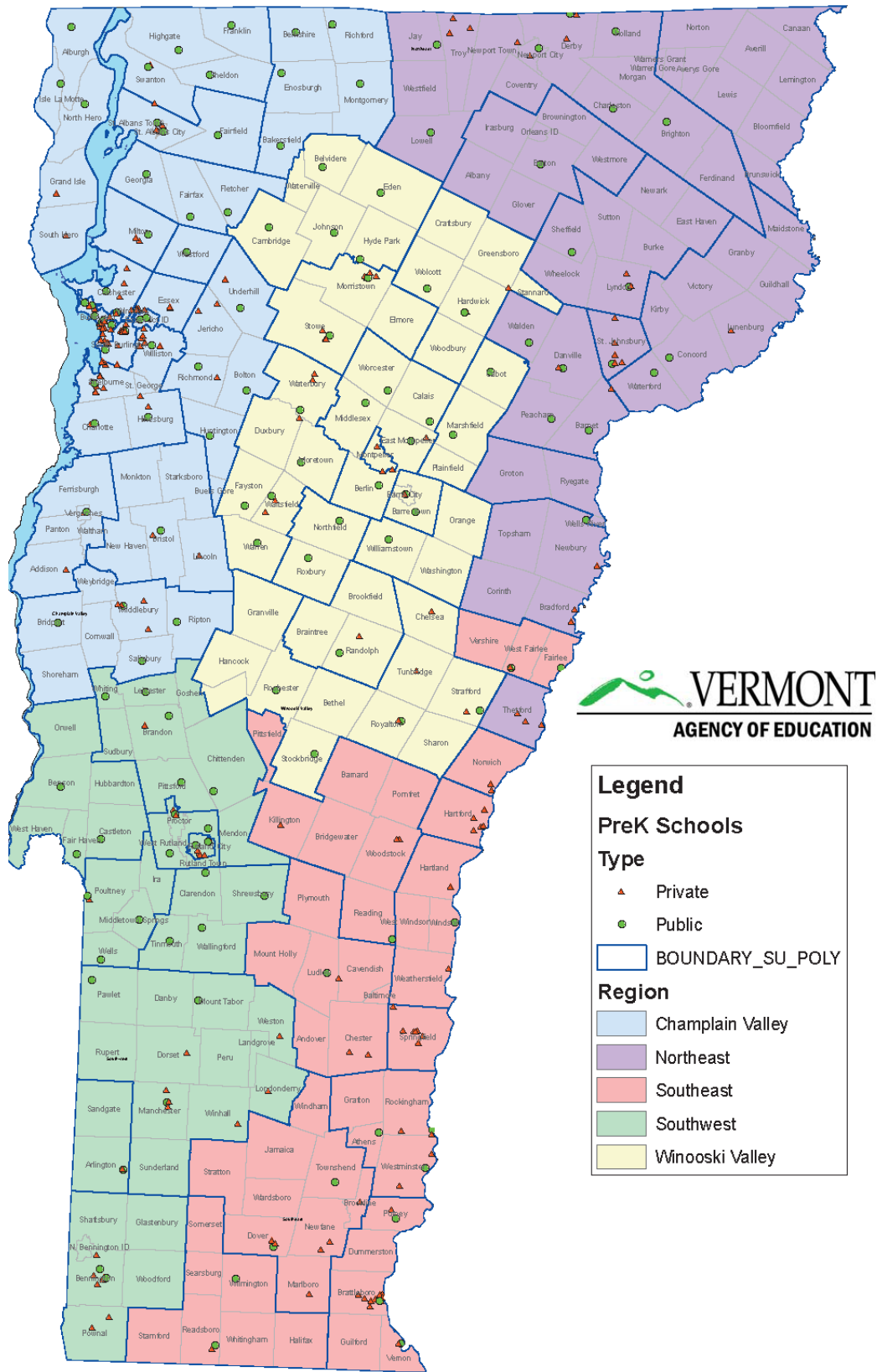
**Table 4 – Free and Reduced Lunch Status for matched Pre-K and Kindergarten Students in Concurrent Years**

School Year		PreK		Kindergarten	
		Not Eligible FRL	FRL Eligible	Not Eligible FRL	FRL Eligible
2014-15	#	4,366	1,915	N/A	N/A
	%	70%	30%	N/A	N/A
2015-16	#	N/A	N/A	3,378	2,470
	%	N/A	N/A	58%	42%

**Table 5: Number and Quality Rating of Prequalified PreK Programs in 2015-16 and 2016-17**

School Year	Quality Levels	NAEYC Accredited or 5 Stars	4 Stars	3 Stars with Plan	Total
2015-16	<b>All Programs</b>	<b>186</b>	<b>123</b>	<b>33</b>	<b>342</b>
2015-16	Percent of All Programs	<b>54%</b>	<b>36%</b>	<b>10%</b>	
2015-16	Public Programs	81	47	12	140
2015-16	Private Programs	105	76	21	202
2016-17	<b>All Programs</b>	<b>201</b>	<b>152</b>	<b>30</b>	<b>383</b>
2016-17	Percent of All Programs	<b>52%</b>	<b>40%</b>	<b>8%</b>	
2016-17	Public Program	80	56	8	144
2016-17	Private Program	121	96	22	239

**Graphic 2: Map of Prequalified PreK Private and Public Programs**



## Section 2: Financial Picture of PreK Expenditures 2016-17

This part of our analysis is based on data collected each year from Business Managers through the Statbook Collection. This collection provides data for annual federal and state required reporting. Details about this collection can be found here: [Annual Statistical Report](#).

PreK enrollments are based on census data collected and reported by Supervisory Unions and Supervisory Districts. These data reflect only reflect the district of residence, not the location where PreK services are actually received by students. Per Act 166, a child registers for PreK to the school district of residence. For example; a child may live in Richmond, but may receive PreK services at a private provider located in Williston. The expenditures and student count for that student are recorded in the data for the Supervisory Union/District in Richmond.

Tuition payments are logged by Supervisory Unions/Districts as a “direct instruction” expenditure. The AOE does not collect data from private providers regarding how they use the funds once received so we cannot report on what portion of the tuition is used for “direct instruction” or administrative costs.

For this section, it is important to note that the expenditures for each PreK enrollment are linked to approximately \$7,204 per child, which includes all special education services, tuition, transportation, administrative and support services, etc. Of this, a portion is spent on direct instruction (76%), including general and special education and contracts with other providers, student support services (10%), instructional support services (2%), administrative costs (5% total) and other costs such as transportation, equipment, and supplies (7%). Direct services to children (general and specialized instruction, support and instructional support) comprise 86% of all expenditures in PreK. Note that these data do not account for state level transaction costs associated with implementation of Act 166, nor do they account for the variations between districts and SUs as to how costs are allocated.

**Table 6: Statewide Expenditures for PreK from all state and federal funding sources**

School Year	Total Expenditure	Enrollment	Per Student Cost
2016-17	\$64,473,630	8,950	\$7,204
2015-16	\$54,629,330	7,326	\$7,457
Change	\$9,844,300	1,624	-\$253

**Table 7: 2016-17 Statewide expenditures for PreK by category of expenditure from all state and federal funding sources.**

	2016-17 Expenditure	Per Student Cost (8,950 Enrollment)	Percent of Total
<b>Total Expenditures</b>	<b>\$64,473,630</b>	<b>\$7,204</b>	
Direct instruction	\$49,152,501	\$5,492	76%
Student support services	\$6,683,494	\$747	10%
Instructional support services	\$1,083,898	\$121	2%
School administration	\$2,325,379	\$260	4%
Central administration and services	\$957,627	\$107	1%
Other	\$4,270,731	\$477	7%

**Notes:**

1. Direct instruction - expenditures for instruction and personnel in both general and special education settings, such as classroom teachers, para-educators, etc. This also includes tuition payments to private providers.
2. Student support services - expenditures for activities to assess and improve the well-being of students and supplement teaching. This includes some special education staff, guidance, health, nurses, etc.
3. Instructional support services - expenditures designed to assist instructional staff with content and learning experiences for students. Includes librarians, curriculum coordinators, instruction related technology, etc.
4. School administration - expenditures associated with administering the schools in a district. Includes principals, administrative assistants, department chairs, etc.
5. Central administration and services - expenditures associated with the supervisory union office and functions. Includes superintendents, special education coordinators, business managers, etc.
6. Other - includes transportation, building operation and maintenance, grounds and equipment maintenance, food services, debt, etc.

In looking specifically at direct instruction spending, we note that the tuition in 2016-17 was set at \$3,092, but spending in each region is more than this. This difference in value is attributed to additional special education costs which are provided by school systems above the Act 166 tuition paid to private providers for those students who require those services.

**Table 8: PreK Direct Instruction Expenditures and Enrollment by Region, 2015-16 and 2016-17**

School Year	SU Regions	PreK Direct Instruction Expenditures	PreK Enrollment	PreK Direct Instruction Expenditures per Enrollment
2015-16	Champlain Valley	\$15,840,127	3,194	\$4,959
2015-16	Northeast	\$5,375,989	827	\$6,501
2015-16	Southeast	\$5,799,596	1,065	\$5,446
2015-16	Southwest	\$4,744,439	945	\$5,021
2015-16	Winooski Valley	\$7,062,869	1,295	\$5,454
2016-17	Champlain Valley	\$22,565,989	3,785	\$5,962
2016-17	Northeast	\$6,227,020	989	\$6,296
2016-17	Southeast	\$6,476,099	1,350	\$4,797
2016-17	Southwest	\$5,876,449	1,249	\$4,705
2016-17	Winooski Valley	\$8,006,944	1,577	\$5,077

### **Section 3: Educational and Child Outcomes**

In this section we will discuss the preliminary findings related to the TSGOLD assessment outcomes. These findings represent early efforts to use these administrative data in this way. We learned a considerable amount about this collection as we began to work with its data. We caution readers to refrain from making policy-based decisions on these results as nearly one-half of all data submissions were unusable for analysis.

#### ***Measures:***

In the 2016, TSGOLD was identified as the measure by which early Literacy and Numeracy would be determined.<sup>1</sup> The Ready for Kindergarten! Survey (R4K!S) was determined as the measure which would indicate students' readiness for school. For students enrolled in PreK in 2015-16, TSGOLD assessment scores are known but they have just finished taking the R4K!S assessment and analysis is not yet complete.

#### ***Analysis Sample:***

Our analysis sample includes 6,161 students who had full data on the TSGOLD in 2016-2017, which represents 69% of the 8,950 students enrolled in PreK for SY17<sup>2</sup>. However, this is much improved compared to SY16 when only 46% of students had all required measures. Records needed to be excluded if:

1. The student did not have both a fall and spring assessment or the assessments were incomplete
2. The program of attendance recorded in TSGOLD could not be matched to the prequalification list of programs

Program and policy decisions based on these preliminary analyses are not recommended. This first year, partial implementation analysis is a first step toward identifying concrete areas of focus for data collection and quality, data management, and improved analyses going forward.

#### ***Methods & Analysis:***

The analysis sample used to determine how well students performed on TSGOLD does not include all students in PreK. In the sample, the students are reasonably distributed across the regions but has a slight overrepresentation in the Southeast and Winooski Valley. Students in the sample have slightly more students who do not qualify for free and reduced lunch and who are not Caucasian. These differences in representation, while statistically significant, do not appear to be substantial.

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<sup>1</sup> Please see Technical Notes for a detailed description of the TSGOLD measure.

<sup>2</sup> Please see Technical Notes for a detailed description of the processes followed in creating the sample.

**Table 9: Overall PreK Enrollment by Region and TSGOLD Sample Group by Region and demographic characteristics 2016-17**

	TSGOLD Analysis Sample	Percent of Analysis Sample	Total PreK Enrollment	Percent of Total PreK Enrollment
<b>Total</b>	<b>6,161</b>	<b>100 %</b>	<b>8,950</b>	<b>100%</b>
<b>Regions</b>				
Champlain Valley	2,692	43.7%	3,785	42.3%
Northeast	735	11.9%	989	11.1%
Southeast	760	12.3%	1,350	15.1%
Southwest	945	15.3%	1,249	14.0%
Winooski Valley	1,029	16.7%	1,577	17.6%
<b>Free Reduced Lunch (FRL) Status<sup>3</sup></b>				
Not FRL Eligible	4,118	66.8%	6,170	68.9%
FRL Eligible	2,043	33.2%	2,780	31.1%
<b>Disability (IEP) Status</b>				
Not IEP	5,375	87.2%	7,836	87.6%
IEP	786	12.8%	1,114	12.4%
<b>Ethnicity</b>				
Caucasian	5,790	94.0%	8,213	91.8%
Non Caucasian	371	6.0%	737	8.2%

While we attempted additional analyses with the available sample, we were unable to produce a reliable model for use in assessing the impact of Act 166<sup>4</sup>.

The following data charts can help us see *what* is happening at “face value”. What follows cannot tell us *why* it may be happening or *how* it is related to enrollment in PreK. This kind of analysis will not in itself answer the question “does a relationship exist between high quality PreK instruction and improved student outcomes later in students’ educational careers?” This means it will have limited usefulness for informing the Legislature regarding the return on investment of PreK education dollars. It will however provide a look at the preliminary analysis group and their outcomes in a descriptive way.

<sup>3</sup> AOE and CDD note that this is a low percentage of student who are Eligible

<sup>4</sup> Please see Technical Notes for a discussion of the attempted analyses.



**Table 10: Literacy and Math performance on TSGOLD in Spring 2017 by Student Demographic Characteristics**

TITLE	Level	Literacy #	Literacy %	Math #	Math %
<b>All Students</b>	TSGOLD Analysis Sample	<b>6161</b>		<b>6161</b>	
	Not Meeting Expectations	1001	16.2%	1328	21.6%
	Meets Expectations	3674	59.6%	3533	57.3%
	Exceeds Expectations	1486	24.1%	1300	21.1%
<b>Not FRL Eligible</b>	TSGOLD Analysis Sample	<b>4118</b>		<b>4118</b>	
Not FRL Eligible	Not Meeting Expectations	585	14.2%	763	18.5%
	Meets Expectations	2374	57.6%	2346	57.0%
	Exceeds Expectations	1159	28.1%	1009	24.5%
<b>Total FRL Eligible</b>	TSGOLD Analysis Sample	<b>2043</b>		<b>2043</b>	
FRL Eligible	Not Meeting Expectations	416	20.4%	565	27.7%
	Meets Expectations	1300	63.6%	1187	58.1%
	Exceeds Expectations	327	16.0%	291	14.2%
<b>NOT IEP Eligible</b>	TSGOLD Analysis Sample	<b>5375</b>		<b>5375</b>	
Not Eligible for IEP	Not Meeting Expectations	772	14.4%	1013	18.8%
	Meets Expectations	3201	59.6%	3145	58.5%
	Exceeds Expectations	1402	26.1%	1217	22.6%
<b>IEP Eligible Students</b>	TSGOLD Analysis Sample	<b>786</b>		<b>786</b>	
IEP Eligible	Not Meeting Expectations	229	29.1%	315	40.1%
	Meets Expectations	473	60.2%	388	49.4%
	Exceeds Expectations	84	10.7%	83	10.6%
<b>Caucasian Students</b>	TSGOLD Analysis Sample	<b>5790</b>		<b>5790</b>	
Caucasian Students	Not Meeting Expectations	937	16.2%	1243	21.5%
	Meets Expectations	3445	59.5%	3319	57.3%
	Exceeds Expectations	1408	24.3%	1228	21.2%
<b>Non-Caucasian Students</b>	TSGOLD Analysis Sample	<b>371</b>		<b>371</b>	
Non Caucasian Students	Not Meeting Expectations	64	17.3%	85	22.9%
	Meets Expectations	229	61.7%	214	57.7%
	Exceeds Expectations	78	21.0%	72	19.4%

**Table 11: Literacy and Math performance by STARS Rating**

TITLE	Performance Level	Literacy #	Literacy %	Math #	Math %
<b>3 STAR Programs with Plans</b>	TSGOLD Analysis Sample	<b>262</b>		<b>262</b>	
	Not Meeting Expectations	55	21.0%	81	30.9%
	Meets Expectations	147	56.1%	112	42.7%
	Exceeds Expectations	60	22.9%	69	26.3%
<b>4 STAR Programs</b>	TSGOLD Analysis Sample	<b>2176</b>		<b>2176</b>	
	Not Meeting Expectations	344	15.8%	475	21.8%
	Meets Expectations	1255	57.7%	1236	56.8%
	Exceeds Expectations	577	26.5%	465	21.4%
<b>5 STAR Programs</b>	TSGOLD Analysis Sample	<b>3723</b>		<b>3723</b>	
	Not Meeting Expectations	602	16.2%	772	20.7%
	Meets Expectations	2272	61.0%	2185	58.7%
	Exceeds Expectations	849	22.8%	766	20.6%

**Table 12: Literacy and Math performance by Age Spring 2017**

Age	Performance Level	Literacy #	Literacy %	Math #	Math %
<b>3 Year Old</b>	TSGOLD Analysis Sample	<b>2703</b>		<b>2703</b>	
	Not Meeting Expectations	547	20.2%	604	22.3%
	Meets Expectations	1481	54.8%	1563	57.8%
	Exceeds Expectations	675	25.0%	536	19.8%
<b>4 Year Old</b>	TSGOLD Analysis Sample	<b>3366</b>		<b>3366</b>	
	Not Meeting Expectations	439	13.0%	697	20.7%
	Meets Expectations	2143	63.7%	1934	57.5%
	Exceeds Expectations	784	23.3%	735	21.8%
<b>5 Year Old</b>	TSGOLD Analysis Sample	<b>92</b>		<b>92</b>	
	Not Meeting Expectations	15	16.3%	27	29.3%
	Meets Expectations	50	54.3%	36	39.1%
	Exceeds Expectations	27	29.3%	29	31.5%

## Section 4: Strategies to Improve Quality and Reliability of Data and Reporting

Early efforts with these administrative data sets has informed our approach to this work: shaping the AOE's strategic plans to deploy resources to support universal PreK implementation across the state, and to address identified data infrastructure needs. The following are early lessons learned, and measures the AOE and AHS are taking to address the needs we have identified:

- While missing data is always a challenge in conducting work of this kind, the finding that not all student data was being submitted as required reinforced the AOE's decision to provide additional training for the field in working with TSGOLD as statewide public PreK is implemented. For the 2016-17 school year, the AOE planned and delivered multiple TSGOLD introductory trainings as well as advanced trainings throughout the state. These face-to-face trainings were provided to school district personnel, childcare staff, and administrators. Introductory as well as advanced trainings were conducted in a small group setting (no more than 20 participants) with a certified TSGOLD instructor. Participants received notification of opportunity for TSGOLD training through the AOE's listservs, weekly field memo, and calendar of events. For the 2017-18 school year, opportunities for professional development training on TSGOLD will continue to be conducted regionally once per month. TSGOLD trainers will continue to offer technical assistance to programs to support TSGOLD implementation.
- In addition, the monitoring process for maintenance of prequalification status will be implemented next year. The monitoring process includes the AOE and CDD verifying that prequalified programs submit all data as required or risk losing their prequalification status.
- Over the last six months, the AOE has worked to refine data collection mechanisms in TSGOLD to improve data quality, including submitting a Request for Information pursuing more capability to pre-load the organizational profiles of providers into the TSGOLD system. This work is ongoing. For example, where previously the provider typed in the name of their program as text, if able to be implemented, the new collection would provide a drop-down menu of provider names drawn from the BFIS data system. This small change should greatly reduce state staff overhead in performing the matching process.
- We have continued to better link the CDD BFIS database and the AOE TSGOLD database. This will ensure alignment of STARS ratings with program profiles, and will include the creation and administration of a unique PreK program ID similar to the PSID/PAID/ISID system that AOE already employs for schools in the K-12 context. This work is ongoing.

# Technical Notes

## Sample Technical Notes

When we tried to perform the two-step matching process to compile the analysis data set from data housed at AOE (student-level data) and at CDD (program-level data), we continued to experience considerable data loss, though less than when performing this work on the SY2016 data.

When we began to try to perform this matching process, it is still the case that some students reported in the Public School Census did not have corresponding records in the TSGOLD collection. Additionally, it is still the case that not every student record reported in the Public School Census that could be matched to a TSGOLD record, would have complete TSGOLD outcome data for both the fall and spring checkpoints.

As with last year's analysis because our methodology relies on being able to examine changes in achievement scores from fall to spring checkpoints for each student, records with incomplete data had to be dropped from this analysis. Only students with a full complement of domain scores from both fall and spring checkpoints have been used in the parts of this analysis that required outcome scores.

Additionally, when we tried to perform the second step of the planned matching process to connect the student-level data to the program-level data from the BFIS, the TSGOLD program name being a text field in this system remains a challenge. A text field is a data field where users can type in information and in our case, this was the name of the program students were reported to be attending. This condition of the data continues to cause considerable inconsistency in naming conventions, which results in our inability to match records perfectly or even within a reasonable assumption in many cases. AOE is working with the TSGOLD vendor to determine if technical improvements can be made to remedy this shortcoming.

For example, "Made-Up-PreSchool LLC" from the BFIS STARS system might be called "Made-Up-PreK Center" in the TSGOLD system. These two records might also each have a different town listed as their location in each of the BFIS STARS system and the TSGOLD system and these two towns might be directly next to one another. Sometimes such discrepancies could be reconciled, other times they could not. We proceeded to match records to within a reasonable level of certainty across these two sets and those which could not be matched were dropped from this preliminary analysis.

This lack of alignment between the collections is an artifact of different people engaging in different administrative data collections for different reasons and non-standardized naming conventions. For example, TSGOLD assessment administration is being used by classroom providers for assessing students while an administrative person might be engaging with the BFIS STARS ratings system for administrative or monitoring purposes. The AOE Data Analysis & Reporting Team has documented areas where attention and consistency with respect to data management, alignment, and data quality are needed. AOE is working on these areas with

CDD and the administrators of the BFIS and TSGOLD systems. This effort has been a very important data quality and management improvement process and has provided concrete areas for targeting efforts going forward.

The impact on data quality of these different systems is in the excluded data.

1. At the program level, there were a total of 383 prequalified PreK program level records identified in the BFIS extract. We were able to match 314 PreK Program records from TSGOLD with a reasonable level of certainty to records with STARS ratings in the BFIS extract. Thus, we were able to retain data regarding 87% of the programs submitting assessment data.
2. At the student level, there were 8,950 students reported in the Public Student Census as enrolled in PreK in SY2017. Of these, 6,161 had complete records for both fall and spring TSGOLD checkpoint data and were attending programs that could be matched to BFIS STARS ratings. This means 69% of the SY2017 PreK population reported in the Public School Census could be used in this preliminary analysis.

#### TSGOLD

TSGOLD is a teacher administered assessment in early literacy and mathematics. For reference, examples of expected behaviors in Literacy the TSGOLD assessment are demonstrating phonological awareness, demonstrating knowledge of the alphabet, demonstrating knowledge of print and its uses, comprehending and responding to books and other texts, and demonstrating emergent writing skills. Expected behaviors in Math in the TSGOLD assessment include using number concepts and operations, exploring and describing spatial relationships and shapes, comparing and measuring, demonstrating knowledge of patterns.