



February 2012

Report No. 12-06

VPK Teachers' Education Level Does Not Substantially Influence Kindergarten Readiness Scores; Program and Provider Differences Affect Readiness Rates

at a glance

- While children taught by teachers with a bachelor's degree or higher performed slightly better on kindergarten readiness assessments than children taught by teachers with a child development associate (CDA), there was not a substantial difference. There was essentially no difference in the readiness scores of children taught by bachelor's degree teachers and those taught by teachers holding associate's degrees.
- VPK School-Year Program participants performed better on kindergarten readiness assessments than those in the VPK Summer Program; children in three-hour or six-hour VPK programs performed about the same on these assessments.
- Kindergarten readiness rates were about the same for public and private providers; children from faith-based VPK settings performed better on readiness assessments than children from other types of VPK providers.

Scope

This report provides the Legislature with information on Florida's Voluntary Prekindergarten Education (VPK) Program. Specifically, the report answers three questions.

1. Do VPK teachers with bachelor's degrees do a better job at preparing children for kindergarten compared to other teachers?

2. Is there a difference in kindergarten readiness depending on the type of VPK program children attend?
3. Is there a difference in the kindergarten readiness of children who complete the VPK School-Year Program in public versus private provider settings?

Background

Since September 2005, Florida has offered a free, Voluntary Prekindergarten Education (VPK) Program for four-year-old children. The program is intended to provide developmentally appropriate services that increase children's chances of achieving future educational success. In the 2010-11 school year, 157,069 children enrolled in the VPK Program. The Legislature appropriated \$385 million to the program for Fiscal Year 2011-12.

Florida statutes establish different requirements for VPK programs offered during the summer and the regular school year.¹ The VPK Summer Program must have 300 instructional hours, whereas the VPK School-Year Program must provide 540 instructional hours. While instructors in the Summer Program are required to be a certified teacher or hold a bachelor's

¹ Refer to ss. [1002.61](#), [1002.55](#), and [1002.63](#), *F.S.* The VPK Summer Program may not begin instruction before May 1. According to Rule [60BB-8.451](#), *F.A.C.*, the VPK School-Year Program may not begin instruction more than 14 days before Labor Day or the uniform date fixed by the school district and must complete instruction by June 30.

degree in early childhood, primary, or preschool education, or family and consumer science, School-Year Program instructors must have a minimum of a child development associate credential.^{2, 3} Child-to-teacher ratios also are set slightly higher for the Summer Program than for the School-Year Program (12:1 compared to 11:1, respectively).⁴

VPK providers have considerable flexibility in structuring their programs (i.e., hours per day and total number of days) as long as they provide the minimum total hours of instruction. For instance, many School-Year Program providers deliver three hours of instruction each day spread over the full 180-day school year, while others deliver six hours of instruction each day spread over half of the school year.

Statutes also specify the requirements that public schools and private prekindergarten providers must meet to be eligible to deliver VPK. For instance, Florida law requires that private VPK providers, including child care facilities and faith-based child care centers, be licensed, accredited by an entity provided in statute, or hold a current Gold Seal Quality Care designation.⁵

School districts must assess the readiness of each kindergarten student within the first 30 school days of each school year using a statewide instrument.⁶ The instrument is composed of two assessments. The Early Childhood Observation System (ECHOS) is an observational assessment that measures classroom behavior skills, and students receive a score of Not Yet Demonstrating, Emerging/Progressing, or Demonstrating on this assessment. The Florida Assessments for Instruction in Reading – Kindergarten (FAIR-K) measures letter naming and phonemic awareness,

and students receive a “Probability of Reading Success” score on this assessment.

Questions and Answers—

Do VPK teachers with bachelor’s degrees do a better job at preparing children for kindergarten compared to other teachers?

VPK teacher’s education level has a minimal effect on a child’s subsequent kindergarten readiness scores. While children taught by teachers with a bachelor’s degree or higher performed slightly better on kindergarten readiness assessments than children taught by teachers with a child development associate (CDA), there was not a substantial difference. Furthermore, there was essentially no difference in the readiness scores of children taught by bachelor’s degree teachers and those taught by teachers holding associate’s degrees. These results remain after considering the effect of socioeconomic status, race, and several other variables.

VPK children taught by bachelor’s degree teachers perform only minimally better on kindergarten readiness assessments than children of other teachers. We analyzed data associated with 161,106 children who attended Florida’s VPK Program during the 2008-09 and 2009-10 school years.⁷ Of these children, 58% were taught by teachers whose highest educational attainment was a child development associate (CDA), 10% were taught by teachers whose highest degree was an associate’s in arts or science degree (with at least six credits in early childhood education), and 32% were taught by teachers with at least a bachelor’s degree in early childhood or a related field. Children who attended VPK programs taught by teachers with bachelor’s degrees performed slightly better than children taught by other teachers. (See Exhibit 1.)

² Sections [1002.61\(4\)](#), [1002.55\(3\)\(c\)](#), and [1002.63\(4\)](#), *F.S.*

³ Lead VPK teachers with a CDA as their highest qualifying credential must also complete a five clock-hour emergent literacy training course approved by the Department of Education (Section [1002.55\(3\)\(c\)](#), *F.S.*).

⁴ The VPK Summer Program has a maximum 12 children per class (s. [1002.61\(7\)](#), *F.S.*), while the VPK School-Year Program has a maximum of 20 children per class (s. [1002.55\(3\)\(f\)](#), *F.S.*).

⁵ Section [1002.55\(3\)\(b\)](#), *F.S.*

⁶ Section [1002.69\(1\)](#), *F.S.*

⁷ Because summer programs require all VPK teachers to have a bachelor’s degree and have other programmatic requirements, we excluded children who attended these programs from our analysis. Of the 285,169 school year program children from the two years, 57% (161,106) had complete demographic and kindergarten readiness score data and were thus included in our analysis.

Exhibit 1

VPK Children Taught by Bachelor’s Degree Teachers Perform Only Minimally Better than Teachers with CDAs and About the Same as Teachers with Associate’s Degrees on Kindergarten Readiness Assessments

Teacher Credential	Percentage of Children Kindergarten Ready ¹	Percentage of Children Ready on ECHOS	Percentage of Children Ready on FAIR-K
Child Development Associate (CDA)	72.0%	93.5%	74.1%
Associate’s Degree	74.2%	93.4%	76.6%
Bachelor’s Degree	74.3%	93.8%	76.6%
Percentage Point Difference Between Bachelor’s Degree and CDA Teachers	2.3%	0.3%	2.5%
All VPK Teachers	72.9%	93.6%	75.1%

¹ Children are considered kindergarten ready if they score at the Emerging/Progressing or Demonstrating levels on the ECHOS and score at least a 67% on the FAIR-K.

Source: OPPAGA analysis of Department of Education School Year Program VPK data.

Approximately 74.3% of children taught by bachelor’s degree teachers were subsequently deemed ready for kindergarten based on their state assessment scores. This rate was essentially the same for children taught by teachers with associate’s degrees (74.2%) and slightly greater than children taught by teachers with CDAs (72.0%). Thus, the difference in the kindergarten readiness rates of children from VPK classes with bachelor’s degree teachers and teachers with CDAs was minimal (2.3 percentage points).

The same patterns exist when examining VPK children’s scores on the two components of the state’s kindergarten readiness assessment separately. The percentage of children deemed ready on the behavioral component of the state assessment (the Early Childhood Observation System, or ECHOS) was essentially the same for all three groups of VPK teachers. Readiness rates on the reading component of the assessment (the Florida Assessments for Instruction in Reading – Kindergarten, or FAIR-K) varied slightly, with children of CDA teachers performing 2.5 percentage points lower

overall than children of teachers with more advanced educational attainment. Notably, children’s reading readiness rates were the same for VPK teachers with associate’s degrees and VPK teachers with bachelor’s degrees.

In general, the kindergarten readiness rate patterns for the three groups of VPK teachers also were consistent with the findings above regardless of the race and socioeconomic status of the children they taught. (See Exhibit 2.) For example, bachelor’s degree teachers had higher percentages of African-American, Hispanic, and white children kindergarten ready compared to other teachers. However, differences in readiness rates between bachelor’s degree and CDA teachers were slightly greater for African-American children (4.6 percentage points) and Hispanic children (4.0 percentage points) than for white children (2.7 percentage points). In addition, bachelor’s degree teachers had slightly higher percentages of both free/reduced lunch children (a proxy for low socioeconomic status) and non-free/reduced lunch children kindergarten ready than other teachers.

Exhibit 2

Bachelor’s Degree VPK Teachers Have Slightly Higher Percentages of Children Ready for Kindergarten, Regardless of Race or Socioeconomic Status

Child Demographic Characteristic	Children Taught by a Child Development Associate (CDA) Teacher	Children Taught by a Associate’s Degree Teacher	Children Taught by a Bachelor’s Degree Teacher	Percentage Point Difference Between Bachelor’s Degree and CDA Teachers
Race				
African-American	61.6%	62.9%	66.2%	4.6%
Hispanic	63.0%	65.7%	67.0%	4.0%
White	80.9%	81.8%	83.6%	2.7%
Free/Reduced Lunch Status				
Free/Reduced Lunch Recipient	62.2%	64.9%	65.6%	3.4%
Not Free/Reduced Lunch	82.3%	83.6%	85.0%	2.7%
All VPK Children	72.0%	74.2%	74.3%	2.3%

Note: Data associated with 161,106 children who attended the VPK Program during the 2008-09 and 2009-10 school years.
 Source: OPPAGA analysis of Department of Education VPK School-Year Program data.

Appendices A and B provide more detailed information about our sample and analyses related to VPK teacher education levels and children’s readiness scores. Appendix A provides information on our methodology, including a description of the sample selection process we used and a demographic comparison of children in our sample to all kindergarten children. Appendix B provides additional analyses of the sample, including a quartile analysis of the children’s reading readiness scores and regression analyses that further substantiate the information provided above regarding the weak relationship between the educational credentials of VPK teachers and children’s subsequent performance on Florida’s kindergarten readiness assessments.

Is there a difference in kindergarten readiness depending on the type of VPK program children attend?

Children enrolled in the VPK School-Year Program performed better on kindergarten readiness assessments than children enrolled in the VPK Summer Program. Furthermore, there was essentially no difference in the readiness scores of children attending VPK for three hours during the full school year compared to children attending a six-hour program for half of the school year. Both conclusions remain after

considering the effects of socioeconomic status and race.

Children enrolled in the VPK school-year program perform better on kindergarten readiness assessments than children enrolled in the VPK summer program. We analyzed data associated with 168,989 children who attended Florida’s VPK Program during 2008-09 and 2009-10.⁸ Children who attended the VPK School-Year Program were more likely to be deemed ready for kindergarten than children enrolled in the VPK Summer Program. (See Exhibit 3.)

⁸ To control for program and student characteristics, we limited our analysis to only those children who had information for all the necessary data fields. Of 168,989 children, 161,106 (95.3%) attended the VPK School-Year Program and 7,883 (4.7%) attended the VPK Summer Program. The data represents 53% of the School-Year Program children and 42% of the Summer Program children, respectively, who participated in VPK during 2008-09 and 2009-10.

Exhibit 3

Children Taught in the VPK School-Year Program Perform Better than Children Taught in the VPK Summer Program

VPK Program Type	Number (Percentage) of Children	Average Hours Completed ¹	Percentage of Children		
			Kindergarten Ready ²	Ready on ECHOS	Ready on FAIR-K
School-Year Program	161,106 (95.3%)	501	72.9%	93.6%	75.1%
Summer Program	7,883 (4.7%)	277	64.7%	89.2%	68.2%
Percentage Point Difference Between the Two Program Types			8.2%	4.4%	6.9%
All Programs	168,989 (100%)	491	72.5%	93.4%	74.8%

¹ In order to be included in the analysis, children must have completed 70% of the required program hours. As a result, children enrolled in a VPK School-Year Program must have completed at least 378 of the 540 required hours, while children enrolled in a VPK Summer Program had to have completed at least 210 of the 300 required hours.

² Children are considered kindergarten ready if they score at the Emerging/Progressing or Demonstrating levels on the ECHOS and score at least a 67% on the FAIR-K.

NOTE: The difference in performance between the VPK School-Year and Summer programs is statistically significant at the 0.001 level.

Source: OPPAGA analysis of Department of Education VPK Program data.

Approximately 72.9% of children who attended the program during the school year were subsequently deemed kindergarten ready based on their state assessment scores. The readiness rate of these children was eight percentage points higher (64.7%) than those who attended the program during the summer. The same patterns exist when examining VPK children’s scores on each of the two components of the state’s kindergarten readiness assessment. Based on additional analysis, we concluded that these differences likely were due to the greater number of instructional hours required of the School-Year Program compared to the Summer Program.⁹ On average, children in the School-Year Program completed 501 hours of VPK instruction, whereas children in the Summer Program completed 277.

Furthermore, children attending the VPK School-Year Program had higher kindergarten readiness rates than summer participants regardless of their race and socioeconomic status. (See Exhibit 4.) Differences in the readiness rates between children attending the School-Year Program and those attending the Summer Program were slightly greater for Hispanic children (8.7 percentage points) and white children (7.4 percentage points) than for African-American children (3.0 percentage points). In addition, the School-Year Program had higher percentages of both free/reduced lunch children (a proxy for low socioeconomic status) and non-free/reduced lunch children kindergarten ready than children attending the program during the summer.

⁹ We used a logistic regression analysis model to further assess the differences in the kindergarten readiness rates between the VPK School-Year and Summer programs.

Exhibit 4

Higher Percentages of VPK School-Year Program Participants than VPK Summer Participants Were Ready for Kindergarten, Regardless of Race or Socioeconomic Status

Child Demographic Characteristic		Kindergarten Ready ¹		Percentage Point Difference Between the Two Program Types
		Children Attending VPK School-Year Program	Children Attending VPK Summer Program	
Race	African-American	63.3%	60.3%	3.0
	Hispanic	64.6%	55.9%	8.7
	White	81.8%	74.4%	7.4
Free/Reduced Lunch Status	Free/Reduced Lunch Recipient	63.6%	58.5%	5.1
	Not Free/Reduced Lunch	83.2%	77.5%	5.7
All VPK Children		72.9%	64.7%	8.2

¹ Children are considered kindergarten ready if they score at the Emerging/Progressing or Demonstrating levels on the ECHOS and score at least a 67% on the FAIR-K.

Source: OPPAGA analysis of Department of Education VPK Program data.

Kindergarten readiness rates are about the same for children who attend VPK school-year programs for three hours per day and six hours per day. We analyzed data associated with 133,084 children who attended either a three-hour or a six-hour structured VPK School-Year Program during 2008-09 and 2009-10.¹⁰ There was essentially no difference in the

kindergarten readiness rates between the two groups of children. (See Exhibit 5.) Approximately 72.7% of children who attended the program for three hours per day were subsequently deemed kindergarten ready based on their state assessment scores. Similarly, 72.5% of children who attended the program for six hours per day were ready for kindergarten. The two groups of children also performed about the same on each of the two components of the state’s kindergarten readiness assessment.

¹⁰ To control for program and student characteristics, we limited our analysis to the 133,084 children who had information for all necessary data fields within the same time frame. To eliminate any recency effects, our analysis included only children who were enrolled in programs with end dates in the month of May.

Exhibit 5

Children Taught in Three-Hour and Six-Hour Programs Have Similar Performance

VPK Program Type	Number (Percentage) of Children	Percentage of Children		
		Kindergarten Ready ¹	Ready on ECHOS	Ready on FAIR-K
Three Hours per Day	130,512 (98.1%)	72.7%	93.6%	74.9%
Six Hours per Day	2,572 (1.9%)	72.5%	93.8%	74.3%
Percentage Point Difference Between the Two Program Structures		0.2%	(0.2%)	0.6%
Both Types of Programs		72.7%	93.6%	74.9%

¹ Children are considered kindergarten ready if they score at the Emerging/Progressing or Demonstrating levels on the ECHOS and score at least a 67% on the FAIR-K.

NOTE: The difference in performance between the three-hour and six-hour VPK School-Year programs was not statistically significant.

Source: OPPAGA analysis of Department of Education VPK Program data.

Exhibit 6

The Kindergarten Readiness of Children Attending the Three-Hour Versus Six-Hour VPK School-Year Program Varied Slightly by Race and Socioeconomic Status

Child Demographic Characteristic		Kindergarten Ready ¹		Percentage Point Difference Between the Two Program Types
		Children Attending Three-Hour Program	Children Attending Six-Hour Program	
Race	African-American	64.0%	60.9%	3.1%
	Hispanic	65.2%	60.9%	4.3%
	White	81.3%	82.0%	-0.7%
Free/Reduced Lunch Status	Free/Reduced Lunch Recipient	63.9%	63.1%	0.8%
	Not Free/Reduced Lunch	82.7%	84.4%	-1.7%
All VPK Children		72.7%	72.5%	0.2%

¹ Children are considered kindergarten ready if they score at the Emerging/Progressing or Demonstrating levels on the ECHOS and score at least a 67% on the FAIR-K.

Source: OPPAGA analysis of Department of Education VPK Program data.

The kindergarten readiness of children attending the three-hour versus six-hour VPK School-Year Program varied by race and socioeconomic status. (See Exhibit 6.) For example, the readiness rates of children attending the three-hour program were slightly greater for African-American children (3.1 percentage points), Hispanic children (4.3 percentage points), and children receiving free/reduced lunch (0.8 percentage points). In contrast, white children and children not receiving free/reduced lunch attending the six-hour program performed slightly better on state assessments than children in the three-hour program.¹¹

Is there a difference in the kindergarten readiness of children who complete the VPK School-Year Program in public versus private provider settings?

Kindergarten readiness rates are about the same for children who complete the VPK School-Year Program in public and private provider settings. However, children completing VPK during the school year at faith-based provider sites had higher

kindergarten readiness rates than children completing the program at non-faith-based sites. Furthermore, faith-based providers operating during the school year outperformed other types of providers of the VPK School-Year Program regardless of the children’s race and socioeconomic status.

Kindergarten readiness rates are about the same for children who complete the VPK school-year program in public and private provider settings. We analyzed data associated with 161,106 children who attended Florida’s VPK School-Year Program during 2008-09 and 2009-10.¹² Our analysis found that there was virtually no difference in kindergarten readiness rates between public and private providers participating in the VPK School-Year Program. (See Exhibit 7.) Approximately 72.7% of children who completed the School-Year Program at a public site were subsequently deemed kindergarten ready based on their state assessment scores. Similarly, 73.0% of children who completed the program at a private site were ready for kindergarten. The two groups of children also performed about the same on each of the two components of the state’s kindergarten readiness assessment.

¹¹ We used a logistic regression analysis model to determine the significance of the differences in the kindergarten readiness rates among racial groups who attended the three-hour versus six-hour VPK School-Year Program. The regression analysis found that the difference in kindergarten readiness rates between the two program structures was statistically significant only for Hispanic children. The analysis found that the differences in the kindergarten readiness rates for African-American children and for white children between the three-hour and the six-hour programs were not statistically significant.

¹² To control for program and student characteristics, we limited our analysis to only those children who had information for all the necessary data fields. Of 168,989 children, 161,106 (95.3%) attended the VPK School-Year Program and 7,883 (4.7%) attended the VPK Summer Program. The data represents 53% of the School-Year Program children and 42% of the Summer Program children, respectively, who participated in VPK during 2008-09 and 2009-10.

Exhibit 7

There Was Virtually No Difference in Readiness Rates Between Public and Private School-Year VPK Providers

VPK Provider Setting Type	Number (Percentage) of Providers	Number (Percentage) of Children	Percentage of Children		
			Kindergarten Ready ¹	Ready on ECHOS	Ready on FAIR-K
Public	848 (15%)	30,408 (19%)	72.7%	93.3%	75.1%
Private	4,683 (85%)	130,698 (81%)	73.0%	93.7%	75.1%
Percentage Point Difference Between the Two Provider Setting Types			0.3	0.4	0.0
All Providers	5,531	161,106	72.9%	93.6%	75.1%

¹ Children are considered kindergarten ready if they score at the Emerging/Progressing or Demonstrating levels on the ECHOS and score at least a 67% on the FAIR-K.

Source: OPPAGA analysis of Department of Education VPK Program data.

Children completing the VPK school-year program offered by faith-based providers do better on kindergarten readiness assessments than children from other types of settings. Children completing VPK during the school year at faith-based provider sites had higher kindergarten readiness rates than children completing the program at public and private, non-faith-based sites. (See Exhibit 8.) Approximately 81% of children who completed the VPK School-Year Program at a faith-based site were subsequently deemed kindergarten ready based on their state assessment scores. The

readiness rate of these children was 9.6 percentage points higher (71.4%) than those who completed the VPK School-Year Program at other types of sites. In addition, children completing the School-Year Program at a faith-based site had higher scores on each of the two components of the state’s kindergarten readiness assessment than children who completed VPK during the school year in other settings (although the difference between the two groups on ECHOS was smaller than on FAIR-K).

Exhibit 8

Faith-Based Providers’ School-Year VPK Programs Attained Higher Kindergarten Readiness Rates than Other Types of Providers

VPK Provider Setting Type	Number (Percentage) of Providers	Number (Percentage) of Children	Percentage of Children		
			Kindergarten Ready ²	Ready on ECHOS	Ready on FAIR-K
Faith-Based	785 (14%)	25,128 (16%)	81.0%	95.7%	82.7%
Other Providers (Public and Private, Non-Faith-Based)	4,746 (86%)	135,978 (84%)	71.4%	93.2%	73.7%
Percentage Point Difference Between the Two Provider Types			9.6	2.5	9.0
All Providers	5,531	161,106	72.9%	93.6%	75.1%

NOTE: The difference in performance between the faith-based and other providers is statistically significant at the 0.001 level.

¹ Children are considered kindergarten ready if they score at the Emerging/Progressing or Demonstrating levels on the ECHOS and score at least a 67% on the FAIR-K.

Source: OPPAGA analysis of Department of Education VPK Program data.

Faith-based providers operating during the school year outperformed other types of providers of the VPK School-Year Program regardless of the children’s race and socioeconomic status. (See Exhibit 9.) These readiness rate differences were

consistent across African-American children (7.0 percentage points), Hispanic children (7.1 percentage points), and white children (4.7 percentage points), as well as for children receiving free/reduced lunch (5.7 percentage points).

Exhibit 9

Faith-Based Providers Operating During the School Year Had Higher Percentages of Children Ready for School than Other Providers of the VPK School-Year Program, Regardless of the Children’s Race and Socioeconomic Status

Child Demographic Characteristic	Percentage of Children Kindergarten Ready ¹		Percentage Point Difference Between the Two Provider Types	
	Faith-Based Providers	Other Providers (Public and Private, Non-Faith-Based)		
Race	African-American	69.6%	62.6%	7.0
	Hispanic	71.1%	64.0%	7.1
	White	85.4%	80.7%	4.7
Free/Reduced Lunch Status	Recipient	68.8%	63.1%	5.7
	Non-Recipient	86.5%	82.3%	4.2
All VPK Children		81.0%	71.4%	9.6

NOTE: The differences in performance between the faith-based and other providers are statistically significant at the 0.001 level.

¹ Children are considered kindergarten ready if they score at the Emerging/Progressing or Demonstrating levels on the ECHOS and score at least a 67% on the FAIR-K.

Source: OPPAGA analysis of Department of Education VPK Program data.

OPPAGA supports the Florida Legislature by providing data, evaluative research, and objective analyses that assist legislative budget and policy deliberations. This project was conducted in accordance with applicable evaluation standards. Copies of this report in print or alternate accessible format may be obtained by telephone (850/488-0021), by FAX (850/487-9213), in person, or by mail (OPPAGA Report Production, Claude Pepper Building, Room 312, 111 W. Madison St., Tallahassee, FL 32399-1475). Cover photo by Mark Foley.

OPPAGA website: www.oppaga.state.fl.us

Project supervised by David D. Summers (850/487-9257)

Project conducted by Erika Morse and Brian Underhill

Tim Elwell (850/487-9228), Staff Director, Education Policy Area

R. Philip Twogood, Coordinator

Appendix A

Methodology for Assessing the Effect of Teacher Education

Appendix A describes the methodology we used to assess the effect of VPK teacher educational levels on kindergarten readiness rates, including sample selection and demographic comparisons.

Sample Selection Process

The two years of VPK Program data (2008-09 and 2009-10) contained 303,742 unduplicated child records. Due to programmatic differences between the VPK School-Year and Summer programs (differences in instructional hours, curriculum requirements, and teacher education requirements), only VPK School-Year Program children were included in our analysis. Of the 285,169 VPK School-Year Program child records, 57% (161,106) met the criteria below and, thus, were included in our analysis.

- Classrooms with only one or two teachers. To address limitations of the classroom teacher data, which did not clearly identify the lead classroom teacher or provide start and end dates for each teacher, we limited the data to classrooms associated with only one or two teachers. This mitigated the chance we would be associating a child's outcomes to the efforts of a substitute teacher or a teacher who was only in the classroom for a few months. In classes with two teachers, we applied the highest credential of the two teachers as the credential of record for the class we used in the analysis. Approximately 86% (244,957) of all VPK School-Year Program children were in classes with only one or two teachers.
- Teacher credential reported. Because our analysis focused on the effect of teacher credentials on children's kindergarten readiness, we excluded any children whose data records did not contain information about the credential of their classroom teachers. Approximately 98% (278,583) of all VPK School-Year Program children were in a classroom for which teacher credential was reported.
- Complete assessment scores reported. Because our analysis focused on the effect of teacher credentials on children's kindergarten readiness, we excluded any children who did not have scores for both components of the Florida Kindergarten Readiness Screener (the Early Childhood Observation System and the Florida Assessments for Instruction in Reading – Kindergarten). Approximately 86% (245,808) of all VPK School-Year Program children had Early Childhood Observation System scores (ECHOS), and approximately 86% (244,014) of the children had Florida Assessments for Instruction in Reading – Kindergarten (FAIR-K) scores.
- Free/reduced lunch status reported. Because we intended to examine any potential differential effects of teacher credentials on children from various socioeconomic statuses, we excluded children who did not have data on free/reduced lunch status. Approximately 82% (233,806) of all VPK School-Year Program children had free/reduced lunch status, a generally recognized proxy for socioeconomic status.
- Race reported. Because we wanted to examine any potential differential effects of teacher credentials on children of various races, we excluded any children who did not have data on race. Approximately 84% (239,358) of all VPK School-Year Program children had race information.
- Attended at least 70% of program. Because we wanted to be sure that we could attribute a child's level of kindergarten readiness to the VPK Program, we established a minimum percentage of the program that the children had to complete to be in our analysis. The Department of Education uses 70% as the criteria for including a child in a provider's readiness rate; thus, we adopted the same criteria for our analysis. We excluded any children who did not complete at least 378 (70%) of the 540 hours of the VPK Program. Approximately 85% (242,370) of all VPK School-Year Program children attended at least 70% of the program hours.

- Spent at least 70% of program in one classroom. Some children attended more than one VPK provider during the school year. Because we wanted to associate a child's kindergarten readiness with the credential of the classroom teacher that had the most influence on the child's preparation, we excluded children who spent less than 70% of program hours in the same classroom. Approximately 82% (234,950) of all VPK School-Year Program children spent at least 70% of their time in one classroom.

Sample Demographics

As shown in Table A-1, our sample group had similar demographic characteristics to children excluded from our sample and to children attending public schools in 2010-11. However, our sample had a slightly smaller proportion of African-American children and slightly larger proportion of white children compared to the group of children excluded from our sample and to all public school kindergarten children in 2010-11. In addition, the study sample had a lower concentration of children who qualified for free or reduced lunch compared to the group of children excluded from our sample.

Table A-1
VPK Children in Our Study Sample Were Demographically Representative of Comparison Populations

Child Demographic Characteristic	OPPAGA VPK Study Sample	Children Excluded from Study Sample	All 2010-11 Kindergarteners
Race			
African-American	19.5%	23.9%	22.8%
Hispanic	29.3%	26.8%	29.4%
White	44.6%	42.5%	41.5%
Other	6.7%	6.9%	6.3%
Free/Reduced Lunch Status			
Free/Reduced Lunch Recipient	52.7%	62.0%	56.0% ¹
Not Free/Reduced Lunch	47.3%	38.0%	44.0% ¹

¹ These figures represent the free/reduced status of all students who attended public schools in 2010-11 because the free/reduced lunch status of kindergarteners only was not readily available.

Source: OPPAGA analysis of Department of Education VPK School-Year Program data and data on all kindergarteners.

The proportion of children in our sample taught by a teacher with a bachelor's degree as compared to a CDA is not substantially different from one demographic group to another. While similar, Table A-2 shows that a slightly higher percentage of African-American and Hispanic children were taught by a teacher with a bachelor's degree compared to white children. Additionally, 33.1% of free/reduced lunch children were taught by teachers with bachelor's degrees compared to 29.7% of non-free/reduced lunch children.

Table A-2
Percentage of VPK Children Taught by Bachelor's Degree Teachers Was Similar Across Demographic Groups

Child Demographic Characteristic	Child Development Associate (CDA)	Associate's Degree	Bachelor's Degree
Race			
African-American	56.7%	10.2%	33.0%
Hispanic	56.3%	8.2%	35.4%
White	60.4%	11.2%	28.4%
Other	59.3%	10.9%	29.7%
Free/Reduced Lunch Status			
Free/Reduced Lunch Recipient	57.2%	9.7%	33.1%
Not Free/Reduced Lunch	59.8%	10.6%	29.7%
All VPK Children	58.4%	10.1%	31.5%

NOTE: Data associated with 161,106 children who attended the VPK Program during the 2008-09 and 2009-10 school years.

Source: OPPAGA analysis of Department of Education VPK School-Year Program data.

Appendix B

Additional Analyses

Appendix B provides additional analyses we conducted to assess the effect of VPK teacher educational levels on kindergarten readiness rates, including a quartile analysis of VPK children’s reading readiness scores and ordinary least squares and logistic regression analyses.

FAIR-K Quartile Analysis

We examined VPK children’s FAIR-K scores in quartiles to determine if a disproportionately higher percentage of top quartile scoring children were taught by teachers with bachelor’s degrees. As shown in Table B-1, bachelor’s degree teachers had slightly more children in the top quartile (34.2%) than associate’s degree teachers (33.0%) and CDA teachers (30.6%). However, these differences were minimal, particularly between VPK teachers with associate’s degrees and those with bachelor’s degrees.

Table B-1

A Slightly Higher Percentage of Children Taught by Bachelor Degree Teachers Scored in the Top Quartile on FAIR-K

Child’s FAIR-K Score ¹	Child Development Associate Teachers	Associate’s Degree Teachers	Bachelor’s Degree Teachers
Top Quartile (93 or higher)	30.6%	33.0%	34.2%
Mid-top Quartile (84-92)	21.6%	22.2%	21.5%
Mid-bottom Quartile (67-83)	21.8%	21.3%	20.8%
Bottom Quartile (Less than 67)	25.9%	23.4%	23.4%

¹ Children are considered kindergarten ready on the FAIR-K if they score at least a 67%.

Source: OPPAGA analysis of Department of Education VPK School-Year Program data.

Regression Analysis

We conducted two regression analyses—ordinary least squares (OLS) and logistic—to further test the relationship between the credentials of VPK teachers and their children’s subsequent performance on Florida’s kindergarten readiness assessments. Similar to the analyses discussed in the body of this memorandum, both regression results indicate a statistically significant, but minimal relationship between VPK bachelor degree teachers and kindergarten readiness. The OLS regression showed that children who had a bachelor’s degree teacher had FAIR-K scores 1.4 points higher than children taught by CDA teachers. The logistic regression showed that children who had a bachelor’s degree teacher were 1.1 times more likely to be ready for kindergarten (as determined by both readiness assessments) compared to children taught by CDA teachers. The independent factors in each of the models included

- teacher credential (bachelor’s, associate’s, CDA);
- teacher certification;
- child socioeconomic status (free/reduced lunch status in kindergarten as a proxy);
- child’s race;
- English as a Second Language;
- total hours of the VPK program the child attended;
- hours of VPK instruction per day;
- number of days between VPK instruction end date and start of kindergarten school year;
- provider type (public, private, home care); and
- number of children per class.