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FLORIDA SOUTHWESTERN STATE COLLEGE
SCHOOL OF EDUCATION

Early Childhood Education Cost Study

May 2017

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Fully funding early childhood education (ECE) is a long-standing challenge for states and communities. With the notable exception of a few leaders like Georgia, Oklahoma, and New York City, states lack the programmatic infrastructure for 3 and 4 year-olds that they provide for students who are served by the K-12 and higher education systems. Growing evidence of the importance of learning in early years combined with an increasingly competitive global economy are forcing states to address these structural limitations or gaps.

FSW offers an associate's degree in early childhood education that prepares the next generation of preschool teachers. Through that work, we witnessed the challenging working conditions and low wages that our graduates experienced. Moreover, we operate by contract with our partners Greater Naples YMCA and Childcare Centers of SWFL, Inc. two early childhood education centers on our Thomas Edison and Collier campuses that combine to serve over 200 children aged 0-5. As institutional members of both FutureMakers and FutureReady Collier, we have been made aware of the kindergarten readiness gap and have brought our resources to help close it. The School of Education, under the leadership of Dean Miller, has developed significant capacity in education finance and policy research. FSW's role in this study was to conduct original research and disseminate findings; it was not FSW's role to advocate for any specific policy or program.

This work would not be possible without the support and commitment of our ECE partners and 47 ECE center directors from our five-county region who participated in this professional judgment study. We were fortunate to partner with Augenblick, Palaich and Associates, Inc. (APA), the leading organization for educational cost studies in the United States, to conduct this study. We are indebted to our sponsors who saw value in this work, including Mrs. Lavern Gaynor, the Naples Children & Education Foundation (NCEF), the Wayne Smith Family Foundation, the Richard M. Schulze Family Foundation, the Lockmiller Endowment for Early Childhood Education @ FSW and the Florida SouthWestern State College Foundation.

APA estimated the cost of resources to be $12,057 per child and estimated the funding gap between what we spend as a community and what we need to spend to be about $1,812 per child. This funding gap places a large share of the financial burden on parents, one that is lifted when a child enters kindergarten. To fully fund ECE and to lessen the burden on parents, the state could double VPK funding per child and expand access to the program for all three year-olds. Alternatively, the obligation could be met with local funding drawn from property or sales tax revenue. A state match on local tax effort could provide a joint state and local solution to the ECE funding dilemma. We are developing several follow-up studies to examine these policy options in greater detail.

The Cost of Preparing Students for Kindergarten in Southwest Florida

Prepared for Future Ready Collier Early Childhood Education Work Group

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April 2017

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Acknowledgments

APA would like to thank all of the southwest Florida educators who participated in data collection efforts for this study. Larry Miller (Dean of the School of Education and Charter Schools at Florida SouthWestern State College (FSW)) and Joyce Cho (FSW School of Education Research Assistant during the time of the study) provided critical guidance, logistical support, and recruitment of study participants on very short time frames. This study would not have been possible without their assistance. APA would also like to thank Elizabeth Perdomo, FSW Early Childhood Education Field Experience Specialist, who translated between English and Spanish at the home provider panel. Additionally, APA would like to thank all of the study participants who volunteered their valuable time to contribute to the study.

Executive Summary

The purpose of this study was to determine the cost to ensure that three- and four-year olds in southwest Florida are prepared for kindergarten. Augenblick, Palaich, and Associates (APA), an education consulting firm with expertise in both costing out methodologies and early childhood education, was hired to conduct this study. Specifically, APA was asked to estimate the gap between existing early childhood education (ECE) funding and the costs of preparing three- and four-year olds for kindergarten. Early childhood educators in five southwest Florida counties (Charlotte, Collier, Hendry, Glades, and Lee counties) participated in and contributed substantially to the data collected in this study.

The primary methodology used in this study to estimate the needed resources was the professional judgment approach. This approach brings experienced professionals together to identify the resources needed to achieve specific educational outcomes; in this case the resources to ensure three- and four-year olds are kindergarten ready. This study began with a meeting of a standards-setting panel to determine the standards that children and preschools would need to meet to ensure student kindergarten readiness. The standards-setting panel agreed to use the *Florida Early Learning and Developmental Standards for Four-Year Olds*. These standards were then used in all other panel discussions as the basis for determining the resources necessary to ensure kindergarten readiness. The standards-setting panel also identified Teaching Strategies Gold (TS Gold) as an effective way to assess student progress toward these standards and the Classroom Assessment Scoring System (CLASS) as an effective way to assess teacher competency. Finally, this panel specified a number of preschool inputs for professional judgment panel participants to consider in the costing out analysis. A summary of these standards are presented in Appendix B.

Next, APA conducted the costing out process to identify the necessary resources to enable three- and four-year olds to achieve the agreed upon standards. This process involved a series of professional judgment panels with groups of early childhood educators in southwest Florida. APA conducted four in-person panel meetings and two webinar panels. The in-person panels included three panels for center-based preschools, one each for 1) private centers; 2) rural centers; and 3) district-operated and Head Start centers. Additionally, there was an in-person panel meeting with home-based preschool providers. A follow-up webinar was used to review and refine non-personnel resource information collected during the previous panels. Finally, a special needs panel was conducted by webinar to focus specifically on resources needed for students with special education needs. APA collected compensation data using an online survey of early childhood educators in the five participating counties in southwest Florida and from the Bureau of Labor Statistics.

In the professional judgment panels with centers, participating ECE educators were first asked to estimate personnel and non-personnel resources needed to ensure students would be kindergarten ready in a preschool with 100 three- and four-year-olds and a student poverty rate of zero. The panelists were then asked to adjust these resources for the same preschool with a student poverty rate of 25 percent and then a rate of 100 percent. The home-based provider panel estimated resources for a

home-provider enrolling six three- and four-year-olds and then adjusted resources for a provider with two enrolled children and 10 enrolled children. The special needs panel reviewed the resources estimated for a center with 100 three- and four-year olds and then estimated the additional resources necessary to serve 10 special education students. The staffing recommendations from the panels were constrained by research on adequate early childhood education staffing. All of the panel recommendations are presented in detail later in this report.

Each of the panels carefully considered and discussed the resources necessary to prepare all three- and four-year olds to be successful in kindergarten. The center panels specified a base level (no student poverty or special education needs) student-teacher ratio of 9 to 1. Student-teacher ratios were large cost drivers because they rapidly increased the number of teachers. One of the other large cost drivers was an increase in necessary educational credentials to include bachelor's degrees for lead teachers. The panel participants, as well as the research, both suggested that higher education degrees are important for student outcomes and that compensation levels should align with educational levels. Setting a bachelor's degree as the necessary educational credential had a substantial impact on costs. Several other factors such as additional support FTE also increased costs.

After all of the resources were specified and costed out, APA then calculated the dollar amounts and weights necessary to prepare students for kindergarten. Table 1 presents necessary per student costs for a center-based preschool with no student poverty or special education needs (base level). The table also presents the weights for a center with a 25 percent student poverty rate, a 100 percent student poverty rate and a 10 percent special education rate. These weights show the per student cost relative to the base cost. For example, in the table below, a weight of 0.37 indicates that on average, per student costs are 37 percent higher than the base costs when the student poverty rate is 100 percent.

Table 1: Estimated Annual per Student Costs and Additional Weights for Center-Based Preschools

	Base-level costs: No student poverty	Additional Weights		
		25% student poverty	100% student poverty	10% Special Education
District-Operated/Head Start Centers	$11,366	0.07	0.38	0.38
Private Centers	$10,983	0.07	0.36	1.02
Rural Centers (District or Private)	$11,075	0.00	0.36	Not specified
Average Per Student	**$11,142**	**0.05**	**0.37**	**0.70**

Average county child poverty rates, base costs, and the weights were then used to estimate costs for different levels of poverty. APA used average poverty rates for children under 18 in each of the five participating southwest Florida counties to calculate average per student costs for centers in these counties. Table 2, below, presents the child poverty rates for each of these counties and the estimated average annual per student cost for each county.

Table 2: Estimated Annual per Student Costs for Centers, By County

County	Percent in Poverty	Per Student Costs
Charlotte	23.3%	$12,039
Collier	22.9%	$12,035
Glades	33.1%	$12,182
Hendry	36.4%	$12,247
Lee	25.2%	$12,061
Average	**24.7%**	**$12,057**

Similar cost estimates and weights were calculated for home-based preschool providers and these are presented in Table 3 below. Base-level costs for a home-based preschool with 10 enrolled students would be $12,192, with additional weights of 0.29 for a home-based preschool with six students and 1.73 for a preschool with two students. APA did not adjust these numbers by county since the estimates for home providers do not include adjustments for student poverty rates. This study estimates an average enrollment per home provider of six students and APA predicts that this would result in average annual per student costs of $15,784 for home providers.

Table 3: Estimated Annual per Student Costs for Home-Based Providers

	Base Level Costs	Additional Weights	
	10 students	*6 students*	*2 students*
Per Student Costs		$15,784	$33,305
Per Student Base-Level Costs and Additional Weights	$12,192	0.29	1.73

This study estimates an average per student cost of $12,057 for students in centers and $15,784 for students in homes. While average annual costs of $12,057 for center preschools and $15,784 for home-based preschools may sound relatively high, these numbers represent monthly operating costs of $1,005 for centers and $1,315 for home providers. Preschools that serve higher income populations may be able to cover these costs through tuition charged to families. In some states, these monthly costs would not be unusual tuition amounts for high quality preschools in wealthier communities. Parents who can afford to do so are often willing to pay for what they perceive to be high quality care.

One of the primary goals of this study was to estimate the difference between existing preschool funding in Florida and the costs necessary to prepare students for kindergarten. In order to estimate the funding gap, it was first necessary to analyze existing public funding for Florida three- and four-year

olds. This study estimated existing funding using four primary sources of public funding: Voluntary Pre-Kindergarten (VPK), School Readiness, federal Head Start, and the U.S Department of Agriculture's (USDA) meal reimbursements. Total funding for the first three of these programs in 2015-16 was $803,392,336 and the number of children enrolled in these programs totaled 261,155, so existing annual funding per child from these programs is $3,076 for centers. Since home providers are not eligible for Head Start, existing annual per student funding is $2,407 for home providers. After per student meal reimbursements from the USDA are included, total annual per student funding amounts increase to $3,720 for centers and $2,917 for home-based preschools. This leaves an annual gap of $8,337 per student between existing funding and necessary costs at centers, and a gap of $12,867 per student between existing funding and necessary costs at home-based providers.

It is not surprising that the cost of preparing all three- and four-year olds for kindergarten in high quality preschools is relatively high. The costs of providing high quality preschool are largely driven by lower student-teacher ratios, higher compensation, and more support staff FTE. Traditionally, it is left to the providers and families to cover the identified gap between existing funding and the cost of providing high quality preschool. The identified gap may however, be too high a burden for low and middle-income families to cover. It would be beneficial for key ECE stakeholders in southwest Florida to consider how to reduce the size of the gap between existing funding and the costs necessary to prepare three- and four-year olds in the region for kindergarten.

I. Introduction

According to a report from the Florida House of Representatives (2014), more than 38,000 of Florida's children were not kindergarten ready in 2012-13, the most recent year for which data is available. Research indicates that kindergarten readiness is likely to predict 3rd grade Florida reading scores (Foundation for Excellence in Education, 2012). While the importance of preschool for kindergarten preparation is widely documented in the literature, a recent national report concludes that Florida ranks 40th in the nation in per student state spending on early childhood education for four-year olds (National Institute for Early Education Research, 2015a).

These indicators suggest that there is a need for Florida to improve kindergarten readiness through a more systematic approach to funding early childhood education. Five counties in southwest Florida joined together in the fall of 2016 to collaborate on a study to estimate the resources necessary to prepare all children for kindergarten. This study coalition includes Charlotte, Collier, Glades, Hendry, and Lee counties. With help from other local stakeholders, these five counties commissioned a professional judgment study on the costs of early childhood education (ECE) in southwest Florida. Augenblick, Palaich, and Associate (APA), a pioneer of the professional judgment process in K-12 school finance, was selected to conduct this study.

APA is a Denver-based consulting firm focusing on education policy at the national, state, and local levels. Founded in 1983, APA has concentrated much of its work on developing and evaluating the procedures states use to allocate funding. APA has also worked with school districts to help them efficiently allocate resources, develop new ways to pay teachers, and evaluate and determine the costs of particular educational programs, including ECE programs. APA has significant experience creating models that estimate the costs of high quality ECE. One such model, developed in collaboration with Anne Mitchell (a national early childhood finance expert), for the National Center on Child Care Quality Improvement and the U.S. Office of Child Care, is the Provider Cost of Quality Calculator (PCQC) that is available to state policymakers nationwide.

The purpose of this study was to determine the costs of preparing students for kindergarten in five counties in southwest Florida: Charlotte, Collier, Hendry, Glades, and Lee. The costs can then be compared to existing funding to estimate any gap between the costs necessary to meet standards and the existing funding for early childhood education in this region. This study focuses on three- and four-year olds only. This age focus does not suggest that the care and education of infants and toddlers is unimportant. In fact, many study participants discussed the importance of education for all ages of children from birth to five. However, the resources necessary for infants and toddlers vary greatly in type and quantity from the resources necessary for three- and four-year olds. APA, in the early stages of this study, recommended examining birth-to-two resources in a separate study.

This report begins with a literature review (Chapter II). The literature review documents the importance of preschool in preparing children for kindergarten and presents research on the quantifiable resources necessary for high quality early childhood education. The report then goes on to discuss this study's methodology, assumptions, and limitations (Chapter III). Results of the study follow, with a discussion of

necessary resources, and the resulting costs (Chapter IV). The conclusion chapter discusses the gap between existing funding and the costs necessary to prepare all three- and four-year olds for kindergarten (Chapter V).

II. Literature Review

In recent years, national and state governments have focused their attention on education issues including school readiness and opportunity gaps between students from different socioeconomic, racial, and ethnic backgrounds. In these discussions, one of the consistent recommendations is the provision of high quality preschool, especially for four-year-olds and low-income three-year-olds. As a result, public awareness of the benefits of preschool has grown dramatically. Preschool is viewed as a critical way to increase educational and social preparation, academic and personal achievement, and social equality.

Preschool is a broad term for pre-elementary school programs targeted towards young children. Parents, educators, journalists, researchers, and policymakers alike are increasingly interested in preschool as a means of investing in the future and, as Lamy (2013) puts it, untangling the "complicated knots" of chronic poverty.

Poverty and Young Children

Poverty has a direct, observable relationship to the academic progress and achievement of individual students (Coleman et al., 1966; Lacour & Tissington, 2011; Baker et al., 2014). Poverty may affect students in several ways and through several different mechanisms. At the student and family level, poverty can produce (1) language gaps, (2) summer learning loss, and (3) attendance and motivation issues (Boone, 2007; Carey, 2013; Hernandez, 2011).

Research has shown that students living in poverty may have a significant language gap in comparison to their more affluent peers. In 2012, Stanford psychologist Anne Fernald and a team of researchers followed up on previous research concerning socio-economic status (SES) and language development (Fernald et al., 2013). Fernald's team found that SES has a measurable impact on children's language proficiency and language processing rates. This is likely related to the fact that, depending on SES, "parents differ in the amount of language stimulation they provide to their infants" (Carey, 2013). Higher-SES parents tend to engage in more child-directed speech, while lower-SES parents may not provide this same type of language modeling for their children:

In studies following both English- and Spanish-learning toddlers over several years, [Fernald's research team] found that children who are faster at recognizing familiar words at 18 months have larger vocabularies at the age of two and score higher on standardized tests of language and cognition in kindergarten and elementary school. (Carey, 2013)

The skills (e.g. oral language skills and language processing skills) students bring with them when they enter school are related to their levels of achievement as they enter school and progress through the education system. In recognition of the language skill discrepancies between lower- and higher-SES students entering school, the Commission on Education Finance, Equity and Excellence, or the Thornton

Commission (2002), recommended remedial services for at-risk students and for students from economically disadvantaged backgrounds. The recommended services included preschool programs and extended day and year programs for elementary and middle school students.

The Impact of Preschool

Preschool is important because, as research shows, the development that occurs between birth and age five is critical to "establishing the foundations of thinking, behaving, and [maintaining] emotional security" (Scrivner & Wolfe, 2002). In early childhood, children create neural pathways and systems that affect them far into their futures (Leak et al., 2010; Sapolsky, 2004; Knudsen et al, 2007). They also undergo synaptic pruning – a process of synapse elimination that is responsive to environmental factors. This synaptic pruning influences future development, functioning, and learning (Craik & Bialystok, 2006). In short, early childhood is a time for massive development in terms of language; cognition; social and emotional competence; and self-regulation, or executive functioning (EF) (Shonkoff & Phillips, 2000). Preschool occurs at a critical time in a child's life:

> Early skills matter, and preschool can help children build these skills. … Robust evidence suggests that a year or two of center-based ECE for three- and four-year-olds, provided in a developmentally appropriate program, will improve children's early language, literacy, and mathematics skills when measured at the end of the program or soon after. (Camilli et al., 2010; Yoshikawa et al., 2013)

Preschool leverages the developmental and neurological sensitivity of early childhood to create a range of positive outcomes. In addition to influencing academic skills like literacy and math, preschool also influences social and emotional competence and overall health (Yoshikawa et al., 2013). Further, preschool has been proven to have positive impacts that can reverberate throughout a child's school years, and even into his or her adult life and career. Yoshikawa et al. (2013) assert that "high quality early childhood education programs are among the most cost-effective educational interventions and are likely to be profitable investments for society as a whole."

Academic gains are perhaps the most obvious benefits of preschool. For a year spent in preschool, children gain an average of "about a third of a year of additional learning across language, reading, and math skills," though gains have been shown to be as high as one full year of additional learning in math and reading (Yoshikawa et al. 2013). Universal preschool can also help close achievement and educational attainment gaps between children of different socioeconomic and racial and ethnic backgrounds (Karoly & Bigelow, 2005).

High quality early childhood education also appears to have a positive influence on character. By promoting attachment to adults and providing a secure base for exploring and learning, high quality preschool programs may teach long-lasting character skills (Heckman & Kautz, 2013). Along with cognition, character often determines future social and economic status (Heckman, 2011).

Achievement gaps by socioeconomic class are often present when students first enter school and persist through elementary school and beyond (Heckman, 2008; 2011). Several key longitudinal studies, including the High Scope Perry Preschool Project and the Abecedarian project document the importance of preschool in mitigating the achievement gap (Heckman, 2011).

Preschool also creates a number of indirect benefits, particularly in terms of workforce recruitment, participation, and performance. Karoly & Bigelow (2005) explain that quality universal preschool, like quality K-12 education, could (1) help a state draw in educated and skilled employees, (2) encourage mothers of young children to work, and (3) improve working parents' productivity.

Research on Fadeout of Positive Preschool Effects

Some studies have found that preschool's positive effects can fade over time. These studies describe how, as children who attended preschool grow older and progress through school, their math and reading test scores tend to converge with those of children who did not attend preschool. Over time, it becomes more difficult to distinguish between children who participated in preschool and children who did not, in terms of pure academic measures (Yoshikawa et al., 2013. This is termed "fadeout" or "convergence." Despite fadeout effects, evidence from long-term evaluations of both small-scale, intensive interventions and Head Start suggest that there are long-term effects [from preschool] on important societal outcomes such as high school graduation, years of education completed, earnings, and reduced crime and teen pregnancy, even after test score effects decline.

This section of the literature review describes fadeout research, then offers responses to that research.

Leak et al. (2010) used a meta-analytic database from the National Forum on Early Childhood Policy and Programs to examine cross-study variability and preschool program effect sizes. The researchers looked at 117 different studies with data covering 1,978 effect sizes. They found that preschool effects "generally persisted at close to full strength" for the first one or two years after children exited preschool, then faded.

Researchers have hypothesized a plethora of reasons why preschool effects may fade over time. For example, preschool might just speed up the already-occurring process of child development instead of providing children with an independent, lasting benefit (Leak et al., 2010. Under this hypothesis, children who did not attend preschool will quickly "catch up" to children who did attend preschool. Low-quality elementary schools may also factor into fadeout, "particularly for students in disadvantaged areas, [where elementary schools] may fail to build on the gains created by early childhood education" (Yoshikawa et al., 2013; Magnuson et al., 2007). Yoshikawa et al. (2013) also point out a conundrum wherein children who start elementary school as high performers can end up getting less attention from teachers. Having students who attended and benefitted from preschool may permit elementary-school teachers to focus more on the non-attenders, and this extra attention may explain the convergence or catch-up pattern.

While researchers have not pinned down causal factors behind fadeout, they have documented the occurrence and timing of fadeout. The Perry Project saw its large IQ impacts fade by the time treatment students had completed grade three (Schweinhart et al., 1993; Leak et al., 2010). A recent evaluation of Head Start found that most impacts had faded by grade one (Puma et al., 2010; Leak et al., 2010). Other studies have had similar findings.

Fadeout of Preschool Positive Effects

A few studies published over the last decade have questioned preschool's long-term impacts. These studies have suggested that the positive effects of preschool may be reduced over time. This fadeout research raises questions about the cost-effectiveness of preschool, the replicability of high-performing programs, the implementation of programs across large and diverse areas, and the meaning of "quality" across different programs.

Tennessee Voluntary Pre-K for All

Lipsey et al. (2015) conducted an RCT study of Tennessee's statewide, voluntary preschool program, Tennessee Voluntary Pre-K for All (TN-VPK). The researchers tracked 1,076 children through grade three. Of the 1,076 children, 773 attended TN-VPK and 303 were on TN-VPK waitlists but did not get admitted. The researchers measured how TN-VPK affected behavior (non-cognitive outcomes) and academic achievement (cognitive outcomes, specifically emergent literacy, language, and math).

Lipsey et al. (2015) found that TN-VPK children were more prepared for kindergarten than control group children. The researchers report that TN-VPK children had "significantly higher achievement scores on all [six] of the [achievement battery] subtests, with the largest effects on the two literacy outcomes". However, these positive effects were not sustained: "By the end of kindergarten, the control children had caught up to the TN-VPK children and there were no longer significant differences between them on any achievement measures". In one year, the control group children had advanced as much as the treatment group children had in two years. When children were tested again at the end of grade one, the researchers again found that there were no significant differences between treatment and control group children in terms of achievement. By grade two, however, the control group children actually *outperformed* the treatment group children on most of the achievement measures.

The researchers' takeaway from these findings is "that the term pre-k or even 'high-quality' pre-k does not convey actionable information about what the critical elements of the program should be". They note that the findings, though disappointing to early childhood advocates, should be discussed with honesty and straightforwardness. As with any other well-designed study, results should be taken, but taken with some caution:

> [N]o single study, no matter how carefully done, produces definitive results. But we would also note that, just because the results of an evaluation do not support a currently popular view, it does not mean that they are wrong (Campbell, 1969; Cook, 2003).

Preschool Program Quality and Implementation

The noted gains are greatest for high quality preschool programs (Nores et al., 2015; Yoshikawa et al., 2013). High quality programs are more likely than lower-quality programs to have lasting impacts on children. Higher-quality programs are distinguished by being able to provide children with more individualized attention from more responsive and more highly trained and credentialed staff. Higher-quality programs also tend to be more attractive to potential teachers, who may receive more professional development, compensation, and support than they would in a lower-quality program.

Research shows different impacts for different quality levels of preschool, and suggests that positive impacts are specific to high quality preschool experiences (Nores et al., 2015; Yoshikawa et al., 2013).

> Higher-quality preschool programs have larger impacts on children's development while children are enrolled in the program and are more likely to create gains that are sustained after the child leaves preschool. (Yoshikawa et al., 2013)

Positive impacts from high quality preschool programming range from increases in individual levels of academic achievement (and decreases in special education service needs) to widespread societal improvements. Put simply, "quality preschool education is a profitable investment" (Yoshikawa et al. 2013). Because "later skills—in schooling and employment—build cumulatively upon […] early skills," an "investment in early learning and development is more efficient and can generate more benefits than costs relative to investment later in the life cycle." For each dollar spent on preschool, Yoshikawa et al. (2013) estimate a return on investment of between three and seven dollars.

Gains are greatest for high quality preschool programs because such programs are able to provide many desirable features, including but not limited to:

- Smaller class sizes;
- Lower student-teacher ratios (and, as a result, warmer and more responsive teacher-student interactions);
- Higher teacher qualifications and credentials;
- Higher teacher and staff pay; and
- Greater professional support for teachers and staff (Yoshikawa et al., 2013).

These features are quantifiable and can be influenced by public policy.

Early Childhood Education Resources

This section of the literature review describes the research on the quantifiable resources associated with high quality early childhood education.

Smaller Class Sizes and Student-Teacher Ratios

Lower student-teacher ratios can be beneficial for students by allowing more time for individual attention, thereby strengthening trusting relationships, increasing interaction time, and providing more time for teachers to assess and address students' individual learning goals and challenges. Further, smaller classes reduce the time and effort spent on classroom management (Barnett, Schulman, & Shore, 2004).

Research indicates that smaller class sizes are associated with more individualized care and more developmentally appropriate activities than larger class sizes (Howes et al., 1992). Another study found that early childhood education programs with larger student-teacher ratios had fewer child-initiated verbal activities with caregivers (Palmerus, 1996). A more recent study also found that well-trained teachers with lower student-teacher ratios provided better teacher-to-student interactions (Burchinal, et al, 2010). In a comparison of states with varying student-teacher ratios limited by licensing

requirements, one study found that teachers were more effective when the ratio was 8 to 1 instead of 9 to 1 (Howes et al., 1992). The student-teacher ratio is the most significant determinant of quality even when other quality factors are controlled (Helburn et al., 1995). In terms of developmental outcomes, children in classes with lower student-teacher ratios have better language skills and are more likely to be cooperative and less likely to be hostile in interactions (Vandell & Wolfe, 2000).

While research indicates that lower student-teacher ratios are important, it does not precisely specify the most appropriate ratio. Both the Abecedarian Project and the High Scope Perry Preschool Project employed student-teacher ratios of 6 to 1 for preschoolers. These ratios were not compared to other ratios, but because of the rigorous nature of the studies, these ratios are often perceived as the "gold standard." However, as researchers point out, there is a cost associated with significantly lower student-teacher ratios that must be weighed against the benefits. Additionally, other factors such as teacher qualifications and group size have also been linked to developmental outcomes and should be considered in the design of early childhood education settings (Bennett, 2008; Fiene, 2002).

A number of education organizations have reviewed the research and provided their own recommendations. These organizations include national accreditation organizations, state and regional coalitions, and state licensing boards. Several of these recommendations are presented below, in Table 4. With the exception of the Florida licensing ratios, all of the recommended student-teacher ratios range from 9 to 12 for three- and four-year olds and the class size ratios range from 18 to 20. Using the recommendations from NAEYC, a classroom of four-year olds should have no more than 20 children and be staffed by two teachers, for a maximum student-teacher ratio of 10:1.

Table 4: Student-Teacher Ratios Recommended by Education Organizations

	Maximum Student-Teacher Ratio (students per teacher)		**Maximum Class Size**	
	3-Year Olds	*4-Year Olds*	*3-Year Olds*	*4-Year Olds*
National Association for the Education of Young Children (NAEYC)	9	10	18	20
National Early Childhood Program Accreditation (NECPA)	10	10	20	20
Accredited Professional Preschool Learning Environment (APPLE)	9	11	20	20
National Accreditation Commission on Early Care and Education Programs	9	12	18	22
Early Learning Coalition of Southwest Florida (5 Star Quality Level)	9	10	18	20
Florida Licensing Ratios	15	20	-	-
Florida Voluntary Pre-kindergarten (VPK)	-	12	-	20

Source: Florida Department of Children and Families, 2016

Teacher Qualifications

Research documents the importance of teacher qualifications in educational quality and student outcomes. Teachers with more formal education and more specialized training are more likely to be stimulating and supportive of children (NICHD Early Child Care Research Network, 1996; Phillipsen et al., 1997; Berk, 1985; Howes, 1983, 1997). These teachers are also more likely to exhibit effective teacher behavior (NICHD Early Child Care Research Network, 1996; Kontos & Wilcox-Herzog, 2003). In a nationwide study, researchers found that group size and student-teacher ratios were stronger predictors of process quality for infants, whereas caregiver educational background and training were stronger predictors of quality for preschoolers (NICHD Study of Early Child Care, 2000). Preschoolers in classrooms with a teacher with at least an associate's degree tend to outperform other children on cognitive assessments and display both better language skills and more persistence (Vandell & Wolfe, 2000).

One study using a nationally representative sample found that only college-level education for preschool teachers was associated with effective teaching practices (Howes, et al., 1992). Nationwide, only 45 percent of all preschool teachers working with children age three to five across the United States have bachelor's degrees (U.S. Department of Education, U.S. Department of Health and Human Services, 2016).

National accreditation organizations have used the research to make recommendations about teacher credentials. NAEYC, NAC, and, APPLE all recommend a minimum of an associate's degree. The National Association for Family Child Care (NAFCC), recommends training specific to family child care, but does not specifically require educational levels above the high school diploma.

Compensation

Research confirms that there is an association between teacher compensation and preschool quality (Howes, Phillips, and Whitebook, 1992; Scarr et al., 1994). Scarr et al. (1994) reported teacher wages to be the single best predictor of quality. Other research determined that the wages of lead teachers predicted scores on preschool quality rating instruments (Phillipsen et al., 1997).

The U.S. Department of Education and the U.S. Department of Health and Human Services published a report in 2016 documenting the importance of a qualified early childhood workforce and the low levels of compensation currently provided to these workers. According to this report, the annual median wage for Florida preschool teachers is $24,240 (U.S. Department of Education, U.S. Department of Health and Human Services, 2016). This is the 8th lowest preschool teacher wage of any state in the nation. Elementary teachers in Florida earn 47 percent more than preschool teachers (U.S. Department of Education, U.S. Department of Health and Human Services, 2016).

Low compensation makes it challenging to recruit and retain staff with more experience and education (U.S. Department of Education, U.S. Department of Health and Human Services, 2016). Evidence indicates that centers with higher wages and lower teacher turnover are likely to provide more positive interactions between teachers and children, and more developmentally appropriate activities for

children (Whitebrook, Phillips, & Howes, 2014). Wages, working conditions, and staff turnover are key factors that have an impact on preschool quality and student outcomes (Helburn et al, 1995; Howes, Phillips, & Whitebook, 1992; Phillips, et al., 2000).

Professional Support (Ongoing training)

While a number of studies indicate that ongoing training is important for improving educational quality, there is little rigorous research on the type and quantity of training likely to impact preschool educational quality or student outcomes.

Preschool Program Intensity

Evidence shows that there are significantly different impacts for part-day versus full-day preschool programs. Half-day programs, while beneficial, tend to have a smaller impact than more time-intensive full-day programs.

The Chicago Child-Parent Center Program (CPC) is one example of a half-day program that produced smaller effects than full-day programs. The CPC study, which started in the 1980s, investigated the impacts of part-day preschool for around 1,000 three- and four-year-olds from lower-income households. The CPC program promoted high quality by, among other things, (1) ensuring reasonable student-teacher ratios, (2) requiring teachers to hold college degrees and preschool certifications, (3) providing professional development for staff, (4) using a structured curriculum, (5) encouraging parental participation, and (6) providing free meals for students.

CPC produced positive cognitive, academic, and behavioral outcomes, but its positive effects on students were smaller than the effects seen in other renowned studies of preschool impacts, such as the HighScope Study and the Abecedarian Study. The HighScope Study and the Abecedarian Study are two frequently cited randomized control trials (RCTs) of preschool's impacts on children from lower-income households. In both studies, the preschool programs under scrutiny were more time-intensive than the part-day CPC program. In the HighScope Study, children attended half-day classes five days per week and also received one-on-one, in-home tutoring once per week (adding educational hours). In the Abecedarian Study, children attended full-day centers for eight hours per day.

Another example of a half-day program producing smaller effects than a full-day program can be found in a Robin et al. (2006) RCT study. The researchers assigned four-year-olds from low-income backgrounds to either full-day preschool (eight hours per day for 45 weeks) or half-day preschool (2.5 to three hours per day for 41 weeks). The preschool programs, aside from differences in the lengths of their school days, were "quite similar: all had teachers with college degrees, a low ratio of children to teachers, and used the same curriculum" (Robin et al., 2006). The researchers found that children who received full-day preschool outperformed their half-day preschool peers in vocabulary and math in follow-up tests at the end of kindergarten and at the end of grade one. The authors further noted:

> Results of this study indicate that even students who are far behind at entry to preschool can develop vocabulary, math, and literacy skills that approach national norms if provided with extended-duration preschool that maintains reasonable quality standards.

Compared to half-day preschool, full-day preschool offers benefits for families and parents. Sending children to full-day preschool can free up time for parents to pursue their own education and/or careers. It can also increase access to preschool for families who might not be able to enroll their children unless the preschool is full-day (Reynolds et al., 2014; Workman, Rooney, Palaich, & Brown, 2015).

The literature largely suggests that "the most intensive, earliest starting and longest lasting programs" provide the greatest benefits of any type of preschool (Robin et al., 2006; Barnett, 1998). Indeed, a plethora of researchers have provided support for more preschool, in terms of hours per day, days per school year, and/or years of school:

> [R]esults from research conducted with model preschool programs such as the Abecedarian Project (Campbell & Ramey, 1994), the Chicago CPC program (Reynolds, 1993), and the HighScope Perry Preschool Project (Schweinhart, Barnes, Weikart, Barnett, & Epstein, 1993) and numerous short-term studies provide some support for an "increased intensity and duration" hypothesis that longer lasting interventions are more effective for disadvantaged children (Frede, 1998; Robin et al., 2006).

Other researchers, including Clark and Kirk (2000) and Gullo (2000) have also found that full-day preschool creates positive academic and social results.

A study published in *JAMA* in 2014 looked at a nonrandomized, matched group cohort of children who had been enrolled in CPC either full-day (seven hours) or half-day (average of three hours). Nearly all of the children studied came from low-income backgrounds and were racial minorities. Researchers used the readiness standards outlined in the Teaching Strategies GOLD (TS GOLD) Assessment System to evaluate the effects of half-day versus full-day preschool on children's school readiness and attendance and parents' levels of involvement in their children's educations. Children's school readiness was assessed at the end of preschool in the assessment objectives of TS GOLD: socio-emotional; physical; language; cognitive; literacy; mathematics; science and technology; social studies; the arts; and English language acquisition. Researchers found that "a full-day preschool intervention was associated with increased school readiness skills in 4 of 6 domains assessed, attendance, and reduced chronic absences compared with a part-day program" (Reynolds et al., 2014). Children who attended full-day preschool scored higher than children who attended half-day preschool on the TS GOLD domains of social and emotional development, language, math, physical health, and total score. Full-day children had higher attendance rates and lower chronic absence rates. There were no noted differences in parental involvement (Reynolds et al., 2014).

The importance of preschool is well-documented in the literature. Preschool education may increase student academic outcomes and reduce the achievement gap. Lower student-teacher ratios, higher education (along with compensation that aligns with education level), and extended preschool duration are all factors that can have an impact on preschool quality and student outcomes.

III. Methodology

This section of the report describes the methodology used in this study to calculate the costs per student necessary to prepare all students for kindergarten. It provides an overview of the professional judgment process and describes the standards-setting panel and assumptions shared with and by the resources panels. This section also provides details on the different resource panels as well as the structure of the discussion in the resource panels.

The primary method used in this study is the professional judgment approach. This approach relies on the experience and expertise of educators to specify the resources necessary to meet a set of standards. The professional judgment approach is the most appropriate methodology for this study because it asks those with the best understanding of student needs to identify the resources required to meet those needs. Resources included in this study are applicable only to the region of southwest Florida and should not be generalized to other regions of the state or country.

The professional judgment process relies on the expertise and judgment of panelists. Not all panelists may have had prior experience in a preschool *with the quantity of resources they are recommending*. Their recommendations provide no guarantee that the specified resources will result in the goal of preparing all students for kindergarten. Panelists' judgments may be biased toward more resources because their preschools would benefit from additional resources. In order to prevent overestimation of resources, APA used the early childhood education research presented in the literature review to constrain panelists' resource estimates.

While early childhood education programming can begin during infancy, educational resources for children age birth to two years are significantly different in both type and quantity from ECE resources for three- and four-year olds. APA, in the early stages of this study, recommended examining birth-to-two resources in a separate study. The Future Ready Collier's Early Learning Workgroup agreed with this recommendation, and therefore, this study focuses solely on three- and four-year olds.

Standards-setting

To undertake the professional judgment approach in this study, it was first necessary to identify the standards children and preschools must meet in order to prepare all students for kindergarten. At the beginning of this study, there was no commonly-shared consensus on kindergarten readiness standards, either in the research or in policy in Florida. Thus, it was necessary to achieve consensus on what was meant by *kindergarten readiness* in southwest Florida prior to the beginning of the costing out process.

The standard setting process began with four phone interviews with those knowledgeable about ECE standards in Florida. The interviewees included the following participants:

- Angela Anderson, Curriculum Director at Childcare of Southwest Florida;
- Susan Block, CEO, Early Learning Coalition of Southwest Florida;
- Alisa Ghazvini, Executive Director, Association of Early Learning Coalitions; and
- Kelly Roy, Professor and Coordinator of Early Childhood Education, Florida Southwestern State College School of Education.

There was little agreement between interviewees on a single set of standards and how to measure them, so APA expanded its pool of experts in order to identify a workable standard. To that end, APA facilitated an in-person meeting with 11 individuals involved in ECE in southwest Florida to build consensus on the standard. This panel included two of the original four interviewees (Angela Anderson and Kelly Roy) and the following additional individuals:

- Kristi Biffar, Early Childhood Specialist Supervisor, Early Learning Coalition of Southwest Florida;
- Paul Conklin, Executive Branch Director, Greater Naples YMCA;
- Tim Ferguson, Executive Director, Grace Place for Children and Families;
- Isabel Garcia, Associate Executive Director/Head Start Director, Redlands Christian Migrant Association (RCMA);
- Beth Hatch, Strategic Initiatives Coordinator, Naples Children & Education Foundation;
- Megan Just, Senior Research Analyst, Florida Southwestern State College School of Education;
- Dawn Montecalvo, President, Guadalupe Center;
- Maggie Stevens, Principal, Lee County School District Early Childhood Learning Services; and
- Maureen Ungarean, Director of Early Learning Programs, Collier County Schools.

During the standards-setting panel, the participants agreed that it was important for all children to be considered ready for kindergarten along five domains of development. These domains and aligning components and standards are described in detail in the *Florida Early Learning and Developmental Standards for Four-Year Olds.*[1] Participants also agreed that progress towards these standards could be measured by assessments such as Teaching Strategies Gold (TS Gold)[2], HighScope[3], or Galileo[4] assessments.

[1] See http://flbt5.floridaearlylearning.com/BT5_Uploads/feldsfyo.pdf
[2] See http://district.ops.org/Portals/0/CurrandLearn/Elementary/GOLD%20Objectives%20and%20Dimensions-English.pdf [3] See http://www.highscope.org/Content.asp?ContentId=78
[4] See http://www.ati-online.com/

The domains are presented below along with a list of components associated with each domain:

1. Approaches to learning
    a. Eagerness and curiosity
    b. Persistence
    c. Creativity
    d. Planning and reflection
2. Cognitive development and general knowledge
    a. Mathematical thinking
    b. Scientific inquiry
    c. Social studies
    d. Creative expression through the arts
3. Language, communication, and emergent literacy
    a. Listening and understanding
    b. Speaking
    c. Vocabulary
    d. Sentences and structure
    e. Conversation
    f. Emergent reading
    g. Emergent writing
4. Physical development
    a. Health and wellness
    b. Self-help
    c. Gross motor development
    d. Fine motor development
5. Social and emotional development
    a. Self-regulation
    b. Relationships
    c. Social problem solving

Within each domain and component, there are standards. Within each standard, there are related skills (including benchmark skills), teacher tips (with examples), and environmental considerations (including supportive instructional strategies).

In addition to these child outcomes standards, participants also believed that in order for ECE providers to help children achieve developmental standards, additional input standards should also be considered. These included considerations such as professional development, teacher support, working conditions, compensation, recruitment and retention, family engagement, family communication, outdoor space, materials, health and safety, technology, and teacher preparation. Participants in the standard-setting panel also suggested that the Classroom Assessment Scoring System (CLASS) could be used to assess teacher ability to help students attain the standards. Panelists also agreed that student differences such as language and special education should be considered when conducting the cost study.

The standards presented in this section were used in the introduction to each subsequent resource panel. APA presented and described these standards to panelists (in Spanish when necessary) and asked panelists to determine the resources necessary to achieve the standards. The input standards used in this study are presented in Appendix B.

Professional Judgment Panels

The goal of a professional judgment process is for experienced educators, in this case preschool educators, to agree on the types and quantities of personnel and non-personnel resources necessary to achieve the identified standards. For personnel resources, participants work to agree on how many of each personnel type (such as lead teacher, director, or cook) are necessary and what credential(s)/education levels are necessary in order to enable students to achieve the standards. For non-personnel resource categories (such as educational supplies, food, or office supplies), participants discuss the actual dollar amounts needed to purchase each specific resource.

In southwest Florida and across the nation, early childhood education is provided in a variety of settings. Most children are served in licensed centers, as these centers have the largest capacities. In southwest Florida, enrollment capacities in centers range from eight students to 600 students. Students in centers are typically served in more than one classroom, each with one or more teacher, and are often grouped into different classrooms based on age or stage of development.

APA's previous ECE cost analysis experience suggests that contexts, supports, and regulations can differ for different provider types and in different settings. Center-based preschool types include public centers operated by school districts, Head Start centers, and private community preschools. In order to explore the unique contexts in these different kinds of centers, APA conducted three in-person panels with representatives from southwest Florida centers. APA grouped school-district and Head Start programs into one panel because these centers both receive significant public funding and are thus subject to different regulations than private centers. APA also conducted one panel with educators from private centers and also a panel with educators from rural centers. Southwest Florida has a significant population from rural communities and it was important to capture this unique context.

In addition to the three in-person panels with preschool center educators, APA also conducted one in-person panel with home-based preschool providers. Home-based preschool providers in southwest Florida may be licensed or non-licensed (often called family, friend, and neighbor care). Licensed large family child care home providers can enroll up to 12 students (based on their license capacity) and often serve children from birth to the year before kindergarten in one classroom.

Each of the four in-person resource panels (three center-based and one home-based) included 7 to 11 directors, specialists, coordinators, and lead teachers representing each of the provider types described above. Each panelist represented one or more of the five southwest Florida counties included in the study. Participant names and organizations are listed in Appendix A.

In each resource panel, APA facilitators asked the group of participants to determine the resources for a preschool with a particular set of characteristics to meet the kindergarten readiness standards, and then

to adjust these resources for different preschool circumstances. Panelists were asked to collaboratively quantify the resources sufficient to meet the standards using a modified consensus approach. The resource panels were reminded to be as efficient as possible in resource allocation when estimating resources. This guidance helps to prevent an overstatement of needed resources.

Participants were asked to adopt a set of assumptions about the preschool while making resource decisions:

1. The preschool can attract and retain qualified personnel and it can employ people on a part-time basis if needed;
2. The representative center or home provider has sufficient space to meet the requirements of the preschool program;
3. There is no need to consider the source of revenues to pay for the preschool program; and
4. Any new resources, programs or services that are identified will be implemented efficiently and effectively.

While not all of these assumed conditions are currently in place across preschool settings, the assumptions are necessary in order for panels to identify ongoing resource needs separate from issues of hiring abilities, capital, or revenue restrictions. Closely following these assumptions further limits the over-identification of resources due to diseconomies of scale or unnecessary duplication of programs.

Each panel was asked to determine resources for a representative preschool with a particular set of characteristics. Specifically, each center-based panel was asked to estimate resources for a preschool with a total enrollment of 100 kids: 38 three-year olds and 62 four-year olds. They first estimated resources for a student population with no identified special student needs, such as being at or below the poverty level. This allowed for the identification of a base level of resources that is needed to serve students regardless of need. The panelists then adjusted these resources for a preschool where 25 percent of the children were at or below the poverty level and then finally adjusted further for a preschool where all of the children were at or below the poverty line.

The home-based provider panelists were first asked to estimate resources for a home provider with 6 children: 2 three-year olds and 4 four-year olds. The panelists then adjusted these resources for a smaller home provider with 2 children: 1 three-year old and 1 four-year old and then adjusted resources again for a home provider with 10 children: 4 three-year olds and 6 four-year olds. Home providers did not differentiate their students according to relative poverty level, since the vast majority of students at the participating providers were from low-income families. Thus, the home-provider panel estimated resources for a home preschool serving six three- and four-year olds, all in poverty, and then adjusted based on a preschool with two children and a preschool with 10 children, again all in poverty.

Table 5: Student Enrollments for Home Panels

Age Group	6 students	2 students	10 students
PreK 3-year olds	2	1	4
PreK 4-year olds	4	1	6

Initial Resource Categories

Once panelists understood the professional judgment process, they began to estimate the resources required across a number of resource categories. These resource categories differed for center and home providers and were informed by the categories used in the Provider Cost of Quality Calculator (PCQC). The PCQC is an online cost model tool that helps users estimate the program-level costs of implementing early care and preschool education at different levels of quality. State leaders can use the tool to determine the size of gaps between the cost of producing quality of a given level and the revenue sources available to support providers. Prospective preschool providers can use the PCQC to estimate operating costs before they open a new program. The PCQC is not necessarily a budgeting tool for early childhood programs, but does contain all of the major cost categories that appear in preschool budgets. The PCQC was developed through a partnership of APA and Anne Mitchell at the Alliance for Early Childhood Finance. The tool was informed by research and was closely reviewed by and pilot tested by early childhood policymakers across the nation. This tool contains a list of resource categories that are relevant to both centers and home-based providers. Table 6 presents these resource categories:

Table 6: Resource Categories in the PCQC

Personnel: FTE and Compensation	Centers	Home-based providers
Director	X	X
Education Coordinator	X	
Classroom Teacher	X	
Teacher Assistant	X	X
Administrative Assistant	X	
Health Consultant	X	

Non-personnel	Centers	Home-based providers
Per-child costs		
Food & food prep	X	X
Kitchen supplies	X	X
Education supplies (arts and crafts, toys, books, games, consumable materials for children)	X	X
Education equipment	X	X
Office supplies (pens, postage, printing, paper, computer software)	X	X
Office equipment	X	
Advertising	X	X
Child assessment system	X	
Per-classroom costs		
Rent/Lease	X	X
Utilities (heat, lights, water, sanitation, security, snow removal, yard/grounds service)	X	X
Repairs and maintenance (supplies for cleaning, or costs directly for child care including cleaning and exterminating fees)	X	X
Per employee costs		
Consultants/Training	X	X
Annual contribution to benefits (dollars per staff)	X	
Workers' compensation insurance	X	X
Unemployment insurance	X	X
Disability	X	
Per-site costs		
Telephone & Internet	X	X
Audit	X	
Legal & professional fees (accountant, payroll service, tax prep, credit card processing)	X	X
License and Permits	X	X
Vehicle expenses		X
Depreciation (equipment)	X	X
Building Insurance	X	X
Insurance (liability, accident)	X	X
Interest (paid on debt)	X	X
Professional membership dues and subscriptions	X	X

Panel participants used these sets of resource categories as starting points for determining necessary resources. Participants were also encouraged to add additional resource categories during the panels if they believed the additional categories were necessary to help children become kindergarten ready.

Follow-Up Webinars and Interviews

After the conclusion of the initial professional judgment panels, APA needed additional information in four areas. First, APA heard during the four in-person resource panels that the study should include information on the additional resources necessary for special needs students. Second, only the rural center panel had been able to identify non-personnel costs, so this information still needed to be gathered for the other preschool settings. Third, APA needed to collect information on compensation in order to calculate personnel costs. Finally, APA needed to collect data on existing funding for early childhood education in the region.

As a result, APA held two webinars to collect information on the first two items (special needs and non-personnel costs). Participants in these webinars were administrators of ECE programs in southwest Florida. In both of these webinars, participants were asked to identify resources for the hypothetical 100-student preschool center with 38 three-year olds and 62 four-year olds described previously. In both the special needs webinar and the non-personnel webinar, participants were asked to review and consider the resources that had already been identified as necessary by the previous panelists. Again, these procedures were designed to eliminate an over-estimation of resources.

The special needs panelists estimated that 10 percent of students, or an average of 10 students in a preschool with 100 students, are likely to be eligible for special education services. While these children are often served in district-operated centers, the panelists noted that they are also sometimes served in private centers due to parent choice or the inability of public schools to adequately serve student needs. Thus, resources for special education students were identified for both district-operated/Head Start centers and private centers. Participants in the special needs panel also added a number of resource categories that were unique to special education. The special needs panel did not specify additional resources for English language learners (ELL) students. They indicated that the adjusted resources for student poverty would be sufficient to educate ELL students as well.

The non-personnel panel reviewed the non-personnel resources specified by the rural center panel and the resource recommendations from the PCQC. This panel modified some of the initial non-personnel resource recommendations and filled in some missing non-personnel resource costs.

Lists of all of the participants in both webinars can be found in Appendix A.

Additional Data Collection

Data on adequate compensation was collected through an online survey developed by APA. Survey participants included a total of 10 directors, principals, CEOs, and CFOs of ECE organizations in southwest Florida. This survey asked participants to specify what compensation would be necessary to recruit and retain high quality staff.

A second online survey was conducted after the original panels to further explore the dosage of preschool necessary to prepare students for kindergarten. The survey asked participants to identify necessary preschool dosage for preschools with no student poverty, schools with 25 percent of students in poverty, and schools with 100 percent of students in poverty. This survey was sent to 40 of the cost

study participants who contributed to the panels and/or to the other survey. The results of this survey were used to supplement professional judgment panel work and are presented in Appendix C.

Finally, APA identified four primary sources of public funding for ECE in Florida: Voluntary Pre-kindergarten (VPK), (Florida) School Readiness, federal Head Start, and the United States Department of Agriculture (USDA) meal reimbursement program. This report uses 2015-16 enrollment and funding amounts from these sources to estimate existing per student funding for Florida ECE. Sources of this data are documented in the results section. APA interviewed Susan Block, CEO of the Early Learning Coalition of Southwest Florida, and Carol Conway, the CEO of the Child Care of Southwest Florida, Inc., to confirm that no major source of funding was overlooked.

It is likely, however, that individual providers have access to other sources of funding. There may also be local community funding for preschool in some communities for families meeting particular eligibility requirements. Nonprofit and private funding and support is also likely to be available locally, although this funding tends to be minor and is not widely available. One provider noted that preschool providers have to compete with each other for these limited and more restricted funding sources.

Costing Out Identified Resources and Calculation of Funding Gap

Once all data collection was complete, APA used the panelist recommendations on resources, recommended educational levels, and the compensation information to calculate total costs. These cost figures were then compared to available funding from the existing sources described above.

IV. Results

This chapter presents the estimated resources and resulting costs necessary for all children in southwest Florida to be prepared for kindergarten. The section begins with a description of critical determinations that panelists made during the course of the analysis that provide the foundation for some resources and explain how other resources were included or not included in this study. It goes on to describe personnel and non-personnel resources for centers and homes. This is followed by a discussion of compensation and then overall costs for both centers and home-based preschool providers.

Key Determinations

Each of the four in-person professional judgment panels agreed that in order to prepare children for kindergarten, children would need extended learning time. Participants agreed that an adequate amount of time would be six hours per day of instructional experiences. These six hours could take place consecutively or could be broken up or bookended by meal times, nap times, and/or unstructured play. The district-operated/Head Start center panel also recommended extending the school calendar to a year-round schedule. Many private centers already operate preschool year-round. This study determined costs for a year-round (12 month) preschool providing instructional experiences for six hours per day. Accounting for 12 paid holidays, a year-round school schedule is 248 school days.

After the panel work was completed, APA conducted an online supplemental survey with study participants to provide more nuance on the appropriate dosage of preschool for each age and preschool poverty rate. The results described in Appendix C offer alternative costs to the primary analysis in this report. They do not however replace the recommendations of the panels that were reached through consensus of more than 40 panel participants.

Panel recommendations to extend instructional time through an increase in the school day and the school year are supported by the research on early childhood education. Research indicates that extending preschool instructional time (hours in the day and months in the year) is likely to help prepare students for kindergarten. Both increases in hours and months have implications for facilities. The operating costs are included in this study. One-time expenses for building or major renovations are not included in this analysis[5]. If year-round preschool increases the number of slots necessary for children, this may require additional facility space that is not estimated in this study.

Another key determination made in this study is that special education students are primarily served in center settings, so resources were not identified to serve these students in home settings. While there are exceptions, due to their small facility size and minimal staff, many home-based providers do not have the ability to meet the needs of these students. Resources are included for assessing children enrolled in home-based preschools and these assessments may help to identify those in need of special education. These students may then be able to access the appropriate resources in center settings.

Finally, this study does not include the costs of transporting students to and from preschool. Transportation funding is not typically included in per student program costs, as transportation services are often funded separately or provided by families. As such, the research team has not included transportation costs in the cost of preschool in this study. Florida currently funds transportation for its K-12 program, special education students, and students participating in a state preschool program through a categorical funding formula outlined in Florida Statutes 1011.68. Most private preschool programs are excluded from participating in this transportation funding. A separate study could examine how a lack of bus transportation is a barrier to accessing preschool, particularly in rural communities and for special education students.

Resources Identified

The resources identified in this study include personnel and non-personnel costs. These personnel and non-personnel resources are first presented for centers and then home=based preschool providers.

[5] No costs for purchasing or building new facilities are included in the estimates provided. Providing such estimates would require a strategy for allocating the additional children served to a particular provider type and estimating the cost of additional space for those types of providers. The estimates provided in this study do include the cost of ongoing repair and maintenance that are routine and necessary.

Resources for Centers

Personnel: Student-Teacher Ratios

Although there are a variety of staff positions needed in centers, overall costs in centers are driven largely by student-teacher ratios and class sizes. The literature on early childhood education documents the importance of lower student-teacher ratios for improving educational quality and student outcomes. Each of the panels in this study recommended that there be at least two teachers per classroom, a lead teacher and a support teacher. A specified student-teacher ratio of 9 to 1 would mean a class size of 18 with a lead and support teacher in the classroom.

In this study, the district-operated/Head Start center panel and private center panel each specified the same student-teacher ratios and class sizes. At the base level and at the 25 percent poverty level, these panels agreed that a student-teacher ratio of 8 to 1 was necessary for three-year olds and a ratio of 9 to 1 was necessary for four-year olds. The rural panel recommended slightly higher ratios, with ratios of 9 to 1 for three-year olds and 10 to 1 for four-year olds. All of these panel recommendations are in line with what is suggested by the research and accreditation organizations.

At centers with 100 percent of students in poverty, all of the panels recommended student-teacher ratios of 6 to 1 for three-year olds and 7 to 1 for four-year olds.

Table 7, below, presents the student-teacher ratios recommended by the panels.

Table 7: Student-Teacher Ratios Recommended by Panels for Centers

	Base Level		
	District Centers	**Private Centers**	**Rural Centers**
Student-teacher ratios	**Children per adult**		
PreK 3-year olds	8	8	9
PreK 4-year olds	9	9	10
Maximum class size	**Children per class**		
PreK 3-year olds	16	16	18
PreK 4-year olds	18	18	20
	25% Poverty		
	District Centers	**Private Centers**	**Rural Centers**
Student-teacher ratios	**Children per adult**		
PreK 3-year olds	8	8	9
PreK 4-year olds	9	9	10
Maximum class size	**Children per class**		
PreK 3-year olds	16	16	18
PreK 4-year olds	18	18	20
	100% Poverty		
	District Centers	**Private Centers**	**Rural Centers**
Student-teacher ratios	**Children per adult**		
PreK 3-year olds	6	6	6
PreK 4-year olds	7	7	7
Maximum class size	**Children per class**		
PreK 3-year olds	12	12	12
PreK 4-year olds	14	14	14

Upon review of these resources, APA did not find a compelling research rationale for higher ratios in rural centers at the base level or 25 percent student poverty level. Therefore, the analysis relies on the same student-teacher ratios and class sizes for all three center types, as presented below in Table 8.

Table 8: Student-Teacher Ratios Used in Analysis (All Centers)

	Base Level	25% Poverty	100% Poverty
Student-teacher ratios	**Children per adult**		
PreK 3-year olds	8	8	6
PreK 4-year olds	9	9	7
Maximum class size	**Children per class**		
PreK 3-year olds	16	16	12
PreK 4-year olds	18	18	14

Personnel: Staffing FTE

The lead teacher and support teacher staffing quantities (FTE) were driven by the student-teacher ratios identified in the preceding section. For other preschool staffing positions, the panels were relatively consistent about the number of staff they believed to be necessary to enable all children to meet standards and be prepared for kindergarten. For example, at the base level (no student poverty), each panel specified the need for 1.0 FTE director, 0.5 FTE curriculum director, 1.5 FTE janitorial and maintenance staff, 1.0 FTE cook, and similar FTE for assistant/substitutes, and floating teachers.

The rural panel however estimated fewer resources than the other panels for family support FTE at the base level, and for additional administrative assistant FTE across poverty levels. Both of these are support positions and these differences in recommendation may reflect structural differences currently present in rural centers. One possibility is that families in rural areas are already more engaged in their children's preschools and there is therefore less staff required to engage families. Additional administrative assistance may be helpful if, for example, rural centers are more likely to apply for grants.

Table 9 presents base level FTE recommendations from each center panel.

Table 9: FTE Resources for Centers with No Poverty or Special Education

	Base Level, 100 students		
Staffing Type	**District Operated/ Head Start**	**Private Centers**	**Rural Centers**
Center Director	1.0	1.0	1.0
Curriculum Director	0.5	0.5	0.5
Family Support	1.0	1.0	0.5
Lead Teacher	5.8	5.8	5.8
Support Teacher	5.8	5.8	5.8
Administrative Assistant	1.0	1.0	2.0
Janitorial and Maintenance	1.5	1.5	1.5
Cook	1.0	1.0	1.0
Assistant/Substitute	1.0	1.0	1.0
Floaters (daily)	2.0	2.0	2.0
Other Professional (health)	0.2	0.2	0.3
District Level Coordinator	0.5		

When the panels adjusted resources for a 25 percent student poverty concentration, they did not identify many additional FTEs. The rural panel again added fewer FTE than the other two panels. Table 10 presents additional resources beyond what would be allocated for a preschool at the base level.

Table 10: Additional FTE Resources beyond Base Level for 25% Student Poverty in Centers

	25% Poverty, 25 Students		
Staffing Type	**District Operated/ Head Start**	**Private Centers**	**Rural Centers**
Center Director			
Curriculum Director			
Family Support	1.0	1.0	
Lead Teacher			
Support Teacher			
Administrative Assistant			
Janitorial and Maintenance			
Cook			
Assistant/Substitute			
Floaters (daily)			
Other Professional (health)	0.2	0.2	0.1
District Level Coordinator			

Blank cells indicate no additional resources for that resource category

At the 100 percent poverty level in a preschool, panelists identified significant additional resources to serve these children, as indicated in Table 11. Specifically, the panels added additional teaching FTE, driven by the lower student-teacher ratios discussed in the preceding section, additional family support, and additional FTE for general support (floaters, other, and district coordination).

Table 11: Additional FTE Resources beyond Base Level for 100% Student Poverty in Centers

	100% Poverty, 100 Students		
Staffing Type	**District Operated/ Head Start**	**Private Centers**	**Rural Centers**
Center Director			
Curriculum Director			
Family Support	2.0	2.0	2.0
Lead Teacher	1.8	1.8	1.8
Support Teacher	1.8	1.8	1.8
Administrative Assistant			
Janitorial and Maintenance			
Cook			
Assistant/Substitute			
Floaters (daily)	2.0	2.0	2.0
Other Professional (health)	0.8	0.8	0.7
District Level Coordinator	0.5		

Blank cells indicate no additional resources for that resource category

As an additional note, the district-operated/Head Start centers believed that it would be important to have coordination at the district level to support a preschool of this size.

The special needs panel later identified additional resources for students in need of special education. In Florida, special education preschool students may be served in a district setting or a private center depending on the needs of the child, the ability of centers to meet their needs, and parent preference. However, the panel agreed that the types and quantities of necessary resources would differ between these two types of centers. In general, the panel believed FTE would be higher for some positions in private centers than it would be in a district-operated center. The special needs panel did not believe that special education resources would differ significantly for rural preschool centers and this study therefore does not provide estimates of special education resources specifically for rural centers.

The estimated additional FTE necessary to serve 10 special education students are outlined in Table 12.

Table 12: Additional FTE Resources beyond Base Level for 10% Special Education in Centers

	10% Special Education, 10 Students	
Staffing Type	**District Operated/ Head Start**	**Private Centers**
Special Education Teacher	0.5	1.0
Paraprofessional	0.5	1.0
Speech Therapist	0.1	0.1
Inclusion Specialist	0.1	0.1
Behavioral Specialist	0.5	0.5
Occupational Therapist	0.2	0.5
Physical Therapist	0.1	0.1
Nurse	0.2	0.1

Non-Personnel Costs

In addition to personnel resources, the panels made recommendations on non-personnel resources. There was little difference in the non-personnel resources specified for the different types of centers and this study only presents one set of non-personnel for all centers. Some non-personnel resources (such as professional development) however are contingent on the number of staff and vary accordingly based on the numbers of staff specified for each type of center.

The recommended resources are presented in Table 13, below.

Table 13: Annual Non-Personnel Resources for Centers

Center Resource Category	Annual Resources per Center
Education supplies	$10,000
Education equipment	$5,000
Kitchen supplies	$2,500
Food	$50,000
Office supplies	$2,500
Office equipment	$2,000
Costs per child of child assessment system	$1,500
Tech (software) Licensing	$1,000
Insurance (liability, accident, etc.)	$7,500
Postage	$500
Advertising	$1,000
Adaptive equipment (SpEd)	$10,000
Adaptive technology (SpEd)	$5,000
Screening and evaluation (SpEd)	$10,697
Rent /Lease	$43,200
Utilities (heat, AC, gas, electric, water, phone, Internet, trash, sewer, etc.)	$17,316
Building insurance	$10,595
Maintenance/Repair/Cleaning	$25,535
Audit	$3,000
Fees/Permits	$1,083
Per employee costs	
Professional development/Training	$200 per teaching staff
Background checks/Fingerprinting	$12 per employee

A few of these resources, such as the costs of office equipment and background checks/fingerprinting are calculated by spreading an upfront costs across more than one year. For example, panelists reported that background checks need to be completed every five years at a total cost of $61.50 per employee.

The panelists did not believe non-personnel resources would vary much by student poverty concentration level. However, the special needs panel added a few additional non-personnel resources specifically for special education (indicated in Table 13 above).

Resources for Home Providers

Home-based preschool providers are structured differently than center-based preschools and therefore incur different types and quantities of resources. For this reason, this study collected and analyzed data from home providers separately from centers. The home-based provider panel first estimated resources

for home-based providers with six enrolled students, the estimated average enrollment for these providers. Instead of adjusting for poverty, the home provider panels then adjusted for varying numbers of students served, estimating needed resources to serve two students and 10 students. The panelists believed that with these low numbers of students served, enrollment would be a larger cost driver than poverty rate.

Personnel

In contrast to centers, resources for home providers were not driven by student-teacher ratios because home provider enrollment is relatively low. Table 14, below, outlines the FTE positions recommended by the home provider panel after reviewing the list of positions from the PCQC. The panel indicated that only limited teaching staff would be necessary to help prepare students for kindergarten. Home providers specified the need for a director/owner (who also serves as the lead teacher) for a home with six or two children and a half-time cook. At 10 enrolled children, the home provider panel identified the need for a full-time cook to take on the cooking responsibilities and free up the director to interact effectively with all of the children.

Table 14: FTE Resources for Home Providers

Number of employees	10 children	6 children	2 children
Director/Owner	1.0	1.0	1.0
Cook	1.0	0.5	0.0

Non-Personnel Resources for Home Providers

Types of resources vary between home-based preschools and centers, in part because home preschool facilities serve a dual purpose of preschool and residence. The home provider panel estimated substantially different amounts of some resources than centers did. In particular, home providers recommended more than $900 for the director/owner annually for professional development, compared to $200 per teaching staff in centers.

Table 15 presents the specified non-personnel resources for home providers with different enrollments. Many of the resources do not vary by enrollment, with some exceptions such as food and supplies. Utilities may vary as water use varies with different enrollments. The physical size of a home and property is likely to impact both possible enrollment and some utility costs.

Table 15: Non-Personnel Resources for Home Providers

Home Provider Resource Category	Resources for Home Providers by Number of Enrolled Children		
	10 children	*6 children*	*2 children*
Supplies for children (arts and crafts, toys, books, games, consumable materials for children)	$4,800	$3,000	$1,200
Food (food and food-related supplies, paper goods, etc.)	$18,000	$12,000	$4,200
Cost of assessment system	$150	$100	$100
Training/professional development	$921	$921	$921
Office supplies (pens, postage, printing, paper, computer software)	$4,200	$2,100	$900
Household supplies (paper products, cleaning supplies)	$3,600	$2,400	$720
Utilities (heat, lights, water, sanitation, security, yard service)	$2,160	$1,440	$1,200
Repairs and maintenance (directly for child care including cleaning fees).	$400	$400	$400
Telephone/internet (for business use)	$1,800	$1,800	$1,800
License and permits	$60	$60	$60
Professional membership dues and subscriptions	$40	$40	$40
Substitutes for both training and appointments/time off for director and cook	$2,190	$2,190	$2,190
Fingerprinting	$37	$37	$37
Outdoor toys and equipment	$300	$300	$300
Legal & professional fees (accountant, payroll service, tax prep, credit card processing)	$300	$300	$300
Insurance (liability, accident)	$341	$341	$341
Pet vaccinations	$12	$12	$12

Compensation

During each of the panel discussions with the center and home providers, panels discussed what educational credentials were necessary for different types of staff. These discussions did not include compensation explicitly. Panelists agreed it is appropriate to align preschool staff compensation (salary plus benefits) with educational credentials. Therefore, APA used the panels to discuss educational credentials and then collected additional data on compensation through an online survey.

Staff Qualifications

Panel conversations about necessary staff qualifications were strongly impacted by participants' professional perspectives. There was some disagreement on whether bachelor's degrees were necessary for teachers or whether experience working with young children was sufficient. Rural providers also expressed concern about their ability to recruit and retain staff with bachelor's degrees. After considerable deliberation on the subject, rural providers agreed that lead teachers with bachelor's degrees and support teachers with associate's degrees would be the most appropriate credentials, a conclusion supported by the research. This conclusion also aligns with the findings from the other center panels. Higher compensation levels that align with higher education levels are also likely to improve recruitment and retention of staff with higher education for rural preschools.

Salary Data Sources

Provider Survey

The online survey was used to collect information on adequate salary and benefits for each *non-special education position within center-based preschools*. Survey participants included a total of 10 directors, principals, CEOs, and CFOs of ECE organizations in southwest Florida. This survey asked participants to provide information on existing compensation for different positions and then to specify what salary and benefits would be necessary to recruit and retain high quality staff. Benefits include health insurance and all other insurance such as disability, unemployment, FICA, etc. The compensation figures included in the cost calculations include average recommended salary and benefits.

Lead teachers and support teachers make up a large proportion of the FTE staff totals for both centers and home-based preschools. APA used data from the survey to calculate the average salaries and benefits necessary to recruit and retain lead teachers with bachelor's degrees or higher (total compensation of $51,890) and for support teachers with associate's degrees or higher (total compensation of $34,795). Directors of home-based preschools nearly always serve as the lead teacher as well as director, and thus, APA used the average salary and benefits for a lead teacher with a bachelor's degree for this position in cost calculations.

This study acknowledges the difficulty that both preschool centers in rural areas and home providers face in recruiting and retaining teachers with bachelor's and associate's degrees. Participants in the rural panel reported that it would be nearly impossible to recruit and retain teachers with bachelor's degrees to their rural communities. The home providers who participated in this study reported that they are often the only staff member, sometimes with a family member who helps with cooking and support as

needed. These home-based providers did not believe that attaining a bachelor's degree would be possible while running a full-time early childhood facility.

The literature and the private and district-operated/Head Start center panels agreed on the importance of college-educated teachers in preparing students for kindergarten. The research suggests that it is appropriate to compensate teachers at these levels regardless of location or provider type. Providing a higher salary may help providers recruit more highly qualified staff. The home-provider panel in particular identified ongoing professional development as an important resource for improving quality. If it is not possible to recruit and retain college-educated staff, it may be possible for rural providers and home-based providers to use additional resources to improve their quality by investing in ongoing training.

Bureau of Labor Statistics

The special education webinar participants reported that Florida does not provide adequate funding for special education staff in preschool, and this makes it challenging to recruit qualified staff. They believed that the national averages for most special education positions would be adequate for Florida. This study uses national average salaries from the Bureau of Labor Statistics (BLS) (from the elementary school level) for nearly every special education position. Benefits were calculated using the average benefit rates from the online survey. These salary and benefits were used as the compensation necessary to recruit and retain high quality special education staff.

Special Education Webinar Panel

Special education webinar participants explicitly specified a salary for special education teachers in district-operated and private centers that they believed was sufficient to recruit and retain high quality special education teachers. This was the one position that panel participants provided compensation suggestions for. The recommended compensation is considerably more than the compensation specified for (non-special education) lead teachers with bachelor's degrees. This reflects that special education teachers are typically more difficult to recruit and retain than other lead teachers.

Summary

All salary and benefit data is reported in this study as full time equivalent (FTE) annual compensation. Table 16 presents adequate salary and adequate total compensation as collected from the survey, the Bureau of Labor Statistics, and from the special needs panel. All of the non-special education positions use compensation data from the online survey while all of the special education positions use data from the BLS or from the special education webinar panel. Adequate compensation is the total salary and benefits necessary to recruit and retain high quality staff.

Table 16: Compensation Recommendations for Centers and Home-based Providers

Position	Adequate Salary (1 FTE)	Adequate Compensation (1 FTE salary plus benefits)
Center Director	$61,219	$73,716
Home-based Director/Lead Teacher	$41,705	$51,890
Curriculum Director	$62,000	$74,900
Family Support	$54,500	$66,661
Lead Teacher	$41,705	$51,890
Support Teacher	$26,423	$34,795
Administrative Assistant	$28,696	$37,338
Janitorial and Maintenance	$22,485	$30,951
Cook	$22,640	$30,724
Substitute (long-term)	$26,143	$34,792
Floaters (daily)	$26,143	$34,792
Other Professional	$41,705	$51,890
District Level Coordinator (District only)	$63,590	$76,569
Special Education Teacher (SpEd)	$50,000	$61,855
Paraprofessional (SpEd)	$26,870	$33,241
Speech Therapist (SpEd)	$68,150	$84,308
Inclusion specialist (SpEd)	$58,710	$72,630
Behavioral Specialist (SpEd)	$39,980	$49,459
Occupational Therapist (SpEd)	$71,470	$88,416
Physical Therapist (SpEd)	$99,740	$123,388
Nurse (SpEd)	$67,490	$83,492

These are the compensation levels (salary and benefits) used in the costing out of personnel resources.

Estimated Necessary Costs

To calculate personnel costs for each position, APA multiplied FTE for each position by compensation for that position. For example, if panelists identified the need for two lead teachers, this would be calculated by multiplying 2 times $51,890 to produce a total cost of $103,780. Then, the total amounts for each position were aggregated across positions to calculate total personnel costs for all positions in this average preschool.

Non-personnel costs were calculated by multiplying specified resources by the appropriate unit (usually staff or children) to calculate the total costs for each resource type. APA then aggregated across each resource type to calculate total non-personnel costs for the average preschool.

The final step in cost calculations was to estimate average costs per student by adding personnel and non-personnel resources together and dividing by the number of students enrolled in this average preschool (100 for centers, and 2, 6, or 10 for home providers).

This study produced different estimates for center- and home-based preschool providers. This is due to the fact that homes are structured differently than centers and often serve different numbers of students with different student demographics. High quality may look different at these different types of providers.

Costs per Student at Center-based Preschools

Table 17, below, presents annual per student base costs (no student poverty or special education) for centers to prepare students for kindergarten. These costs include both personnel and non-personnel costs.

Table 17: Estimated Annual per Student Base Costs for Centers

Center Type	Base level: No student poverty
District-Operated/Head Start Centers	$11,366
Private Centers	$10,983
Rural Centers (District or Private)	$11,075
Average Per Student Costs	$11,142

Across centers, average per student base costs are estimated at $11,142 per year, or an average of $928 per student monthly, assuming a 12-month program. Thus, a center with no students with identified needs (such as poverty or special education) should be able cover their costs at $928 per month, regardless of where the funding comes from. District-operated/Head Start centers are somewhat more expensive than private or rural centers due primarily to the district-coordinator recommended for this type of setting. The costs estimated by the rural center panel are very similar to those estimated by the private center panel. The slight cost difference is driven primarily by the extra administrative assistant recommended by the rural panel.

Table 18 presents the additional annual per student costs of serving children in poverty, at both the 25 percent and 100 percent poverty level, and of serving special education students.

Table 18: Additional Estimated Center per Student Costs for Students in Poverty or Special Education

Center Type	25% student poverty	100% student poverty	10% Special Education
District-Operated/Head Start Centers	$771	$4,375	$4,371
Private Centers	$771	$3,992	$11,250
Rural Centers (District or Private)	$52	$3,940	Not specified
Average Per Student Costs	**$531**	**$4,102**	**$7,811**

There is relatively little additional cost for a rural center with 25 percent student poverty. This is a significantly lower adjustment compared to the other provider types and is mostly because the rural panel did not specify a need for more family support staff for a 25 percent student poverty rate. At a student poverty rate of 100 percent, there is an adjustment per student of $4,102, an increase of 37 percent from the base. The adjustments for a 100 percent student poverty rate are relatively consistent across center provider types.

The adjustments for a 10 percent special education rate at district-operated/Head Start centers are much lower than the adjustments for special education in private centers. This difference is primarily due to additional FTE for special education teachers, paraprofessionals, and occupational therapists. Private centers may be less efficient at providing education for special education students than districts. Districts may have one or more FTE staff in each of these positions at a school that may be utilized when needed by the on-site preschool. A private center may need to pay for additional FTE in order to have a person on-site more frequently. Overall, the special education adjustment represents a per student increase of 70 percent over a preschool with no special education students. Special education costs were not calculated explicitly for rural centers.

The additional dollar amounts for student poverty and special education were then converted to weights. The following table presents the base costs along with these weights.

Table 19: Estimated Annual per Student Costs and Additional Weights for Center-Based Preschools

Center Type	Base-level: No student poverty	Additional Weights		
		25% student poverty	*100% student poverty*	*10% Special Education*
District-Operated/Head Start Centers	$11,366	0.07	0.38	0.38
Private Centers	$10,983	0.07	0.36	1.02
Rural Centers (District or Private)	$11,075	0.00	0.36	Not specified
Average Costs and Weights Per Student	**$11,142**	**0.05**	**0.37**	**0.70**

The weights were then used to calculate the costs of preparing students for kindergarten for varying levels of poverty and special education. Tables 20 and 21 present a few estimated costs based on varying levels of student poverty and special education. Table 20 first presents how costs would vary with student poverty rate, assuming that the special education rate of 10 percent does not vary. Table 21 then presents how costs would vary with special education rate if the student poverty rate of 25 percent does not vary.

Table 20: Student Poverty Rates and Estimated Per Student Costs in Centers

Student Poverty Rate	Estimated Per Student Costs*
0%	$11,927
10%	$11,944
25%	$12,059
40%	$12,329
50%	$12,621
60%	$13,022
75%	$13,861
90%	$15,034
100%	$16,027

*With a 10% special education rate

Table 21: Special Education Rates and Estimated Per Student Costs in Centers

Special Education Rate	Estimated Per Student Costs*
0%	$11,274
5%	$11,667
10%	$12,059
15%	$12,451
20%	$12,844

*With a 25% student poverty rate

As student poverty rates and special education rates increase, the per student costs of preparing students for kindergarten also increase. The weights allow APA to predict the costs for each county in southwest Florida. Data on the percent of children under 18 who are in poverty is available for 2015 from the Florida Office of Economic and Demographic Research for each participating county[6]. This data is presented in Table 22.

Table 22: Percent of Children Under 18 Who are in Poverty

County	Children in Poverty
Charlotte	23.3%
Collier	22.9%
Glades	33.1%
Hendry	36.4%
Lee	25.2%
Average percent in poverty	**24.7%**

Source: Florida Office of Economic and Demographic Research, 2016

The special needs panel estimated an average rate of special education at 10 percent across counties, so this rate is used in calculations of per student costs by county.

Table 23, presents the annual estimated costs per center-based preschool student, based on the cost data collected in this study, county poverty data, and a special education rate of 10 percent across counties. The per student estimates spread the higher costs of students in poverty and special education students equally across all students.

Table 23: Estimated Annual per Student Costs for Centers, By County

County	Per Student Costs*
Charlotte	$12,039
Collier	$12,035
Glades	$12,182
Hendry	$12,247
Lee	$12,061
Average per student costs	**$12,057**

* All county per student costs assume a 10 percent special education rate.

[6] This study's center-based panels estimated resources by percentages of students in poverty. Although FRPL status is often used as a proxy for low-income, FRPL status is not a precise measure of poverty. Further, FRPL status only becomes available once a family has entered the school system and applied for the free lunch program. In this case, FRPL status would have to be applied retroactively to three- and four-year old children and would be a less accurate measure than the Office of Economic and Demographic Research figure. Additionally, this study provides estimates for all children in the five counties, not just those enrolled in public schools. Because wealthier students are more likely to opt out of public schools and attend private school than low-income students are, FRPL rates in the public schools for the county may overestimate the percentage of low-income students in the county. The poverty rates used in this study are the most accurate ones that are currently available.

The average annual per student cost of preparing students for kindergarten in southwest Florida preschool centers is $12,057.

Total Costs per Student at Home-based Preschools

Home-based preschools generally would experience higher per student costs of preparing students for kindergarten than center-based preschools unless they enroll large numbers of students. Student enrollment was considered by the home panel to be a more critical cost driver than student poverty rate. Thus, adjustments were made by enrollment instead of student poverty rate.

This report presents the base enrollment level for home providers as 10 enrolled students. Weights then reflect the additional costs per student associated with enrolling fewer students. Table 24, below, presents the necessary costs per student estimated for home providers for three different enrollment levels. However, APA believes providers are more likely to enroll close to six students than 10, and therefore, six students is used as the average.

Table 24: Estimated Annual per Student Costs for Home Providers

	10 students	6 students	2 students
Home-based providers	$12,192	$15,784	$33,305

This study estimates base costs per student at $12,192 for children enrolled at home providers. Per student costs range as high as $33,305 per student for home providers enrolling only two students. Average per student costs are $15,784 for home providers. These represent the costs estimated as necessary to prepare all students in home-based preschools for kindergarten.

At very low enrollments, per student home-based provider costs are very high, especially in comparison to centers. One reason for these high costs is that these preschools do not enroll enough students to attain economies of scale. Every preschool has some fixed costs that have to be in place regardless of how many students are enrolled. At the extreme low end of enrollment, such as two students, home providers cannot be very efficient with regard to cost. Estimated costs for home providers decrease dramatically as student enrollment increased.

Another reason for high provider costs relates to director/lead teacher compensation. As previously discussed in this report, it would be very challenging for the directors of most home-based preschools to obtain bachelor's degrees, since the directors are the primary and often the only staff person on-site at the preschool. The home provider panel agreed that a Child Development Associate (CDA) Credential is sufficient to prepare students for kindergarten. This study has concluded based on the research and the feedback from the center panels that lead teachers with bachelor's degrees are more likely to successfully prepare three- and four-year olds for kindergarten. Thus, compensation for the director/owner who serves as lead teacher in home-based preschools is aligned with the compensation for a lead teacher with a bachelor's degree ($51,890).

Estimated necessary per student costs for home providers would decrease dramatically if the standard of a bachelor's degree was not included in this study. Specifically, for a home provider with 10 enrolled children, per student costs would drop from $12,192 when the director/lead teacher holds a bachelor's degree to $10,443 when a director/lead teacher holds an associate's degree, and $9,906 when a director/lead teacher has no formal educational degree.

Table 25, below, presents the base cost per student of preparing 10 students for kindergarten in a home provider setting and the additional weights associated with preparing six students and two students for kindergarten.

Table 25: Estimated Base per Student Costs and Additional Weights for Home-Based Preschools

	10 students	6 students	2 students
Home-based providers	$12,192	0.29	1.73

These weights again allow APA to estimate costs for a variety of enrollment levels. Table 26, below, presents estimated costs for home providers based on the number of students enrolled.

Table 26: Student Enrollment in Home-based Preschools and Estimated Annual per Student Costs

Enrolled Students	Estimated Per Student Costs
2	$33,305
4	$23,267
6	$15,784
8	$13,861
10	$12,192
12	$8,359

The pattern shown in this table is that the costs per student of preparing students for kindergarten go down as enrollment increases. At an enrollment of 12 students, home providers would incur costs of $8,359 per student, which is substantially lower than the average per student costs for centers. Twelve enrolled students is currently the maximum licensed capacity for large home providers (Florida Statute 402.302).

Summary of Necessary Costs

The average cost estimates calculated in this study are just that: *average.* The cost estimates represent what it takes, on average, to prepare all three- and four-year olds for kindergarten based on the professional judgment of those most involved with implementing early childhood education in southwest Florida.

For centers, the average annual base per student cost to ensure children will be kindergarten ready is estimated at $11,142. Additional costs would be incurred with increases in the percentage of students in poverty and the number of special education students served in each center. Based on the data

collected in this study, APA estimates that, based on their current county poverty rates and a 10 percent special education rate, the five southwest Florida counties, on average, would incur an overall annual per student cost of $12,057 for students enrolled in centers.

Home-based preschools are likely to incur higher costs per student than center-based preschools, on average, at an annual cost of $15,784. These costs are very sensitive to student enrollment, with much higher costs for very small home providers with as few as two children enrolled. However, home providers with 12 enrolled children may incur lower costs per student than the average center as larger home preschools appear to have significant economies of scale. Large family child care homes are licensed for a maximum of 12 students (Florida Statute 402.302) and thus it is possible that some home providers may enroll up to 12 students (of all ages).

Context for Estimates

While the estimated average annual costs of $12,057 for center preschools and $15,784 for home-based preschools to ensure preschool students are ready for kindergarten at first may sound relatively high, these numbers represent a monthly operating cost of $1,005 for centers and $1,315 for home providers. It is important to remember that these figures represent the average costs of preparing ALL students for kindergarten, including those in poverty and those in special education. Preschools that serve higher income populations may be able to cover these costs through tuition charged to families. In some states, tuition amounts ranging from $1,005 to $1,315 would not be unusual at high quality preschools in wealthier communities. Parents who can afford to do so are often willing and able to pay for what they perceive to be high quality care.

The estimated center-based per student costs in this study of $12,057 are below the average annual cost of providing center-based child care for a four-year old in Massachusetts (the highest cost state) of $12,796 (Child Care Aware of America, 2016) and similar to the other four highest cost states (Connecticut, Minnesota, Hawaii, and Rhode Island). The other states' numbers include both child care and preschool and include all levels of quality. APA concludes that the cost estimates provided in this report are reasonable estimates of what it takes to prepare all children for kindergarten in southwest Florida.

V. Conclusion: The Per Student Funding Gap

Estimated Existing Funding

One of the goals of this analysis was to estimate the gap between the costs necessary to prepare all students for kindergarten and the existing funding for early childhood education in southwest Florida. It is not possible to precisely calculate all existing sources of ECE funding in the state of Florida for three- and four-year olds, as there is no widely available data on all funding sources. It is, however, possible to *estimate* current federal and state funding for these children.

There are four major funding sources for ECE in Florida: Florida's Voluntary Pre-kindergarten (VPK) Program, the (Florida) School Readiness Program (subsidized child care), the federal Head Start program, and the U.S. Department of Agriculture (USDA)'s Child and Adult Care Food Program (CACFP). The most recent available data for the first three sources is from 2015-16. (Calculations for the USDA's program are described separately below). It is possible for students to enroll in more than one program and it is possible that funding for a student enrolled in one program may have their funding offset by their enrollment in the other program. Thus, these funding estimates are conservative.

APA gathered funding and enrollment data for three- and four-year olds for each of VPK, School Readiness, and Head Start and this data is presented in Table 27.

Table 27: ECE Funding for 3- and 4-year olds, 2015-16

Funding Source	Funding for 3- and 4-year olds	Number of 3- and 4-year olds enrolled
Voluntary Pre-kindergarten (VPK)*	$383,703,444[7]	166,522[8]
School Readiness**	$167,008,919[9]	62,280[10]
Federal Head Start***	$252,679,973[11,12]	32,353[13,14]
Total	**$803,392,336**	**261,155**

*VPK serves all four-year olds for three hours per day who attend a VPK-approved preschool. There is both enrollment and funding data for these students.

**School Readiness serves infants through school age children. While there is enrollment data on three- and four-year olds in School Readiness, there is no funding data specifically for this age group. Thus, APA estimated the funding for this age group by multiplying total funding by the proportion of served students who are age three or four.

*** Head Start serves pregnant mothers, and infants through age 5. This analysis excludes pregnancy services, infant services and Early Head Start.

Per student funding for VPK, School Readiness, and Head Start are calculated by dividing total funding ($803,392,336) by the number of enrolled children (261,155). This study's total annual per student estimate for Florida students served in *centers* is $3,076. Home-based preschools are not eligible for Head Start funding. When Head Start funding and enrollment is excluded for home providers, per student funding is $2,407 for *home providers*.

[7] (National Institute for Early Education Research, 2015a)
[8] Ibid
[9] (Florida Office of Early Learning, 2016)
[10] (Florida School Boards Association, 2016)
[11] National Institute for Early Education Research, 2016
[12] (Kids Count Data Center, 2014)
[13] National Institute for Early Education Research, 2016
[14] (Kids Count Data Center, 2014)

The fourth major source of public ECE funding in Florida (as mentioned earlier) is the USDA's CACFP. Florida uses this program to reimburse some costs of meals provided at child care centers and homes. Reimbursement rates are set nationally by the USDA and the rates vary by family need. The USDA reimburses those eligible for free meals at a higher rate and reimburses those eligible for reduced price meals at a lower rate. Child care centers and home providers also receive different levels of reimbursement. Table 28 below presents these reimbursement costs.

Table 28: USDA Daily Meal Reimbursement Rates, 2015-16

	Daily reimbursement per student for those eligible for *free* meals	**Daily reimbursement per student for those eligible for *reduced* price meals**
Child care centers	$5.57	$4.45
Home providers	$4.54	$2.18

Source: U.S. Department of Agriculture, Food and Nutrition Service, 2016

APA then used Florida Department of Education (2016) data to estimate the percent of students who are eligible for free meals and those who are eligible for reduced price meals to adjust these numbers. According to this Florida data, 43.4% of students statewide were eligible for free meals and 4.0% were eligible for reduced price meals. APA then multiplied the reimbursements for free meals (in Table 28) by 43.4% and the reimbursements for reduced meals above by 4.0% and then aggregated these products together each for child care centers and home providers. The final step was to multiply these totals by the number of days in the school year (248) to calculate annual per student costs. It is important to note that these calculations are estimates. This study calculates annual per student reimbursement estimates of $644 for centers and $510 for homes.

These annual per student estimates were then added to per student funding amounts from VPK, School Readiness, and Head Start. This study estimates per student funding of $3,720 for centers and $2,917 for home providers.

It is also likely that some preschools access private funding sources or support from non-profits such as the Redlands Christian Migrant Association (RCMA) based out of Immokalee, but these sources are not available for all students or preschools and amounts vary widely. The $3,720 and $2,917 funding amounts represent the best available per student estimates of current public funding for Florida three- and four-year olds.

Estimated Funding Gap

APA estimates that annual existing public funding is $3,720 per student for centers and $2,917 for home providers. The average annual per student costs of preparing three- and four-year olds for kindergarten in southwest Florida is estimated at $12,057 for centers and $15,784 for home providers.[15] These

[15] These estimates assume an average special education enrollment of 10 percent in centers and actual student poverty rates by county. The home preschool cost estimates assume an average of six enrolled three- and four-year olds per provider.

estimates represent the average costs of preparing ALL students for kindergarten, including children in poverty and with special education needs.

Annually, the average per student funding is $8,337 less than the costs necessary to prepare students for kindergarten in centers, and $12,867 less than the costs in home-based preschools. These numbers indicate a significant gap between existing funding and the costs necessary to prepare students for kindergarten. Private funding and non-profit support is not dependable nor equitably disbursed. It would be beneficial for key ECE stakeholders in southwest Florida to consider how to reduce the size of the gap between funding and the costs necessary to prepare three- and four-year olds in the region for kindergarten. One of the sources of funding to reduce or eliminate the gap between funding and necessary costs is parent contributions.

The United States Department of Health and Human Services requires every state to conduct and submit the results of biennial market rate surveys of child care providers, or provide alternative documentation of parent payment rates for child care services. Florida conducted a market rate survey for June 2014 to May 2015. Florida's 2015 market rate survey results are used in this study as an estimate of existing average parent contributions toward preschool or child care (Florida Office of Early Learning, 2015). Specifically, this study uses average parent pay rates for full-time care for the five counties in this study, averaged by the number of providers and provider type. However, counties must have at least four providers of a particular provider type to report data and there are many cases across counties where this criteria was not met. Glades County does not report any data. Nonetheless, the market rate survey data provides the best available proxy of average parent contributions to early childhood education in southwest Florida.

Across the counties in the study, there are total of 236 centers and 108 home providers that contributed to the market rate data on preschool. This study uses average weekly amounts and adjusts them for a 50 week calendar for non-public preschools and a 37.5 week calendar for public preschools. It is necessary then to subtract out the average School Readiness reimbursement rates for the students who received them because these amounts are not actually paid by parents and are included in the previous calculations of existing funding. Therefore, reporting School Readiness reimbursement here would double count this part of the funding. The Florida Office of Early Learning, reported in 2017 that, 49 percent of Florida children under six years old are in low-income families and of these 49 percent, 25 percent are in the School Readiness program[16]. This study uses 12.25 percent (49 percent * 25 percent) as an estimate of the percent of students receiving School Readiness reimbursements.

Across different types of centers, parents pay an average of $6,525 annually and across home-providers, parents pay an average of $5,102 per year. These are average amounts and it is likely that parents with lower incomes pay less on average than wealthier families and preschool providers in lower income communities do not collect as much in parent contributions as providers in higher income communities.

[16] http://www.floridaearlylearning.com/school_readiness.aspx

When the above estimates of parent contributions are combined with existing funding, this study concludes that centers receive an average per student amount of $10,245 ($6,525 + $3,720) and homes receive an average of $8,019 ($5,102 + $2,917). This leaves a gap of $1,812 between the costs necessary to prepare all children for kindergarten in centers, and the combination of existing funding and parent contribution. This gap is substantially higher for home providers at $7,765.

It is important to consider that these average parent contributions may serve as barriers toward preschool access for some parents, and that parents who cannot access sufficient funding to offset these costs may choose not to enroll their children in preschool at all. Child Care Aware of America (2016) estimates that married parents with two children currently spend an average of 19.3 percent to 21.3 percent (homes and centers respectively) of their incomes on child care. The percentages are likely to be higher for lower income parents and at some point, it is financially unsustainable for both parents to work or attend school outside of the home.

APA recommends that ECE stakeholders in the region consider what reasonable parent contributions should be and then seek funding from reliable sources to make up the remaining gap. Parent income, family size, and provider are all factors that may impact reasonable parent contributions and should be considered. There is no research that currently estimates what parents *should* reasonably contribute to their children's early childhood education. Cost of early childhood education is likely be a barrier to access for families on the lower end of the income scale. However, states and cities around the country have also found that some parents will not enroll their children in preschool even if preschool is free. Middle income families also have to balance the financial need to work with the financial need to stay home and avoid paying child care and preschool costs. It would be beneficial to conduct a study in southwest Florida to determine what parents can afford.

VI. Appendix A

The following tables present the participants in each of the resource panels and their organizations.

Table A1: Participants in the Private Centers Panel

Participant	Organization
Kristi Biffar	Early Childhood Specialist Supervisor
Frances Cerniglia	Brown Academy
Renate Engels	Guadalupe Center
Martha Kebhart	Children's Learning Center at FSW
Beth Lobdell	Childcare of Southwest Florida
Tina Parsons	Gladiolus Learning and Development Center
Laura Petel	Bright Beginnings Early School
Kelly Roy	Florida Southwestern State College
Jeanne Williams	Learning Tree

Table A2: Participants in the Rural Centers Panel

Participant	Organization
Felicia Brown	Harlem Academy Day Care Center (Hendry)
Shari Ewing	Busy Bee Early Learning Center (Charlotte)
Diana Gomez	Storybook Too (Charlotte)
Sheryl Jones	Busy Bee Early Learning Center (Charlotte)
Sherry Shupp	RCMA Glades Early Childhood Center (Glades)
Erica Villafuerte	RCMA Krome Child Development Center (Hendry)
Susan Weber	Joyful Noise (Charlotte)

Table A3: Participants in the District-Operated/Head Start Centers Panel

Participant	Organization
Jodi Bell	Hendry County SD
Tiffany Franklin	Lee County SD
Nicky James	Baker Center
Nicole Hansen	Baker Center
Teresa Hoagland	Lee County SD
Leslie Pryor	Glades County SD
Michelle Starr	Collier County SD
Colleen Thomas	Collier County SD
Barbara Tyrrell	Fun Time Early Childhood Academy

Table A4: Participants in the Home Providers Panel

Participant	Organization
Maria C. Arroyo	Arroyo Family Day Care Home
Leticia Becerra	Becerra Family Day Care Home
Naomi De La Rosa	Delarosa Large Family Child Care Home
Maria Escobedo	Escobedo Family Day Care Home
Leticia Gonzalez	Gonzalez Family Day Care Home
Maria Jimenez-Lara	Naples Children & Education Foundation
Maria Lucio	Lucio Family Day Care Home
Marina Martinez	Martinez Family Day Care Home
Merced Robles	Robles Family Day Care Home
Diana Santos	Redlands Christian Migrant Association
Luz Vasquez	Vasquez Family Day Care Home

Table A5: Participants in Follow-up Webinars

Participant	Organization
Beth Lobdell	Child Care of Southwest Florida
Sebrina Rimes	Big Smiles Early Learning Center
Kelly Roy	Florida Southwestern State College
Heather Singleton	Gladiolus Learning and Development Center
Gayla Thompson	Early Learning Coalition of SW Florida
Pam Wagner	Lee County SD

Table A6: Survey Participants

Participant	Organization
Renate Engels	Guadalupe Center
Tim Ferguson	Grace Place for Children and Families
Beth Lobdell	Child Care of Southwest Florida
Laura Petel	Bright Beginnings Early School
Leslie Pryor	Glades County SD
Lori Reynolds	Greater Naples YMCA
Brenda Sanders & Maggie Stevens	Lee County SD
Barbara Tyrrell	Funtime Academy
Jesyca Virnig	Learning Tree
Maureen Ungarean	Collier County SD

VII. Appendix B

The outline below was used to describe both kindergarten readiness developmental standards as well as input standards to consider. These were the standards used for costing out kindergarten readiness.

Kindergarten Readiness Standards

- Five Domains for Developmental Standards
    - Approaches to Learning
    - Cognitive Development and General Knowledge
    - Language and Communication
    - Physical Development
    - Social and Emotional Development
- Key Documents
    - The State's Early Learning and Development Standards for 4-year olds
    - Examples of other good resources includes TS Gold
    - Assessment
        - CLASS or similar to measure teacher preparedness
        - TS Gold or similar to measure student progress

Considerations to Address

Teachers

- Components to Consider
    - Professional Development
    - Support
    - Educational Standards
    - Working Conditions
    - Wages and Compensation (Outside of Panels)
    - Recruitment and Retention (Outside of Panels)

Family Engagement/Supports

- Home school connections
    - Communication and engagement
    - Family support
    - Includes language differences, special needs, cultural diversity, and self-advocacy

Learning Environment

- Components to Consider
    - Materials
    - Outdoor space
    - Health and Safety
    - Technology
        - Teacher
        - Student

VIII. Appendix C

This section examines the costs of preparing students for kindergarten, using the results of the online supplemental survey on dosage instead of the results from the panel work. Seventeen panelists responded to the survey and their responses reflect a wide range of recommendations. They were asked about the adequate dosage of structured preschool learning experience for three- and four- year olds in preschools with no poverty, 25 percent poverty, and 100 percent poverty. For each of these (age and poverty) conditions, survey participants chose from the following six dosage options:

- 3 hours per day, 9 months per year
- 6 hours per day, 9 months per year
- 8 hours per day, 9 months per year
- 3 hours per day, 12 months per year
- 6 hours per day, 12 months per year
- 8 hours per day, 12 months per year

There was relatively little consensus among survey respondents. None of the dosage options received more than half of the votes under any age or poverty condition. However, the survey data suggested that APA should consider analyzing costs based on different dosages for three of the conditions. The *panels* agreed on 6 hours per day of structured learning experiences and a 12-month school year. Based on survey results, this analysis presents costs for different preschools dosages for three- and four-year olds at preschools with no poverty, and for three-year olds at preschools with 25 percent poverty. The survey results did not justify changing dosages for four-year olds in preschools with 25 percent poverty or three- and four-year olds in preschools with 100 percent student poverty. Thus, those costs remain the same as those provided by the panel. Table C1 presents the original panel recommendations on dosage and the survey recommendations on dosage that are analyzed in this appendix.

Table C1: Dosages Presented in the Supplemental Cost Analysis

Preschool Student Poverty Rate	Age of Children	Panel Recommendations		Supplemental Survey Recommendations	
		Hours Per Day	*Months per Year*	*Hours Per Day*	*Months per Year*
0%	3 years	6 hours	12 months	3 hours	9 months
	4 years	6 hours	12 months	6 hours	9 months
25%	3 years	6 hours	12 months	6 hours	9 months
	4 years	6 hours	12 months	6 hours	12 months
100%	3 years	6 hours	12 months	6 hours	12 months
	4 years	6 hours	12 months	6 hours	12 months

This supplemental analysis changes hours per day from six to three and months per year from twelve to nine for three-year olds in preschools with no poverty. It also changes months per year from twelve to

nine for four-year olds in preschools with no poverty and for three-year olds in preschools with 25 percent poverty. No other changes were included in this analysis.

In order to adjust costs based on the dosage changes, it was necessary to review the list of resources line by line to consider which resources were fixed and which might change for each age and poverty conditions due to dosage changes. Most of the non-personnel resources recommended by panels were not differentiated by student poverty rate and these remained the same in this analysis. The exception to this were the few resources that were based on the number of personnel (professional development, and fingerprinting). The majority of personnel positions also were relatively set. For example, a preschool center that operates fewer hours or fewer months of the year likely still needs a full-time director. After careful review of all resources, APA identified three resources that would vary with the dosage changes:

- Lead teachers
- Support teachers
- Floaters

The following table presents the recommended FTE for these positions before (panel FTE) and after (supplemental survey FTE) the dosage adjustments were completed. These FTEs below reflect the total FTE recommendations for a 100-student preschool center. There were no differences by type of centers and the data below reflects all center types.

Table C2: FTE Recommendations by Panel and Preschool Poverty Level

	No poverty		**25% Poverty**		**100% Poverty**	
Staffing Type	*Panel FTE*	*Supplemental Survey FTE*	*Panel FTE*	*Supplemental Survey FTE*	*Panel FTE*	*Supplemental Survey FTE*
Lead Teacher	5.8	3.5	5.8	5.2	7.6	7.6
Support Teacher	5.8	3.5	5.8	5.2	7.6	7.6
Floaters (daily)	2.0	1.2	2.0	1.8	4.0	4.0

Professional development and background checks/fingerprinting remained at $200 per staff, but the totals changed as the staff FTE changed. There were no dosage adjustments made for preschools with 100 percent student poverty and thus, these FTEs remain the same in the panels and the supplemental surveys. No changes were made for home provider lead teachers because the lead teachers also serve as directors and thus are fixed costs.

APA then calculated the dollar amounts and weights necessary to prepare students for kindergarten using the new dosages. Table C3 presents necessary per student costs for a 100-student center-based preschool with no student poverty or special education needs (base level). The table also presents the weights for a center with a 25 percent student poverty rate, a 100 percent student poverty rate and a 10 percent special education rate. These weights show the per student costs relative to the base costs. For example, in the table below, a weight of 0.26 indicates that on average, per student costs are 26 percent higher than the base costs when the preschool student poverty rate is 25 percent.

Table C3: Estimated Annual per Student Costs and Additional Weights for Center-Based Preschools (Supplemental Analysis)

Center Type	Base-level costs: No student poverty	Additional Weight		
		25% student poverty	*100% student poverty*	*10% Special Education*
District-Operated/Head Start Centers	$9,050	0.28	0.74	0.74
Private Centers	$8,667	0.29	0.73	1.57
Rural Centers (District or Private)	$8,759	0.20	0.71	Not specified
Average Per Student	**$8,825**	**0.26**	**0.73**	**1.15**

Average base level costs in this supplemental analysis were $8,825. The average base level cost in the primary analysis was $11,142, a difference of $2,317. However, the lower base costs mean that the weights for special populations are proportionately higher. In the case of special education students and preschools with 100 percent student poverty, the amount of resource needed is the same as the primary analysis. In comparison to the lower base, the weights increase from 0.37 to 0.73 for 100 percent poverty preschools and 0.70 to 1.15 for special education. The 25 percent poverty preschool weight increases from 0.05 to 0.26 even though the overall resource level decreases.

These weights were used to calculate the costs of preparing students for kindergarten given varying levels of poverty and special education. Tables C4 and C5 present a few estimated costs based on varying levels of student poverty and special education. Table C4 first presents how costs would vary with student poverty rate, assuming that the special education rate of 10 percent does not vary. Table C5 then presents how costs would vary with special education rate if the student poverty rate of 25 percent does not vary.

Table C4: Student Poverty Rates and Estimated Per Student Costs in Centers (Supplemental Analysis)

Predicted Per Students Costs and Student Poverty Rates in Centers

Student Poverty Rate*	Predicted Per Student Costs
0%	$9,842
10%	$9,938
25%	$10,408
40%	$11,206
50%	$11,886
60%	$12,658
75%	$13,946
90%	$15,324
100%	$16,259

*With a 10% special education rate

Table C5: Special Education Rates and Estimated Per Student Costs in Centers (Supplemental Analysis)

Predicted Per Students Costs and Special Education Rates in Centers

Special Education Rate*	Predicted Per Student Costs
0%	$9,391
5%	$9,900
10%	$10,408
15%	$10,916
20%	$11,425

*With a 25% student poverty rate

As student poverty rates and special education rates increase, the costs per student of preparing students for kindergarten also increase. The weights allow APA to predict the costs for each county in southwest Florida.

Average county child poverty rates, base costs, and the weights were then used to estimate costs for different levels of poverty. APA used average poverty rates for children under 18 in each of the five participating southwest Florida counties to calculate average per student costs for centers in these counties. Table C6, below, presents the child poverty rates for each of these counties and the estimated average annual per student costs for each county.

Table C6: Estimated Annual per Student Costs for Centers, By County

County	Percent in Poverty	Per Student Costs
Charlotte	23.3%	$10,337
Collier	22.9%	$10,321
Glades	33.1%	$10,803
Hendry	36.4%	$10,988
Lee	25.2%	$10,417
Average	**24.7%**	**$10,399**

The average supplemental analysis cost of preparing students for kindergarten in the five southwest Florida counties is $10.399, which compares to an average of $12,057 for preschool centers in the primary analysis. The costs presented in Table C6 reflect fewer hours and months of preschool for three- and four-year olds in preschools with no poverty and three-year olds in preschools with 25 percent poverty.

The primary analysis calculated existing funding as $3,720 for centers and this does not change in the supplemental analysis. This leaves an annual gap of $6,584 per student between existing funding and necessary costs at centers.

APA recommends using this supplemental analysis for information purposes only. Costs presented in this appendix do not reflect the broad group consensus on adequate preschool dosage and the costs in this appendix also exclude home providers.

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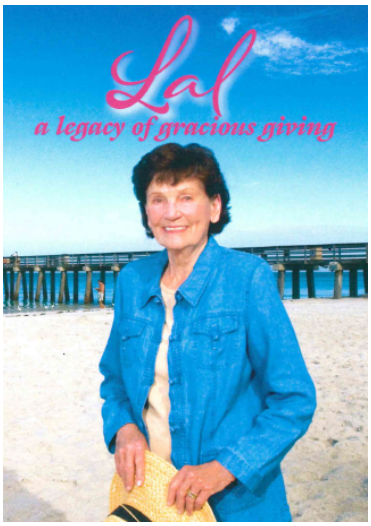

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