

Long-Term Benefits of Early Intervention Services

A Meta-Synthesis

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**Abstract**

The role of universal preschool programs is being debated in public and political arenas. There is concern that the cost of providing such programs is not in the public's best interest. While there are few, the longitudinal studies into the cost/benefit of such programs show that investments into early childhood interventions and education yield a return to students, taxpayers, and society. These benefits include: a savings in the cost of education through lower retention rates and special education placement, an increase in tax revenue through higher wages, and a savings through lower costs for the welfare and criminal justice systems. This meta-synthesis explores the studies that support the above findings, as well as ways in which current preschool programs can be improved to provide better long-term outcomes for children.

## **1. Introduction**

### *1.1 Background*

In his most recent State of the Union Address, President Obama recognized the importance of universal preschool (Obama, 2013). He has proposed creating a nation-wide program to provide publicly-funded high-quality preschool programs to all children. Currently, only children who qualify for early intervention services based on disability or economic need receive publicly-funded preschool. Under the Individuals with Disabilities Education Act (IDEA), local school districts must provide students with qualifying disabilities with appropriate early intervention services, which includes preschool (U.S. Department of Education, 2006). The federally-funded Head Start program provides children from low-income families with a high-quality preschool program in their community (U.S. Department of Education, 2006). Since the creation of Head Start in 1965, a program aimed at helping children living in poverty by providing them with a preschool education, our nation has been recognizing the role of early education and interventions in the future success of our children (U.S. Department of Health and Human Services, 2013).

One challenge in providing publicly-funded universal preschool is lack of public and political support. It is understandable that taxpayers would not want to fund programs that are not proven to be effective and economically efficient. Some of the benefits of such programs may seem hard to quantify, and require longitudinal research to get an accurate picture of what those benefits might be. It is not an easy undertaking. The more we learn about early childhood development, the better we understand how young children learn and the influence that enriched learning environments can have on them.

The Head Start program has been in place in the United States since the 1960's, and has been improved upon and expanded ever since. In 1998, under the Clinton administration, it was expanded to

a full-day, year-round program (Department of Health and Human Services, 2013). Head Start focuses on helping children develop literacy skills, cognitive development, social-emotional skills, and physical health (Department of Health and Human Services, 2013). This program recognizes the role of families in helping children learn and develop, and is responsive to the unique cultural, ethnic, and linguistic backgrounds of each child (Department of Health and Human Services, 2013). The program also includes nutritional, health, and social services to families when necessary, helping to eliminate common obstacles to a child's healthy growth and development (Department of Health and Human Services, 2013). Currently, Head Start is facing a five percent reduction this fiscal year in funding because of current federal spending cuts, also known as sequestration (Administration for Children and Families, 2013). This will result in about 70,000 children losing access to the Head Start program, including those enrolled in the Indian and Migrant education programs, as well as a reduction in staff and in student enrollment (Administration for Children and Families, 2013).

Approximately sixty percent of children in the United States receive care from someone outside of their immediate family on a regular basis (Mulligan, Brimhall, & West, 2005). This care is typically provided in either a center-based preschool or in a center-or home-based child care program, and can vary in quality. Many factors can define the quality of care provided by a preschool or child care program, but they frequently include: adult-to-child ratio, teacher training and certification, and teacher turnover rate (Powell & Cosgrove, 1992). Most parents depend on someone to care for their children so that they can work. The availability of affordable, high-quality preschool programs is limited, leaving parents few options when deciding who will care for their child (Maher, Frestedt, & Grace, 2008). Middle-class families, who earn too much to qualify for Head Start, but do not earn enough to afford high-quality private preschool tuition, would benefit from the availability of a publicly-funded,

high-quality preschool program.

### *1.2 Author's beliefs and experiences*

My experiences both as a paraprofessional in a secondary school and as a mother of two young boys have led me to have an interest in the benefits of early intervention services and to wonder about the outcomes for older students who have received early intervention services. I have been involved in my children's learning since birth, and that involvement has continued into the more formal setting of the public schools that they have attended. At the same time, I have been working with older students, both those who have Individualized Education Plans (IEPs) and those who don't, and I often wonder what their early educational experiences were like. From discussions that I've had with friends, family members, and colleagues who are also educators, I have learned that the observations I've made about the students I work with are not unique. When I hear debates within my local, state, and national communities about the cost and quality of education, and criticism that schools are not doing enough to increase graduation rates, I know that money is often the bottom line for politicians, policy makers, and the general public. I wonder how it would affect the way early education is valued if we were able to show a clear financial benefit to society simply by providing students with a quality preschool education.

As I see secondary students still struggling with basic reading, writing, math, and organizational skills, I wonder what their educational histories are, specifically whether they had received early intervention services. If they are still working on being able to get themselves started on classwork, multiply multi-digit numbers, or keep their assignments organized, how can they tackle the more substantial tasks required to graduate and become a part of the workforce?

With my own young children, who are just now entering the school system, I've seen a drastic difference between the quality of teachers and classroom environment when I compare the preschools they have gone to. Both of my children were screened by Child Find for speech delays. The older child qualified for services and at the age of three, he began attending special education preschool in our public school district. His teachers, paraprofessionals, and related services staff were well-trained and I felt that he got a great start which has led, in part, to his successful transition from special education preschool to the general education setting. My younger son did not qualify, so he began attending a privately run preschool/child care facility. I saw a stark difference between the quality of the classrooms, materials, and standards for caregivers when comparing my sons' schools. As this type of childcare is frequently the type that is readily available and affordable to working parents, I wonder what benefits a child has who attends a school-based or other high-quality preschool compared to those who attend "preschools" that are, in a practical sense, more child care than anything else.

From talking with the many teachers in my life, who work with students of all age groups, I have learned that at all grade levels, there are students who struggle with the basic classroom skills of attending, following instruction, sticking with a task until completion. I wonder how they can be expected to advance their education if they haven't yet acquired the most basic skills needed to learn the content of a given class or lesson.

With continued pressure on school districts to cut their budgets and reduce services to students, while simultaneously being asked to improve students' standardized test scores and increase graduation rates, I wonder what the real cost of education is. By that, what I really mean, is what is the cost of not having an education? Not only to the student who drops out or does not qualify to go on to post-secondary education, but the cost to the community in lost tax revenue from lower wages, higher

costs to social welfare programs, and the burden on the criminal justice system. That's not to say that all high school dropouts are criminals or costly to society, but the research I will present in this meta-synthesis will show that they are more likely than their non-dropout counterparts to be a financial burden rather than benefit on their community. I agree that high-quality education is expensive, but that is only because it is also valuable. I believe, and I hope to learn through my research, that the more we invest in our students when they are very young, the more likely they will be to graduate with their cohort and go on to find success as they enter the workforce. My thought is that the long-term costs of letting students slip through the cracks are much greater than the initial investment in their education.

With this meta-synthesis, I hope to investigate the following research questions:

1. What are the long-term academic and social effects of early intervention for students with learning disabilities?
2. Is there a significant difference between the outcomes for students whose early interventions include family education when compared to those who only have interventions for the child within a school setting?
3. Are there financial benefits to investing in education at a young age, ie., what are the costs and benefits of universal preschool?

### *1.3 The purpose of this meta-synthesis*

This meta-synthesis, which focused on the effect of early intervention services on students with learning disabilities, had multiple purposes. The first purpose was to review journal articles related to the benefits of early childhood education. Specifically, the role it plays in learning and development and the effect it has on later school success. The second purpose was to review journal articles to determine whether there was a financial benefit to investing in early childhood education, particularly

those articles relating to long-term studies that took into consideration the social costs of not educating students. A third purpose was to identify how the costs and benefits of quality early childhood education could be summarized in a way that would benefit those who work to promote education. A fourth purpose was to classify each of these articles by publication type, identify the research design, participants, and data sources of each study, and to summarize the findings of each study. My final purpose was to identify the commonalities found within these research studies and identify how I could relate them to my own practice in teaching students with disabilities in my classroom.

## **2. Methods**

### *2.1 Selection Criteria*

The thirty-one sources used in this meta-synthesis met some or all of the following criteria for selection.

1. The articles focused on issues related to early childhood development, interventions, and/or education
2. The articles related to the cost/benefit of investments in early childhood education or interventions.
3. The articles were from peer-reviewed journals.
4. The articles were published between 1983 and 2012.

### *2.2 Search Procedures*

Database searches were conducted to locate articles and primary sources for this meta-synthesis.

#### *2.2.1 Database Searches*

I conducted Boolean searches within the Educational Resources Information Center (ERIC,

Ebscohost) using these exact search criteria:

5. (“Preschool Education”) and (Special) and (Disabilities)
6. (“Preschool education”) and (“learning disability”)
7. (“preschool education”) and (“cost”)
8. (“perry preschool”)
9. (“Arnold Sameroff”)

These searches resulted in a total of thirty-one results that I chose to use for this meta-synthesis, (Aiona, Shelli, 2005; Bagnato, Stephen J., 2006; Barnett, W. Steven, 1992; Belfield, Clive R., Nores, Milagros, Barnett, Steve, 2006; Bryant, Diane Pedrotty, Bryant, Brian R., Gersten, Russell M., 2008; Delgado, Christine E. F., 2009; Eiserman, William D., et al., 1995; Harris, Alex, 2005; Justice, Laura M., McGinty, Anita S., Cabell, Sonia Q., 2010; Kartal., Hulya, 2007; Luster, Tom, McAdoo, Harriette, 1996; Maher, Erin J., Frestedt, Becki, Grace, Cathy, 2008; Mann, Virginia A., Foy, Judith G., 2003; Morelock, Martha J., Brown, P. Margaret, Morrissey, Anne-Marie, 2003; Morrissey, Taryn W., Warner, Mildred E., 2007; Mulligan, Gail M., Brimhall, DeeAnn, West, Jerry, 2005; Murnane, Richard J., 2007; Nisbett, Richard E., 2010; Odom, Samuel L., Hanson, Marci J., Lieber, Joan, 2001; Powell, Irene, Cosgrove, James, 1992; Reynolds, Arthur J., Temple, Judy A., White, Barry A. B., 2011; Roeser, Robert W., Eccles, Jacquelynne S., Sameroff, Arnold, 2000; Sameroff, Arnold, Seifer, Ronald, 1983; Sameroff, Arnold and others, 1993; Sameroff, Arnold, 2005; Sameroff, Arnold, 2010; Walsh, Rosalind L., Kemp, Coral R., Hodge, Kerry A., 2012; What Works Clearinghouse (ED), 2008; Witte, John F., 2007).

### *2.3 Coding procedures*

I used a coding form to categorize the information presented in each of the thirty-one articles.

This coding form was based on: (a) publication type; (b) research design; (c) participants; (d) data sources; and (e) findings of the studies.

### 2.3.1 *Publication Types*

The journal articles were evaluated and classified based on publication type (e.g., research study, opinion piece, review of literature, or descriptive article). *Research studies* can be qualitative, quantitative, or a combination of both, and use a scientific method to gather and evaluate data. *Opinion pieces* reflect the author's position or opinion on a subject. *Reviews of literature* look at current published literature on a particular topic, and may analyze that literature through summary, classification, and comparison. *Descriptive articles* explain a particular practice or phenomenon in-depth.

### 2.3.2 *Research Design*

Empirical studies were further broken down by research design (i.e., quantitative, qualitative, mixed methods research). Quantitative and qualitative research differ in that the former focuses on what can be measured objectively, while the latter focuses on interviews, conversations, and observations. Mixed methods research uses both quantitative and qualitative methods to present information within a single study.

### 2.3.3 *Participants, data sources, and findings*

I identified the participants in each study (e.g. children from families of low socio-economic status, parents of these children, and teachers at the preschools for these children). I then identified the source of the data used in each study (e.g., test scores, graduation rates, follow-up interviews with participants). Finally, I summarized the findings of each study in Table 2.

### 2.4 *Data Analysis*

In analyzing the thirty-one articles used in this metathesis, I employed a modified version of the Stevick-Colaizzi-Keen method which had been used previously by Duke (2011) and Duke and Ward (2009). Significant statements were first identified within each article. For the purpose of this meta-synthesis, significant statements were identified as statements that addressed issues related to: (a) early childhood development, interventions, and/or education; (b) the costs/benefits of investment in early childhood education or interventions; and/or (c) the long-term benefits of early interventions. I then generated a list of non-repetitive, verbatim significant statements with paraphrased formulated meanings. These paraphrased formulated meanings represented my own understanding of each significant statement. Finally, I took the formulated meanings from all thirty-one articles and grouped them into theme clusters, represented as emergent themes. These emergent themes represented the most important elements of the entire body of literature.

### **3. Results**

#### *3.1. Publication type*

I located thirty-one articles that met my selection criteria. The publication type of each article is located in Table 1. Eighteen (58%) of the thirty-one articles included in this meta synthesis were research studies (Belfield, Nores, & Barnett, 2006; Bryant D.P., Bryant B.R., & Gersten, 2008; Delgado, 2009; Eiserman, Weber, & McCoun, 1995; Gutman, Sameroff, & Cole, 2003; Justice, McGinty, & Cabell, 2010; Kerr, Lopez, & Olsen, 2004; Luster & McAdoo, 1996; Maher, Frestedt, & Grace, 2008; Mann & Foy, 2003; Morelock, Brown, Morrissey, 2003; Mulligan, Brimhall, West, 2005; Odom, Hanson, Lieber, 2001; Powell & Cosgrove, 1992; Reynolds, Temple, White, 2011; Roeser, Eccles, Sameroff, 2000; Sameroff & Seifer, 1983; Sameroff, Seifer, Baldwin A., & Baldwin C., 1993). Eight (25.8%) of the articles were reviews of literature (Aiona, 2005; Barnett, 1992; Kartal., 2007;

Morrissey & Warner, 2007; Sameroff, 2005; Sameroff, 2010; Walsh, Kemp, Hodge, 2012; What Works Clearinghouse, 2008). Three (9.6%) of the articles were opinion papers (Bagnato, 2006; Murnane, 2007; Witte, 2007). Finally, two (6.4%) of the articles were descriptive articles (Harris, 2005; Nisbett, 2010).

<b>Author(s) &amp; Year of Publication</b>	<b>Publication Type</b>
Aiona (2005)	Review of Literature
Bagnato (2006)	Opinion Paper
Barnett (1992)	Review of Literature
Belfield, Nores, & Barnett (2006)	Mixed Methods Research
Bryant, D., Bryant, B., & Gersten (2008)	Quantitative Research
Delgado (2009)	Quantitative Research
Eiserman, et al (1995)	Quantitative Research
Gutman, Sameroff, & Cole (2003)	Quantitative Research
Harris (2005)	Descriptive Article
Justice, McGinty, & Cabell (2010)	Quantitative Research
Kartal (2007)	Review of Literature
Kerr, Lopez, Olson, & Sameroff (2004)	Quantitative Research
Luster & McAdoo (1996)	Mixed Methods Research
Maher, Frestedt, & Grace (2008)	Quantitative Research
Mann & Foy (2003)	Mixed Methods Research
Morelock, Brown, & Morrissey (2003)	Qualitative Research
Morrissey & Warner (2007)	Review of Literature
Mulligan, Brimhall, & West (2005)	Quantitative Research
Murnane (2007)	Opinion Paper
Nisbett (2010)	Descriptive Article
Odom, Hanson & Lieber (2001)	Quantitative Research
Powell & Cosgrove (1992)	Quantitative Research
Reynolds, Temple, & White (2011)	Quantitative Research
Roeser, Eccles, & Sameroff (2000)	Mixed Methods Research
Sameroff & Seifer (1983)	Mixed Methods Research
Sameroff et al (1993)	Quantitative Research
Sameroff (2005)	Review of Literature
Sameroff (2010)	Review of Literature
Walsh, Kemp, & Hodge (2012)	Review of Literature

What Works Clearinghouse (2008)	Quantitative Research
Witte (2007)	Opinion Paper

*3.2 Research design, participants, data sources, and findings of the studies*

Of the thirty-one articles that met my search criteria, eighteen of them were research studies (Belfield et al., 2006; Bryant et al., 2008; Delgado, 2009; Eiserman et al., 1995; Gutman et al., 2003; Justice et al., 2010; Kerr et al., 2004; Luster & McAdoo, 1996; Maher et al., 2008; Mann & Foy, 2003; Morelock et al., 2003; Mulligan et al., 2005; Odom et al., 2001; Powell & Cosgrove, 1992; Reynolds et al., 2011; Roeser et al., 2000; Sameroff & Seifer, 1983; Sameroff et al., 1993). The research design, participants, data sources, and findings of each of these studies are identified in Table 2.

Table 2

Authors	Research Design	Participants	Data Sources	Findings
Belfield, Nores, & Barnett (2006)	Quantitative	119 of the 123 original participants in the Perry Preschool Project, up to age 40.	Interviews with participants regarding current earnings and welfare receipt. State and federal government records on criminal justice and victim costs, as well as welfare costs.	The long-term benefits of high-quality preschool are evident. The cost-benefit analysis shows that for every dollar invested in this program, there is a \$12.90 repayment to the general public. This is through higher tax revenues, lower criminal justice costs, and lower welfare payments.
Bryant D., Bryant, B., & Gersten (2008)	Quantitative	161 first-grade students in a primary school in Central Texas, who were identified as being at risk for having difficulty learning math.	Participant scores on the Texas Early Mathematics Inventories: Progress Monitoring measure.	Students benefited from the Tier 2 intervention in mathematics. Incorporating this “response to intervention” into the teaching curriculum can improve students' math achievement scores. This is particularly true for students who had the lowest scores initially.
Delgado (2009)	Quantitative	3,608 children who had been identified as having a developmental disability in preschool.	Data from Florida public school records and Florida Department of Education records of children identified through the Child Find program.	When students who are identified as having some type of disability in preschool, (e.g.: autism, developmental delay, emotional disturbance, speech/language impairment, or cognitive impairment), 66% of them will still be identified as having some type of disability when they are in the fourth grade. This percentage varies depending on the classification of

				disability (with autism at the highest with a rate of 87%).
Eiserman, et al (1995)	Quantitative	Forty three-and four-year old children with moderate speech and language disorders and their mothers. These children scored below the 5 <sup>th</sup> percentile on the Goldman-Fristoe Test of Articulation.	Various assessment instruments, including the Battelle Developmental Inventory, the Preschool Language Scale, a Parenting Stress Index, and a Family Support Scale.	When comparing these two groups of children, those who had clinical intervention with little parental involvement, and those who had a home-based intervention with support for their parents, there was an initial benefit for those in the home-based group. However, in the 42-month reassessment, there was no significant difference between the two groups. Parents of both groups preferred to be directly involved in meeting their children's developmental needs, and this supports the practice of family-centered intervention.
Gutman, Sameroff, & Cole (2003)	Quantitative	145 families That had participated in the Rochester Longitudinal Study (Baldwin et al., 1993; Sameroff et al., 1982, 1993) and identified as having one or more risk factors. These participants were initially assessed when the children were four years old, and they were followed until the age of eighteen.	Initial assessments of both children and mothers. Longitudinal data was then collected on the children's GPA and attendance rates.	Over the course of the participants' school years, those exposed to the highest number of risk factors (as identified in the study) at an earlier age were more likely to have a lower GPA and a higher number of school absences. As they progressed from elementary school to high school, their grades and attendance declined more significantly than their peers who were considered to be "low risk."

<p>Justice, McGinty, &amp; Cabell (2010)</p>	<p>Quantitative</p>	<p>Twenty preschool teachers and 137 children attending full-time, full-day preschool.</p>	<p>Language and literacy assessments.</p>	<p>Children whose teachers used the “Read it Again!” language and literacy curriculum supplement showed an improvement over the comparison group with higher spring assessment scores in language and literacy skills. However, students with very weak language skills did not show any significant improvement in their literacy skills.</p>
<p>Kerr, Lopez, Olson, &amp; Sameroff (2004)</p>	<p>Quantitative</p>	<p>238 3.5-year-old children, who were a part of a longitudinal study of children with a risk of developing behavior problems. Their mothers, 122 of the fathers, and the teachers of those in preschool also participated.</p>	<p>Behavior checklists (given to parents and teachers), cognitive and self-regulatory assessments given to the children by graduate students. Additionally, parents were interviewed at home.</p>	<p>Gender and parental discipline play a role in a child's moral regulation and behavior problems. Specifically, boys were affected much more significantly than girls when mothers used physical punishment. This is important to the field of education because of the role teachers can play in early intervention and parental support.</p>
<p>Luster &amp; McAdoo (1996)</p>	<p>Mixed Methods</p>	<p>123 children and their families in the Perry Elementary School attendance area in Ypsilanti, Michigan.</p>	<p>Data was collected from kindergarten through age twenty-seven through standardized tests, behavior inventories, and interviews.</p>	<p>This study investigated the factors other than preschool that may have contributed to the developmental paths of these students. They found that children's cognitive and academic abilities at kindergarten could predict their achievement throughout elementary school and overall education level. What is not known through this study, is what the causes of those characteristics that predicted school</p>

				performance.
Maher, Frestedt, & Grace (2008)	Quantitative	951 families using center-based child care and 398 families using family child care for their children age birth to five years. Families were located across five states: Illinois, Mississippi, Ohio, South Carolina, and Washington and came from both urban and rural areas.	Random digit-dial telephone interviews. Parents (primarily mothers) were asked questions about family demographics and child care use. Zip codes of families were used to categorize whether it was a rural or urban area. Adult-to-child ratio of the care centers was also recorded.	Three factors were compared: adult-to-child ratio, cost of care, and quality of care (as defined by teacher education, compensation, and availability of professional development). There were no significant differences between urban and rural care, as measured by adult-to-child ratio. There was a significant finding in the adult-to-child ratio with subsidized child care, regardless of whether it was an urban or rural location. These care centers had a higher child-to-adult ratio. There is concern, then, that children who are considered to be in the most need of high quality child care are not receiving it, making federal programs like Head Start all the more important.
Mann & Foy (2003)	Mixed Methods	Ninety-nine four-to-six-year-old children attending preschool or child care programs in southern California.	Test score data on reading, verbal working memory, vocabulary, and letter knowledge.	Phoneme awareness is a stronger indicator of emerging reading ability in preschoolers than rhyme awareness. After phoneme awareness, letter knowledge is the next most significant predictor of reading ability.
Morelock, Brown, & Morrissey (2003)	Qualitative	Nine Australian mother-child dyads divided into three groups: (D) children with impaired hearing and normal intelligence, (T)	Observation by researchers of children and mothers in play interactions.	Children in group A were at a higher stage of decontextualized behavior and planning during play as compared to the children in groups D and T. Maternal scaffolding of the children in group A showed a higher level of proximal development than with the

		children without hearing impairment with normal intelligence, and (A) children without hearing impairment who had advanced intelligence.		mothers in groups T and D. This shows a possible connection between maternal behaviors and intellectual development.
Mulligan, Brimhall, & West (2005)	Quantitative	20,252 children ages <1 through five years from across the United States.	Survey conducted by the National Center for Education Statistics.	Of children under the age of six who are not in kindergarten, sixty percent of them are regularly left in the care of someone other than their parents. These children receive either center-or home-based care. There is a positive correlation between maternal education and family income and quality of child care.
Odom, Hanson, & Lieber (2001)	Quantitative	Children between 3 and 6 years of age with disabilities in nine different inclusive settings and their classroom teachers.	Teacher, teacher assistant, and related services answered surveys. Administrators completed survey about employee benefits.	This small study shows that inclusive special education services are more cost effective than traditional special education service models. There is a great potential for collaboration between public schools and the Head Start program in order to provide these students with an inclusive education setting.
Powell & Cosgrove (1992)	Quantitative	205 child care centers accredited by the National Association of Young Children.	Survey	This study compared the cost of lowering the child-to-caregiver ratio in child care centers and the cost of increasing child care provider education. It found that lowering the number of children-to-caregivers would increase the costs by 4.5

				percent, while increasing the childcare giver education level by one year would increase the costs by only 3.4 percent. This would also reduce the high turnover rate that is linked to poorer quality care.
Reynolds, Temple & White (2011)	Quantitative	1,539 children from low-income families in Chicago.	Birth records, participant and family surveys, and school records.	A follow-up of the participants at age twenty-six, and a projected cost-benefit analysis show an average return of to society of \$10.83 for every dollar invested in preschool intervention. There was a higher return for participants that received one year as opposed to two years of preschool (\$13.58 vs. \$8.54 per dollar invested). These benefits come in the form of higher tax revenues, lower costs to the criminal justice system.
Roeser, Eccles, & Sameroff (2000)	Mixed Methods	1,480 families with an adolescent attending 7 <sup>th</sup> grade at one of 23 middle schools in the Washington, D.C. Area.	Interviews, surveys, academic achievement data.	Adolescents who were white, female, or from families with higher education and income levels had higher GPAs than those who were African-American, males, or from families with lower levels of education and income. Students' self-perceptions of academic ability was another positive indicator of high GPAs. Students experiencing emotional distress were more likely to exhibit school problem behaviors. Again, boys and African-American students were more likely to display these problem behaviors than their white or female counterparts.

				Adolescents can benefit from teachers who provide a classroom environment in which students feel safe and do not feel that their social image is threatened.
Sameroff & Seifer (1983)	Mixed Methods	Children ages birth through four years old, whose mothers were identified as having a mental illness.	Parental surveys, inventories and observations. Cognitive and social-emotional testing of the children.	Children whose mothers have a severe and chronic mental illness were more likely to have delays in their own social, emotional, and cognitive functioning.
Sameroff, et al (1993)	Quantitative	152 families completed the 13-year assessment from prenatal through age 13.	IQ assessments of children, given at ages 4 and 13. IQ of maternal IQ. Interviews to determine level of environmental risk.	There was an effect on IQ scores for children at ages 4 and 13, after controlling for socio-economic factors, that indicate an influence on children's intellectual development from environmental factors. The more risk factors a child was exposed to (out of a list of ten on the multiple-risk index), the more of a longitudinal affect children experienced.

### *3.2.1 Research design*

Twelve (66.7%) of the eighteen studies used a quantitative research design (Bryant et al., 2008; Delgado, 2009; Eiserman, et al., 1995; Gutman, et al., 2003; Justice et al., 2010; Kerr et al., 2004; Maher et al., 2008; Mulligan et al., 2005; Odom et al., 2001; Powell & Cosgrove, 1992; Reynolds et al., 2011; Sameroff et al., 1993). One (5.5%) of the studies used a qualitative research design (Morrissey & Warner, 2007). Five (27.8%) of the studies used a mixed methods research design (Belfield et al., 2006; Luster & McAdoo, 1996; Morelock, Brown & Morrissey, 2003; Roeser et al., 2000; Sameroff & Seifer, 1983).

### *3.2.2 Participants and data sources*

The majority of the eighteen research studies included in this meta-synthesis analyzed data from children ages three-to five-years old, their families, and their teachers. Sixteen of the studies (88.8%) analyzed data collected from children from birth to 6 years of age (Belfield et al., 2006; Bryant et al., 2008; Delgado, 2009; Eiserman et al., 1995; Gutman et al., 2003; Justice et al., 2010; Kerr et al., 2004; Luster & McAdoo, 1996; Maher et al., 2008; Mann & Foy, 2003; Morelock et al., 2003; Mulligan et al., 2005; Odom et al., 2001; Reynolds et al., 2011; Sameroff & Seifer, 1983; Sameroff et al., 1993). Of those sixteen studies of preschoolers, six of the studies (37.5%) included children with disabilities or who were considered to be at risk for developmental or academic factors (Bryant et al., 2008; Delgado, 2009; Eiserman et al., 1995; Kerr et al., 2004; Morelock et al., 2003; Odom et al., 2001). Five of those studies (31.2%) included students who were identified as being “at risk” based on socio-economic factors (Belfield et al., 2006; Gutman et al., 2003; Luster & McAdoo, 1996; Reynolds et al., 2011; Sameroff et al., 1993). One of these studies (6.2%) included children whose mothers were identified as having a type of mental illness (Sameroff & Seifer, 1983). One of the eighteen studies (5.5%) analyzed

data from children in adolescence (Roeser et al., 2000). One of the eighteen studies (5.5%) analyzed data from child care centers (Powell & Cosgrove, 1992). In addition to preschool-aged children, data was also analyzed from other participants. These participants included the parents of the child participants, and their classroom teachers.

Surveys and interviews were the main data sources used in the research studies. Twelve of the eighteen research studies (66.6%) used surveys to collect data from participants (Eiserman et al., 1995; Gutman, et al., 2003; Kerr et al., 2004; Luster & McAdoo, 1996; Maher et al., 2008; Mulligan et al., 2005; Odom et al., 2001; Powell & Cosgrove, 1992; Reynolds et al., 2011; Roeser et al., 2000; Sameroff & Seifer, 1983; Sameroff et al., 1993). Nine of the studies (50%) used test score data either on its own or in addition to surveys and/or interviews (Belfield et al., 2006; Bryant et al., 2008; Eiserman et al., 1995; Justice et al., 2010; Luster & McAdoo, 1996; Mann & Foy, 2003; Roeser et al., 2000; Sameroff & Seifer, 1983; Sameroff et al., 1993). The other data sources that were used in the research included local, state, and federal records, and observations by researchers.

### *3.2.3 Findings of the studies*

The findings of the eighteen research studies analyzed in this meta-synthesis can be summarized as follows.

1. The majority of children, with or without special education needs, are cared for by someone other than their parents on a regular basis. This may be full-or-half-day care for full-or-half time, it may occur in a center-based setting or in an at-home setting, and may be privately or publicly funded. The care providers in these settings can have little to no training or education in child care and development, or they may be educated in these areas and licensed care providers.

2. The quality of care provided in these child care and preschool settings can have a profound

effect on a child's long-term educational and social success, particularly in the areas of school attainment, retention, and special education placement. There is a correlation between quality of care and child success. Quality care can be defined by several factors, including teacher training and education, teacher-to-child ratio, types of curriculum used, and family involvement. The long-term benefits of high-quality preschool has been shown in the data from longitudinal studies that have followed participants through their school years and into adulthood. There is also evidence that shows that appropriate interventions at the preschool and early elementary level can reduce the likelihood of children needing special education services in the later school years.

3. Interaction between the school and home can help those children who are at higher risk due to socio-economic factors. A collaboration between families and teachers provide children with better quality care in both environments and provide support to parents. This can be especially true for those families with certain socio-economic risk factors.

4. The cost-benefit analysis of these studies shows an economic benefit for society and taxpayers when high-quality preschool is available to all children. These benefits include: higher tax revenues, reduced costs in the criminal justice system and welfare programs, and fewer children needing special education services throughout their school years.

### *3.3 Emergent themes*

Five themes emerged from my analysis of the thirty-one articles included in this meta-synthesis. These emergent themes, or theme clusters, include: (a) the long-term educational benefits of high-quality preschool programs; (b) the need for access to such programs for all children; (c) the role of families in early childhood education; (d) the cost-benefit for society and taxpayers of such preschool programs; and (e) ideas for improvement. These seven theme clusters and their formulated

meanings are represented in Table 3.

**Table 3**

Theme Clusters	Formulated Meanings
<p><b>Long-term educational benefits of high-quality preschool programs</b></p>	<p>10. Children who attend a high-quality preschool have higher grade attainment, lower retention rates, and lower special education rates.</p> <p>11. Children who receive early interventions have higher attendance rates and grade point averages (GPAs).</p> <p>12. Children who come from populations that are considered to be at risk for dropping out of school, becoming pregnant while they are teenagers, and/or becoming involved in criminal activity have reduced rates of such outcomes if they attend a high-quality preschool program for even just one year prior to starting kindergarten.</p> <p>13. While there was no significant lasting effect on children's IQ scores, there were long-term academic benefits. It is thought that this may be due to the fact that preschool provides children with the opportunity to learn at an earlier age how to solve problems, how to learn, and to develop the building blocks for the accumulation of more knowledge.</p>
<p><b>The need for access to high-quality preschool programs for all children</b></p>	<ul style="list-style-type: none"> <li>● High-quality preschool is not available to all children at an affordable cost.</li> <li>● Federally funded preschool programs such as Head Start are limited in the number of children that they can provide services to.</li> <li>● High-quality preschool is defined as having a high teacher-to-child ratio, low teacher turnover rate, teachers are educated and certified in special education and early childhood development, the use of collaboration between teachers and parents to improve home environment and parent-child interactions.</li> </ul>
<p><b>The role of families in early childhood education</b></p>	<ul style="list-style-type: none"> <li>● Children from families with certain risk factors are more likely to have behavior and academic difficulties. These risk factors can include: minority group status, parental occupation, father absence, stressful life events, parental perspectives on child development, maternal anxiety, maternal mental health, and maternal interaction.</li> <li>● Of the factors that have been considered to put children at a higher risk of academic and behavioral difficulties, there are some factors that can be alleviated. This can be achieved by providing parents with support to improve the home environment and parent-child interactions.</li> </ul>

<p><b>Cost-benefit analysis for society and taxpayers for high-quality preschool programs</b></p>	<ul style="list-style-type: none"> <li>● Longitudinal research studies show the economic benefits of investing taxpayer money into high-quality preschool programs.</li> <li>● For every dollar of taxpayer money invested, there is approximately \$8-\$13 dollars returned. This is based on data from longitudinal studies that follow participants from preschool age up to age forty.</li> <li>● The economic benefits to taxpayers and society come through: lower educational costs (due to students' improved academic achievement), higher tax revenues (due to students' higher education levels and increased earning potential), lower cost burdens on the criminal justice system (these students are less likely to be incarcerated and are incarcerated at lower rates), and reduced costs to the welfare system (these students are less likely to receive welfare benefits).</li> </ul>
<p><b>Ideas for improvement</b></p>	<ul style="list-style-type: none"> <li>● High cost and lack of availability are the biggest obstacles for families who want to place their children in high-quality preschool programs.</li> <li>● In order to overcome these obstacles, we should provide high-quality preschool to all children ages three to five as a part of the public school system. Preschool teachers would be required to have the same education and certification standards as any other classroom teacher.</li> <li>● Incorporate holistic educational services to families and children by providing parents with support and education opportunities. This may be especially useful for families that are considered to be “at risk” based on socio-economic factors.</li> <li>● Curriculum should focus on social-emotional learning, academic basics such as phoneme awareness and numeration skills, and classroom preparedness.</li> <li>● Teachers should screen for possible special education needs at this time, in order to intervene and begin providing appropriate services as early as possible.</li> <li>● Currently, children who are identified as having special education needs already receive a high-quality preschool education in the public school system. Expanding this to include all preschool-aged children, regardless of disability, would allow those children who do have disabilities to be in a more inclusive setting than currently available.</li> </ul>

#### **4. Discussion**

In this section I have summarized the emergent themes from my analysis of the thirty-one articles included in this meta-synthesis. These emergent themes were then connected to my own practices as a special education teacher.

##### *4.1 Long-term educational benefits of high-quality preschool programs*

Creating successful life-long learners begins before the age of five, when most students enter the public school system for the first time. The quality of care during the first five years of life influences a child's academic, social, and emotional skills. These skills are vital for a successful journey through life. This is true whether students are in need of interventions due to developmental disabilities or not. Children who attend a high-quality preschool program are more likely to be prepared for the academic, social, and emotional requirements of elementary school. Success and positive experiences during elementary school lead to continued success throughout middle and high school and into adulthood. The life-long benefits for them are based on the fact that they are more likely to graduate from high school, to attend some type of post-secondary education or training, and earn higher wages than students who do not attend preschool. In addition to these quantitative benefits, there are also qualitative benefits for students who attend high-quality preschool programs. These benefits include better overall health, as seen in reduced rates of smoking and drug use, fewer instances of participants quitting work due to health reasons, and lower mortality rates. There may also be intergenerational benefits due to the lower rates of teen pregnancy, increase in two-family households, and smaller family size.

##### *4.2 The need for access to high-quality preschool programs for all children*

High-quality preschool programs are defined as having a high teacher-to-child ratio, high

education and certification standards for teachers, and include some type of family support to improve the home environment. This kind of preschool is available publicly to children with qualifying disabilities, and to those whose families qualify based on economic status. The costs of private high-quality preschool programs can be prohibitive to many middle-class families. Another hurdle for families is the lack of availability of high-quality preschool programs, particularly in more rural areas. This leaves a void for families, putting many children at an academic and social/emotional disadvantage.

While my current practice is with high-school-aged students, I see the importance of access to high-quality preschool programs. Regardless of the age of the student, the quality of their early childhood education plays a role in how well they fare throughout their education. As a teacher, I encounter students who come from a variety of backgrounds, some who attended public preschool and some who did not. Whether or not their difficulties in school could have been alleviated had they attended a high-quality preschool program, it is difficult to say, but the research analyzed in this meta-synthesis suggests that it might.

#### *4.3 The role of families in early childhood education*

One of the keys to early childhood intervention is the involvement of the families with their child's school. Parents and teachers work together to determine what supports the child needs in the classroom and at home. Teachers and related services staff provide support to the families through education and training to improve the home environment for the child. Even with families who do not have a child with a disability, these supports can have a positive impact on the child's school success. Appropriate parental support of learning and development decreases a child's risk of behavioral and academic struggles in school. The quality of interactions between parent and child play a role in the

child's development, however, not every parent has the tools to provide their children with appropriate developmental support. Schools can help parents to develop the skills they need to aid in their child's development.

A collaboration between school and home is vital for student success, regardless of the student's age. In my practice, students are in their teen years and parental influence is not as strong as it is during early development. This requires the student to play a more active role in the collaboration between school and family. With high school students, I stress the importance of self-advocacy and encourage my students to play an active role in their IEP process and transition planning. Parental input is still important, of course, and at times I have seen as teachers and parents work together when dealing with students who are making choices that have a negative effect on their education. My goal as a teacher is to provide my students with the appropriate supports needed to be successful in school and in life, regardless their age.

#### *4.4 Cost-benefit analysis for society and taxpayers for high-quality preschool programs*

The investments made into high-quality preschool programs show a economic benefit for the taxpayer and society as a whole. Higher wages lead to higher tax revenues. Students who attend high-quality preschool programs are more likely to graduate from high school, attend some type of post-secondary education or training, and therefore earn a higher income over the course of their lives. These same students are less likely to depend on welfare at any point of their life, are less likely to be incarcerated, and for those who are incarcerated, they are so at a lower rate. The academic success of these students provides a financial benefit to taxpayers through decreased retention rates in school, as well as reduced rates of special education services, thereby reducing the cost of education.

My goal as a teacher is to help my students in their journey to become an adult member of our

community. Whether they are four or fourteen when I first encounter them, I will have an influence on the kind of adults they will one day become. The primary concern for many of the students that I work with is helping them to complete their high school education and have a plan to help them transition into adult life.

#### *4.5 Ideas for improvement*

Access to high-quality preschool programs needs to be expanded beyond those who qualify based on disability status or income level. The high cost of private programs and lack of availability of such programs leave many families without high-quality preschool options for their children. With a majority of families using some type of child care or preschool for their children, they should have access to affordable, high-quality care.

Expanding the current public school model to include the option of enrolling children in preschool services as early as age three will improve children's long-term outcomes. These teachers would be held to the same educational and certification standards as any other public school teachers. Curriculum would focus on classroom preparedness, social-emotional learning, fine-and gross-motor skills, and could include some early academic skills like phoneme awareness and numeration. Including family-centered services would provide support and education to parents in order to improve the quality of their interaction with their children. Home visits, such as those used in the Head Start program, may be appropriate for some families as well.

During the preschool years, teachers would be able to identify possible developmental delays and provide appropriate supports. This may be especially beneficial to those students who have mild delays that might otherwise go unnoticed. Early identification may reduce the need for later special education services.

Finally, this model would provide those students who do have IEPs a less-restrictive preschool setting in which to learn. Many of the special education preschool classes are held within traditional elementary schools, but the preschool room itself does not include students without disabilities. Providing all students with access to preschool would allow students with disabilities to participate in a more inclusive educational setting.

## **5. Conclusion**

The benefits of early intervention services are well documented through the studies discussed in this meta-synthesis. It is well established that children with disabilities need these services. Universal preschool will benefit all children, and those with disabilities with further benefit by attending school with a more inclusive environment. By providing enriching learning experiences to all children, regardless of ability or family income level, we lay the groundwork for their life-long learning potential. Whether or not there is the public support and political will to make this happen remains to be seen.

If we are ever going to successfully implement a universal preschool program, we need public support. For the public to have an interest in paying for such a program, they will need to see that there are tangible economic benefits. In a perfect world, we as taxpayers would want to support universal preschool because it is proven to improve children's academic and social success throughout the course of their education. However, we live in a world that is more concerned about the bottom line. In the case of universal preschool, the bottom line is that we as taxpayers will spend less money over the course of a student's life if we invest in education beginning at the preschool level. According to the Perry Preschool Project, taxpayers receive as much as thirteen dollars in return for every dollar invested in preschool education. This is not a quick-fix to current educational and social woes. It is a long-term

investment with potentially large returns. We have to be willing to commit for the long-haul, not just for the sake of our pocketbooks, but for the sake of our children's education.

There is little doubt that universal, high-quality preschool programs will provide financial and social benefits to students and to society as a whole. Longitudinal, quantitative research studies have shown this to be true in relatively small populations of students. Expanding these studies to include larger populations, while potentially challenging to conduct longitudinally over the course of thirty years or more, would result in more reliable and valid data. It may be challenging to conduct such extensive studies, but they would provide us with valuable data that could be used to influence public support of universal preschool programs.

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