

**NORTHERN ILLINOIS UNIVERSITY**

A Literature Review of Early Childhood Intervention Programs

**A Capstone Submitted to the**

**University Honors Program**

**In Partial Fulfillment of the**

**Requirements of the Baccalaureate Degree**

**With Honors**

**Department Of**

Psychology

**By**

Kelsey McIlwain

**DeKalb, Illinois**

May 2020

## HONORS CAPSTONE ABSTRACT

With the ever-increasing educational demands in the United States, large discrepancies across socioeconomic classes in regards to early childhood development and academic achievement have become evident (Ramey & Ramey, 2004). The purpose of this project is to provide an overview of early childhood intervention programs that have been developed in an attempt to address these discrepancies. This literature review discusses the framework and outcomes measures of three programs that were implemented on a national or state-wide level: Head Start, the ABC Project, and Project CARE. Given that there have been dozens of initiatives rolled out to address early development deficiencies in the poor, this review serves solely as a brief outline of early intervention programs as a whole.

To complete this literature review, an annotated bibliography consisting of 10-15 pieces of literature concerning early childhood interventions was created. From this bibliography, the various subtopics/themes found in the literature were organized to create an outline for the direction of the paper. Upon outline completion, the articles were studied further and summarized to produce a review of the early childhood intervention literature selected. The studies' outcome measures provide evidence that participation in early intervention programs positively impacts children's development and their parents' ability to support their development so that they are more likely to enter kindergarten with the skills necessary to succeed on an academic and socio-emotional level (Puma et al, 2010; Ramey et al., 1985; Ramey & Ramey, 2004). These findings have implications that the constructive influence of early intervention programs reach beyond formal education to the general wellbeing of the families involved.

Socio-economic status (SES) can be defined as a relative scale of an individual's or family's access to valued resources such as wealth, social recognition, and privileges (Burger, 2010). Characteristics such as parental occupation, highest level of education, and income often play a central role in an individual's SES determination (Burger, 2010). Growing up in a family with a low SES has several disadvantages. For young children, perhaps one of the most formative consequences of a low SES is its negative impact on school readiness and subsequent academic achievement in comparison to their peers that come from a higher SES (Burger, 2010). These crucial differences in academic ability only persist as children get older (Burger, 2010; Votruba-Drzal et al., 2016).

This paper will first provide a summary of the obstacles that impoverished living present for school readiness and academic achievement for young children. Then, it will discuss some of the most popular early childhood education programs that have been developed to lessen the disadvantages that poverty places on youth when compared to their more affluent peers. The design and outcome measures of these programs will be described. Finally, this paper will review potential mediators for the relationship between early childhood education program participation and later academic and vocational achievement.

## **Background**

Before analyzing the early intervention programs developed to close the academic achievement gap between poor children and children in middle- to upper-class families, this paper will discuss the underlying factors of poverty that create adverse conditions for children to develop the necessary skills to thrive in a school environment. The years of a child's life before age five are well known to be some of the most crucial for a child's

development. Unfortunately, for young ones growing up in challenging financial situations, this period of life can be racked with experiences detrimental to their potential as a future learner (Ramey & Ramey, 2004).

Ramey and Ramey (2004) propose 7 essential types of experiences children need for the behavioral and cognitive development necessary for school readiness. These experiences include protection from inappropriate teasing and punishment, encouragement of exploration, and rich and expressive communication (Ramey & Ramey, 2004). Unfortunately, many of these experiences are denied to impoverished children (Ramey & Ramey, 2004). Evans (2004) shows evidence that low-income parents speak to their children less often and in a less sophisticated way than middle-income parents. One study conducted by Hart and Risley (1995) showed a significant direct relationship between socio-economic class and parent-child verbalizations. In other words, the higher quality job the parents possessed, the greater the quantity and quality of the parents' speech toward their child (Hart & Risley, 1995).

Evans (2004) created an in-depth analysis of factors present in impoverished homes that have detrimental effects on early childhood development. For example, children coming from lower-income families are more likely to experience unresponsive and harsh parenting (2004). These kinds of parent-child interactions are connected to poorer cognitive and language development needed for formal schooling preparation (Burger, 2010), and fall in direct opposition to the caregiver-child dynamic that best facilitates early social-emotional development, which includes caregiver sensitivity and responsiveness toward the child and avoidance of harsh physical punishment (Walker et al., 2011).

Lower SES also contributes to the lack of basic social stimulation required for ideal development (Burger, 2010). Evans (2004) describes the greater instability of peer relationships that exists in families from a lower SES. Children of unskilled laborers are less likely to have friends come over to play compared to children with white-collar jobs, thus creating a deficit in opportunities to develop social skills crucial to success in school (Evans, 2004).

In addition to psychosocial factors, children of lower SES families are more likely to live in lower quality physical environments (Evans, 2004). Poorer children are likely to be exposed to higher levels of toxic waste and poorer indoor air quality (Evans, 2004). They are more likely to live in crowded homes with more than one person to a room, to have inadequate heat in the winter, and to live in houses infested with rodents (Evans, 2004). All of these environmental elements are detrimental to healthy socio-emotional development (Evans, 2004).

This section has provided a brief overview of the hurdles that exist in underprivileged children's lives on their way to realizing their full potential as students. While any of the aforementioned factors, whether psychosocial or physical, would constitute a negative influence on early childhood development, most children experience a cumulative effect of multiple adversities present in their life (Evans 2004; McLaughlin & Sheridan, 2016). The next question to address, then, is what can be done to either make the hurdles smaller or equip children with the necessary tools to clear them. The following section will discuss the initiatives designed with the intention to accomplish these goals.

### **Early Intervention Programs**

This section will analyze the various early childhood intervention programs developed and implemented around the country in an effort to remediate the effects of poverty on academic achievement and later vocational success. Starting with projects carried out on a national scale and moving to those more regional in nature, the design of each program, its participants, and its outcome measures will be discussed.

### ***Head Start***

Head Start is an early childhood education program created in 1965 to combat the unfavorable effects of poverty on school readiness for young children (Gupta & Lucia, 2017). Its development was driven by the hypothesis that providing a solid academic foundation for at-risk children during their preschool years would reap productive adult citizens in the future (Gupta & Lucia, 2017). Head Start centers are required to exhibit effectiveness in cultivating school readiness in their participants (Gupta & Lucia, 2017). School readiness was operationalized in the context of five domains: approaches towards learning, language and literacy, cognition and general knowledge, and socio-emotional development (Gupta & Lucia, 2017).

The congressional-mandated study on Head Start conducted by Puma and colleagues (2010) analyzed Head Start's impact on school readiness and parental practices that support children's development. The study consisted of an experimental group of roughly 2,500 3- and 4-year olds enrolled in Head Start that received preschool education, comprehensive healthcare, nutrition services, and parent education services. This group was compared to a 2,500-children control group; caregivers had the option to either keep their children at home or enroll them in a different daycare or preschool setting (Puma et al., 2010). This study was unique in its additional comparison between a

3-year-old cohort that would participate in Head Start for two years and a 4-year-old cohort that would only receive one year of Head Start services (Puma et al., 2010).

Results from the study exhibited that Head Start had a positive impact on school readiness when compared to the control group, but that these gains were largely concentrated in the realm of language and literacy skills (Puma et al., 2010). There were no significant differences between the experimental and control group in math ability, pre-writing skills, and teacher assessments of school performance (Puma et al., 2010). These findings held true for both the 3- and 4-year old cohort (Puma et al., 2010). The longevity of this advantage, however, was short-lived, rarely extending past the Head Start years (Puma et al., 2010).

In contrast, the impact on social-emotional development varied greatly between the two cohorts (Puma et al., 2010). Teacher- and parent-child relationships, social skills, and approaches to learning were domains in which social-emotional development was operationalized (Puma et al., 2010). While the 4-year-old group demonstrated no significant differences between the control group, the 3-year-old cohort exhibited evidence of better social skills and positive approaches to learning by the end of their 2-year Head Start experience and again at the end of kindergarten (Puma et al., 2010). At the end of 1<sup>st</sup> grade, parents reported evidence of closer relationships and more positive overall relationships with their children in comparison to the control group (Puma et al., 2010). These findings suggest that improvements in social-emotional development may take longer to materialize than cognitive skills, but may also last longer once cultivated.

### ***ABC Project***

The Abecedarian study was launched in the early 1970s (Ramey & Ramey, 2004). The purpose of the study was to determine if the negative impact of living in poverty on a child's development could be prevented or significantly reduced by providing quality early childhood education (Ramey & Ramey, 2004). The study consisted of 111 children and their families, challenged with making little money and having little education (Ramey & Ramey, 2004). This design mainly focused on the impact of children participating in a supportive educational program during their early years of life, with other potentially influential variables, such as nutrition and access to quality healthcare, held constant (Ramey & Ramey, 2004).

The educational program, initially called Learninggames and later Partners for Learning, was a 5-year program that ran 5 full days per week for 50 weeks out of the year (Ramey & Ramey, 2004). The curriculum included activities focused on cognition, fine motor development, social and self-development, language, and pre-reading skills (Ramey & Ramey, 2004). The teachers were trained in personalizing the program for each child so as to provide activities that were neither too difficult nor too easy for them as they progressed in their development (Ramey & Ramey, 2004). It was hypothesized that the nature of the curriculum and the individualized teaching would improve the treatment group's readiness for kindergarten, creating a foundation for higher rates of academic and vocational success in the future (Ramey & Ramey, 2004).

Results from this study showed significant differences on cognitive assessment scores between the control group and treatment group at as early as 18 months of age (Ramey & Ramey, 2004). While both groups initially tested above the national average, it was at this age that the control group's scores began to decline to the low end of the



normal range while the treatment group's performance maintained an above average standing as the children got older (Ramey & Ramey, 2004).

The comparative benefits of the program were also shown to persist through the school-age years, making the program stand out against alternative early intervention designs in which initial notable improvements were not maintained (Ramey & Ramey, 2004). During the participants' K-12 years, the treatment group performed significantly better than the control group on standardized reading and math assessments (Ramey & Ramey, 2004). In addition to enhanced performance of standardized testing, the ABC preschool group had a much smaller proportion of children placed in special education programs (12%), while nearly half of the children in the control group received special education services (Ramey & Ramey, 2004). This specific finding speaks to the potential return on investment that an early childhood development program like the ABC Project could have (Ramey & Ramey, 2004). The cost of special education is over double that of regular education, and the law mandates that children in special education have access to free public education until their 22<sup>nd</sup> birthday (Ramey & Ramey, 2004). By deciding to spend money on an early intervention program, the government could potentially save money in special education costs down the road (Ramey & Ramey, 2004).

The results of this study illustrate the importance of Ramey and Ramey's (2004) positive experiences essential for normal brain development, school readiness, and subsequent school achievement. The children in the control group interacted with teachers trained to encourage exploration, celebrate their developmental advances, and rehearse and extend new skills during a large span of their early development (Ramey & Ramey, 2004). The results indicate that participation in these experiences has the ability

to minimize the negative consequences that poverty typically has on development and preparedness for school (Ramey & Ramey, 2004).

### ***Project CARE***

In the late 1970's, Project CARE (Carolina Approach to Responsive Education) replicated the ABC Project findings (Ramey & Ramey, 2004). Project CARE was designed to evaluate how the intensity of intervention programs, operationally defined by the amount of time spent in the program and the variety of family contact dictated by the program, correlated with the intellectual development of high risk children (Ramey et al., 1985). It was hypothesized that the two variables had a direct positive relationship (Ramey et al., 1985). The most intensive condition for the study consisted of a developmental daycare and family education component (Ramey et al., 1985) There was also a Family Education Only condition and a control group that received neither daycare nor family education (Ramey et al., 1985).

The Project CARE daycare curriculum modeled the Learninggames curriculum used for the ABC project, emphasizing both socio-emotional and intellectual development (Ramey et al., 1985). The program aimed to create an environment that cultivated the academic performance and social skills necessary for success in a regular public school classroom. (Ramey et al., 1985).

The family education program consisted of regular meetings between a family educator and the caregivers, usually in their homes (Ramey et al., 1985). Meetings were held on an approximately weekly basis for roughly an hour, depending on the parent's availability (Ramey et al., 1985). The family education program focused largely on imparting effective problem solving skills to parents to help them handle family concerns

(Ramey et al., 1985). It was believed that providing parents tools to appropriately deal with the stress of raising children in impoverished conditions would enhance their ability to maintain an environment conducive to healthy behavioral and cognitive development for their children (Campbell & Ramey, 1994). In addition to family meetings, parent workshops were held one evening a month (Ramey et al., 1985). These workshops served as a support group for childrearing as well as a conduit for local resources for parents (Ramey et al., 1985).

Standardized tests were administered to each of the three groups to assess potential relationships between family education and early education on cognition skills (Ramey et al., 1985). Assessments were given every 6 months for the first 24 months of life, and once more at 36 months of age (Ramey et al., 1985). Similar to the results of the Abecedarian study, there was no significant difference on test performance among the three groups for the initial 6-month test (Ramey et al., 1985). From the 12-month assessment on, however, the Developmental Daycare Plus Family Education group performed significantly better than both the Family Education Alone group and the Control group (Ramey et al., 1985). There was no significant difference on test performance between the latter groups (Ramey et al., 1985). This trend continued for the remainder of the testing period, with the scores for the Developmental Daycare Plus Family Education group remaining above the national average while the scores for the other two groups progressively declined (Ramey et al., 1985).

### **Mediating Variables**

In this section of the paper, mediating variables that may contribute to the relationships between early intervention programs and school readiness will be discussed.

One such variable is parenting stress. Cherry et al. (2019) define parenting stress as psychological stress connected solely to the responsibilities of parenting, excluding alternative stressors associated with different roles. For parents struggling to make ends meet, poverty often exacerbates the levels of parenting stress experienced (Blair & Raver, 2012). Parents in these situations are more likely to experience depressive symptoms and emotional distress and are more likely to express anger and aggression in the household (Blair & Racer, 2012). These products of stress, in turn, are more likely to result in children's behavior problems that are connected to socio-emotional development and school readiness (Cherry et al., 2019).

Quality of childcare is another point of connection between early childhood programs and academic success (Blair & Raver, 2012). The weight of poverty-related stressors sustained by parents is often related to lower levels of responsiveness, consistency, and warmth in parenting (Blair & Raver, 2012). Results have shown that direction provided from parenting intervention has been used to significantly alter parent's negative forms of discipline and increase the sensitivity and responsiveness of their responses to their children (Blair & Raver, 2012). These parenting improvements have subsequently been related to better child attention and emotion regulation, similar variables to those targeted in intervention program curriculum (Blair & Raver, 2012).

Levels of parenting stress and quality of caregiving are two life factors vulnerable to the disadvantageous conditions of poverty and also mediate the link between early childhood intervention programs and their outcomes (Bierman et al., 2019). As critical influencers of their children's development, different aspects of parents' behavior have been simultaneously targeted alongside the development of their little ones by a majority

of the early childhood intervention programs developed (Bierman et al., 2019). This section of the paper gave a brief overview of how parenting stress and quality of caregiving bridge the relationship between early intervention participation and the results observed upon completion of the program.

## **Conclusion**

The disparity between socioeconomic classes in regards to youth's opportunity for academic achievement, vocational success, and ultimately a better quality of life is a serious issue in the United States (Ramey & Ramey, 2004). From a very young age, children growing up in poverty begin to fall behind in domains of development that lay the foundation for the trajectory of their life (Ramey & Ramey, 2004). The first early childhood education programs created for disadvantaged children and their families have blazed the trail for the development of dozens of programs around the country. The goal of these projects has been to counteract the detrimental effects of poverty on young children's development to close the achievement gap between themselves and children with higher SES (Evans, 2004). By looking at the outcomes of these projects, it is evident that participation in early intervention programs does make a positive difference in the lives of impoverished children and their families (Ramey & Ramey, 2004). Moving forward, the focus of the research has now shifted to how these initiatives can be refined to improve the longevity of the impact made in the children's early years, ensuring that it is sustained throughout the lifetime (Ramey & Ramey, 2004)

## References

- Bierman, K. L., McDoniel, M. E., & Loughlin-Presnal, J. E. (2019). How a parent preschool parent intervention produced later benefits: A longitudinal mediation analysis. *Journal of Applied Developmental Psychology, 64*, 101058.
- Blair, C. & Raver, C. C. (2012). Development in the context of adversity: Experiential canalization of brain and behavior. *American Psychologist, 67*, 309-318.
- Burger, K. (2010). How does early childhood care and education affect cognitive development? An international review of the effects of early interventions for children from different social backgrounds. *Early Childhood Research Quarterly, 25*, 140-165.
- Campbell, F. A. & Ramey, C. T. (1994). Effects of early intervention on intellectual and academic achievement: A follow-up study of children from low-income families. *Child Development, 65*(2), 684-698.
- Cherry, K. E., Gerstein, E. D., Ciciolla, L. (2019). Parenting stress and children's behavior: Transactional models during early head start. *Journal of Family Psychology, 33*(8), 916-926.
- Evans, G. (2004). The environment of childhood poverty. *American Psychologist, 59*, 77-92.
- Gupta, A. & Lucia, T. (2019). School readiness in the context of inner city Head Start centres. *Early Child Development and Care, 189*(7), 1086-1099.
- Hart, B. & Risley, T. R. (1995). *Meaningful differences in the everyday experiences of young American children*. Baltimore: Brooks.

- McLaughlin, K. A. & Sheridan, M. A. (2016). Beyond cumulative risk: A dimensional approach to childhood adversity. *Current Directions in Psychological Science*, 25(4), 239-245.
- Puma, M., Bell, S., Cook, R., & Heidi, C. (2010). Head Start Impact Study. Final report. Washington, DC: U. S. Department of Health and Human Services, Administration for Children and Families.
- Ramey, C. T., Bryant, D. M., Sparling, J. J., & Wasik, B. H. (1985). Project CARE: A comparison of two early intervention strategies to prevent retarded development. *Topics in Early Childhood Special Education*, 5, 12-25.
- Ramey, C. T. & Ramey, S. L. (2004). Early learning and school readiness: Can early intervention make a difference? *Merrill-Palmer Quarterly*, 50(4), 417-479.
- Votruba-Drzal, E., Miller, P., & Coley, R. L. (2016). Poverty, urbanicity, and children's development of early academic skills. *Child Development Perspectives*, 3-9.
- Walker, S. P., Wachs, T. D. Grantham-McGregor, S., Black, M. M., Nelson, C.A., Huffman, S. L., Baker, Henningham, H., Chang, S. M., Hamadani, J. D., Lozoff, B., Meeks Gardner, J. M., Powell, C. A., Rahman, A., & Richter, L. (2011). Inequality in early childhood: risk and protective factors for early child development. *Lancet*, 1325-1338.