

**Early Childhood Care and Development Programs:  
An International Perspective**

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*“Children come into the world eager to learn. The first five years of life are a time of enormous growth of linguistic, conceptual, social, emotional, and motor competence. Right from birth a healthy child is an active participant in that growth, exploring the environment,*

*learning to communicate, and in relatively short order, beginning to construct ideas and theories about how things work in the surrounding world” (National Research Council, 2001).*

Recent research has increased the awareness of parents, educators, and policy makers about the importance of the early years of life. The remarkable transformation that occurs in all areas of development during the first 5 years of life lays the foundation for all future learning. How children will learn and the pace at which they learn will be influenced by the environments they encounter. Environments, which encourage children’s development, will support them physically, emotionally, socially and intellectually. Physical needs will be supported through programs that improve, support, and enhance their growth and physical development. Emotional, social, and intellectual development will be supported through programs that use an integrated approach to programming. These types of programs allow children to develop skills that will enable them to adapt to and seek mastery of their surroundings as well as provide a foundation which will ensure lifelong and meaningful learning.

In 1990 The World Conference on Education for All was convened in Jomtien, Thailand during which the delegates endorsed two documents the “World Declaration on Education for All” and a “Framework for Action to Meet Basic Learning Needs” (World Declaration on Education for All, 1990). Both of these documents renewed a world community commitment to ensuring the rights of education and knowledge for all people. Included in this was a focus on early childhood care and initial education. In April 2000, The World Education Forum met again in Dakar, Senegal and expanded on these initial documents. Understanding the importance of the early years, the forum adopted six major goals for education, the first being: “Expanding and improving comprehensive early childhood care and education, especially for the most vulnerable and disadvantaged children” (World Declaration on Education for All, 1990). The other five Dakar goals focused on Universal Primary Education (UPE), education quality, gender equality, improving literacy and increasing life-skills. In 2003 a UNESCO report on gender and education for all, stated that children entering primary schools in many regions are still very differently equipped in preparation, that ECCD is very unequally distributed and particularly pronounced in urban/rural disparities, and that governments, especially in developing countries, are unable or unwilling to provide pre-primary education (UNESCO, 2003).

The past 30 years have seen an exponential increase in the amount of research in the field of early childhood development and education. This analysis will examine studies in early childhood education that are useful for establishing and examining public policy. It will describe

studies from a variety of continents, countries and cultures. While a great deal of early childhood research occurs within the United States, researchers in other parts of the world are also establishing a substantial and important body of data that supports the importance of the early years as well as the importance of quality early childhood program experiences.

This paper will describe some of the major findings in early childhood education from an international perspective. It will begin by examining some of the issues in early childhood such as why early childhood care and development is important and what are the rationales for intervention in the early years. Next it will describe the types of studies and programs in early childhood such as intervention studies, short-term studies and cost-benefit analyses. Lastly it will highlight international early childhood development programs and developmental studies that offer insight for the public policy debate.

Great difficulties arise when comparing research conducted in differing countries and cultures. Some of the difficulties develop due to the differing societal contexts such as socioeconomic, cultural, and policy differences; some arise from the manner in which early childhood services are defined and organized in differing countries; and still others are related to the manner in which research is conducted and the data analyzed. Lack of international consensus regarding the definition and measurement of outcomes as well as the difficulty in translation from one language to another have made cross-cultural comparisons difficult (Boocock, 2003).

In spite of these difficulties, we hope with this review to help frame the discussion about future policy efforts by providing recent and relevant review of early childhood research and development internationally. Among the most important and consistent findings are:

- Early childhood development and care in the early years can do much to prevent malnutrition and increase children's chances of survival.
- Intervention during the early years can assist in the healthy development of children cognitively, socially, emotionally and physically.
- Participation in preschool programs promotes cognitive development in the short term and prepares children to succeed in school.
- Early childhood programs can reduce educational inequalities
- Interventions can raise the status of mothers in the home and community.
- Interventions reduce gender inequalities.
- Early interventions generate economic returns and reduce social costs by reducing grade retention, special education placement, juvenile delinquency, and substance abuse.

### **What's in a Name? The Importance of Terminology.**

The field of early childhood has many names in different countries. In the United States the term Early Childhood Education is common. In other countries, other terms include: Early Childhood Care and Education, Early Childhood Care, or Early Childhood Development. While reviewing many of the articles included herein, it was clear that there is no internationally agreed upon term or reference point. This paper will use the perspective of Early Childhood Care and Development. Intrinsic in this terminology is an emphasis on a holistic approach to the early childhood years that includes attending to a child's physical, emotional, social and cognitive development. Also by including care and development together, we emphasize that we see no divide between care, development and education because it impossible to treat them independently. Clearly, a child's survival and growth is necessary and occurs through the provision of proper health and nutritional care. The adequacy of the care will determine physical growth and greatly influence how a child navigates the learning processes. Through these processes children learn about themselves and the environment around them. Learning and growth do not occur separately, but rather are thoroughly integrated parts of a complicated process (UNESCO, 2002).

### **What is the Importance of Early Childhood Intervention?**

The earliest years of life are critical for children's development. Children who are cared for and nurtured appropriately grow and develop in healthy ways, experience fewer illnesses and diseases, and develop appropriate thinking, language, and emotional and social skills. When these children enter school, they will be better able to navigate the school process. They are more likely to complete schooling and have greater self-esteem. These children are more likely to become productive members of society (UNICEF, 2004).

As more and more infants and toddlers are surviving, the numbers of young children in the developing world, where 4/5's of all children live, are escalating. Additionally, the numbers of women entering the workforce is also increasing. This demographic shift is being experienced all over the world, on every continent including Europe, Latin America, Africa, and the United States. Nevertheless, even when children do survive, at least 10% of all children (over 200 million in all) suffer some form of physical and/or mental disability or developmental delay. A

larger number will experience diminished learning capabilities and other disadvantages that limit the possibility of reaching full potential (UNICEF, 2004).

Sadly, the early years are the least likely to receive investment from many governments. Early education policies are determined within individual national contexts and are complicated due to varying political, cultural, economic, and demographic trends. This lack of investment exists in spite of the fact that investment in early interventions -- in a variety of countries and cultures-- has been shown to produce results far beyond initial financial subsidies. Rationales against investment come from many sources and are often the result of policymakers' skepticism regarding the value of investment in people. Other times, policymakers lack understanding regarding the importance of child development or the condition of many families who are trying to survive in unsupportive environments without basic necessities such as jobs, health care, and childcare (Myers, 1995). Another reason may be the belief that it is the responsibility of mothers to stay at home and care for their young. It is important to answer such skepticisms with clear rationale that both support investment and provide answers to such skepticism.

The rationale for intervening during the early childhood years of a child's life comes from three basic arguments: 1) a foundational argument; 2) a human rights argument and; 3) a socioeconomic argument. Each of these arguments are important in varying ways.

*Foundational Scientific Argument: What happens early matters*

The foundational argument is based on developmental research that has shown that the early years are extraordinarily important in relation to a child's development intellectually, emotionally, socially, physically, and morally. We know from evidence in a variety of fields such as psychology, physiology, nutrition and health care that particularly during the early years, both physical and environmental factors play a significant role in child development (National Research Council and Institute of Medicine, 2001).

The combined impact of quality health care, adequate nutritional sustenance, and appropriate intellectual stimulation on young children's physical, mental and emotional growth are synergistic and cannot be broken into separate domains. These impacts are powerful, exact and affect not just general development but the specific wiring of the brain (Shore, 1997).

Beginning at conception and continuing on through birth, the environment has a significant impact on brain development. The baby's brain is highly vulnerable to intrinsic hazards (errors of neural migration) and external insults (such as exposure to drugs, alcohol, viral infections, malnutrition, etc.) that have direct impact on the baby's later physical and mental abilities as well as on their temperament. Greatest concern should be focused on children growing up in environments that fail to provide them with adequate nutrition and other growth

fostering inputs such as adequate prenatal and postnatal medical care. Additionally, exposure to good nutrition, appropriate early relationships, and proper health care greatly decrease the risk of inappropriate development. Overburdened families may not have the time or information to understand they need to spend time stimulating their child's play. This is extraordinarily important because it is estimated that during the preschool years some parts of the brain can nearly double in size in one year (UNICEF, 2004) and half of all intellectual abilities are developed by age four (Young, 1999).

A simple summary of what is known about brain development is:

- Before the age of one, brain development is quicker and more encompassing than heretofore thought. Cell formation is essentially complete prior to birth but brain maturation continues.
- The brain is extraordinarily susceptible to environmental influences. Brain development is seriously compromised by inadequate nutrition prior to birth and during the first years of life. Consequences can include neurological and behavioral disabilities such as learning disabilities and mental illness.
- Early environments influence brain development. Infants raised in stimulating environments have better brain function at age 12 than those raised in less stimulating environments.
- Early stress adversely affects brain function, learning, and memory. Young children who experience extreme stress later in life are at greater risk for behavioral, emotional, and cognitive problems (Young, 1999).

From the time of conception until a child enters primary school (the early childhood years), development advances at a pace greater than any other stage in life (National Research Council, 2001). During this period children develop remarkable linguistic and cognitive skills and they begin to exhibit emotional, social, and moral capabilities. Development can be compromised or enhanced depending upon the social and economic circumstances children experience, and long-term differences are clearly associated with social and economic circumstances. Understanding this process makes clear the many remarkable accomplishments that young children achieve despite the many problems they and their families encounter.

The foundational argument cannot be considered in isolation when contemplating whether to invest large sums or enormous human capital in developing early childhood programs. Another important issue that must be considered is society and the many changes that have occurred in the last twenty years. What are the effects of these changes on children and families?

### *The World Has Changed, Societies Have Changed*

The changes in cultures and societies during the 1990's that have continued on into the new century are multifaceted and focus in areas of demographics and economics as well as cultural and social factors. Clearly the manners in which each of these changes manifests themselves are often unique to individual countries and individual cultures. Mediating factors and influences, such as economic or political perspectives, affect not only how the changes are viewed but the responses that are (or are not) devised to assist children and families. It is inaccurate to believe that policies or programs occur (or do not occur) because of a single cause or are shaped by one mediating factor (Cochran, 1993).

Many of the societal changes that can be identified that have occurred in recent years have had significant effects on the organization and configuration of families, child rearing and the welfare and quality of children's lives. These changes affect not only quality of life but also the policies and programs intended to improve that quality. Some of these changes have included:

- Urbanization and industrialization. Industrialization accompanied by internal migration within countries and urbanization. This migration is movement of families who leave rural areas in search of work in urban settings. This industrialization has resulted in shifts in family structure such as increases in one-parent families, reductions in extended families and kinship, and more parents trying to combine work and parenting in non-agrarian environments. These changes produce new burdens for families and require them to make childcare arrangements and adapt their child-rearing philosophies. For many women now working for wages in these new environments, it is difficult to combine work and parenting roles (Myer, 2001)
- Technological revolution. The intense technological revolution has resulted in a smaller world. The consequence has been increased globalization, international communication, travel, and better health care. It has also created new awareness regarding the importance of ECCD as well the difficulties faced by many trying to rear children in a this "new" world (Myer, 2001).
- Globalization. The enhanced pace of globalization has had major effects and raised serious concerns. With globalization there has been an increase in market economies that has resulted in increased inequality, poverty, exclusion, and employment in the informal sectors where benefits are not available. It has also resulted in a redefinition of the state, thereby forcing changes in the manner in which many social

programs are instituted and their budgets allocated. The increase in ‘compensatory programs’ in education (as many early childhood programs are labeled) has raised concerns about how social programs are instituted, funded, and with what goals. Additionally, globalization has raised concerns regarding changing values within countries and cultures along with a belief that there needs to be effort made against a “homogenizing and hegemonic globalization process” (Fronesis.org, 2000; Myer, 2001).

- Birthrates and infant mortality rates. Despite often deplorable living conditions, declining infant mortality rates have increased the number of children surviving in some countries around the world. The result has been an increase in the numbers of children that families and communities have to support. Additionally, in other countries, declining birthrates have resulted in policies that encourage mothers to enter the workforce due to shortages of workers (Myer, 2001).
- Political shifts, unrest and armed conflict. Major shifts in political systems of society (including shifts in political parties, countries who achieve political independence, etc.) often result in inadequate infrastructure to deliver services (healthcare, nutrition, childcare, etc.) to children and families in need. Additionally, across the globe, increased civil wars have resulted in the displacement of children and families as well as the separation of some children from their families (Myer, 2001).
- Health catastrophes. The pandemic of HIV/AIDS in some countries has resulted in large numbers of orphaned children. Sub-Saharan Africa and the Ukraine are only of two areas affected by this disease. Recent figures suggest that 14 million children under the age of 15 have lost one or both parents to AIDS. By 2010, this number is expected to exceed 25 million (UNICEF, 2004).

The effects of these trends differ around the world. These trends along with the knowledge gained in recent years about the manner in which young children develop, require a shift in the manner in which early childhood support is provided. While each of these trends provide a basis for encouraging support for young children and families, consideration must also be given to the moral argument for intervention.

*Human Rights Argument: The Right to Live and Develop to One’s Fullest Potential*

For some people the responsibility to protect a child’s human rights is the most fundamental reason to invest in programs to enhance early childhood development (Myer, 1995). The United Nations General Assembly has had a long history of supporting and encouraging

interventions aimed at children and families. Beginning in 1948 with the Universal Declaration of Human Rights in Articles 25 and 26, the UN began supporting adequate health and well-being for all humans including children as well as the right to free education directed at the full development of the human person (United Nations, 1948). Through the work of UNESCO and UNICEF, the UN has worked to improve the lives of children and families throughout the world. Specifically UNESCO looks to improve education worldwide by promoting education as a fundamental right, improving the quality of education, and stimulating experimentation, innovation and policy dialogue (UNESCO, 2004). More specifically UNESCO's early childhood goals include:

1. Support early childhood policy development
2. Strengthen family support policies
3. Promote early childhood networking and partnerships (UNESCO, 2004).

UNICEF was established on 11 December 1946 by the United Nations to meet the emergency needs of children in post-war Europe and China. Its full name was the United Nations International Children's Emergency Fund. In 1950, its mandate was broadened to address the long-term needs of children and women in developing countries everywhere. This support continued in 1959, when the U.N. adopted The Declaration of the Rights of the Child that provided children with protection and benefits and "the right to full and harmonious development of his personality" (United Nations, 1959). UNICEF has consistently worked to encourage countries and international partners to develop integrated approaches to early childhood which include:

- "Policies and programs in health, nutrition, water and environmental sanitation, psycho-social care and early learning, child protection and women's rights should share common goals for early childhood and work towards convergence."
- "Delivery systems for commodities and services have to be coordinated at the community level by local government, non-governmental organizations and families and caregivers. Real integration is essential for families and communities – they need integrated services and help with improving all aspects of care for their young children (United Nations, 1948)."

UNICEF has strongly encouraged the investment in integrated programs for early learning and psycho-social care because, while these are the most indispensable programs essential to the survival of young children, they are also the most neglected.

There have been several international education initiatives in the last few decades. These have included the Major Project of Education (MPE) in Latin American and the Caribbean begun

in 1979 sponsored by UNESCO and the Universal Access to Education (UAE) that is organized and led by the U.S. government. The UAE is part of a 26-point hemispheric agreement reached at the Free Trade Agreement summit in 1994, followed up by other summits in 1998 and 2001. Additionally, individual countries have been involved in education reform during the 1990s in conjunction with the World Bank and the Inter-American Development Bank (Torres, 2001). In 1990 through the Jomtien World Conference on Education for All (March 1990), where the Education for All (EFA) initiative was adopted, and the April 2000 World Education Forum, the international community again gave sanction and priority to the provision of assistance to children and families and providing educational opportunities. The unique facet of the Jomtien Declaration and framework is that it put international focus and import to early childhood education and development. The EFA framework "...recognized the role of parents, families and communities as the child's first teachers. Both learning and teaching begin at birth and continue throughout life, as individuals work, live and communicate ideas and values by word and example" (Final Communiqué - Mid-Decade Meeting of the International Consultative Forum on Education for All, Amman, 1996). In spite of this initiative, those concerned with early childhood care and development have not seen nearly the growth desired or anticipated.

Fundamentally, allowing children to live in environments without adequate health and well being (a right of all humans, including children) as well as the right to free education directed at the full development of the human person is a violation of the most basic human right. As Myers (1995) describes: "the fact that children are dependent on others for satisfaction of their rights creates an even greater obligation to help and protect them, and in this process families may require help" also. Unfortunately, often the scientific and human rights arguments carry little weight when deciding how to allocate monetary resources. Therefore, it is important to address the socioeconomic benefits of investing in early childhood programs.

*Socioeconomic Argument: The Economic Benefit of Early Childhood Development Programs*

Whenever governments or non-government organizations (NGO's) consider instituting an early childhood program, an enormous obstacle is simply the sheer cost of implementing comprehensive integrated programs. Because of this, in recent years, there has been an increased effort to place a monetary value on the benefits of early childhood care and development programs. From an economic perspective, the test of any investment is whether the rate of return justifies the expense. This type of analysis attempts to show the value of investing in early childhood by estimating the dollar value of the benefits of an ECCD program as they are reflected

in higher productivity levels of the program graduates. Cost-benefit analysis allows for a comparison of the economic returns of early childhood experiences by calculating increases in lifetime productivity. It captures program costs as the difference between total costs in a world with and without the program (Karoly, Kilburn, Bigelow, Caulkins, & Cannon, 2001).

While the benefits of ECCD programs to children are fairly obvious and include better preparation for primary/elementary school (including improved enrollment and greater school achievements), not all benefits are education-related. There are potential direct benefits to the participants (e.g., provision of meals, health care, immunizations, etc.), but also potential indirect benefits to society (e.g., greater participation in community, lower incarceration rate, less dependence on welfare system, etc.). Additionally, by providing quality ECCD programs, mothers are able to enter the labor force which often encourages them to participate in higher education and training to prepare for life in the labor force. High-quality integrated ECCD programs are by nature expensive. Cost-benefit analyses are useful in financially constrained environments because they provide policy makers with information that allows them to judge more than the immediate costs of programs. Cost-benefit analysis assists policy makers when comparing the economic benefits of ECCD interventions to those of other investments (van der Gaag & Tan, 1998).

Cost-benefit analysis in early childhood holds that education is both a consumptive good that gives immediate benefits and an investment good that gives personal and social benefits well into the future (Becker, 1964; Haveman & Wolfe, 1984; Masse & Barnett, 2002). From an economic perspective, cost-benefit analysis entails estimating the monetary values of streams of cost and benefits in order to measure the program's net value as a social investment. There are two core components of a cost-benefit analysis, a detailed estimate of all program costs (regardless of the source of the financing) and the identification of multiple program benefits or effects. Benefits or effects must be assigned a monetary value. Cost benefit requires the use of a control or comparison group who serve as estimates of the cost of the program without the intervention and a participant group from whom estimates are derived for the intervention (Karoly, et. al., 2001; Masse & Barnett, 2002). Constant dollars are calculated by analyzing streams of cost and benefits over time. Additional analyses can include discounting costs to the present by using appropriate rates of discount which reflect the opportunity cost of public resources (Masse & Barnett, 2002).

Cost-benefit analyses are by necessity situation and country specific. Each study is unique, and results do not carry over easily to other countries, regions, or target groups (van der Gaag & Tan, 1998). When discussing the economics of education, cost benefit analysis

demonstrates that early education, while a fundamental right of every human being, is also an investment in human capital. Human capital is a critical component of a nation's ability to grow economically. Human capital is best described as "the practical knowledge, acquired skills, and learned abilities of an individual that make him or her potentially productive and thus equip him or her to earn income in exchange for labor" (Johnson, 1994-2000). Investments in human capital make economic sense because the value of additional future benefits exceeds the extra costs to be incurred in the present (Johnson, 1994-2000). Human capital is best developed by providing every child with the opportunity to develop to their full potential. In early childhood this means focusing on health, learning, and behavioral development. Underdeveloped language acquisition, social skills, lack of the ability to think critically and the capacity to learn, all of which develop during the early years along with physical disabilities, learning impairments, poor preparedness for school, and gender disadvantages among others keep prosperity and development from occurring (UNICEF, 2004). Robert Fogel, a Nobel Laureate in Economic Sciences wrote in 1993:

Much of the capacity for success in life depends on the quality of prenatal care of mothers, on nutritional adequacy during pregnancy, and on both physiological and spiritual nurturing of children during early childhood. Not only is the physiological basis for good health laid during these early years, but those essential values that have such high payoffs in competitive labor markets are also transmitted from parents to children (UNICEF, 2004).

Despite attempts to determine the economic value of early childhood programs, skeptics still need to understand that an investment in early childhood is not like an investment in a road or a dam. Once completed, these projects easily prove their financial investment and the outcome is easy to see and understand (Myer, 1995).

Investment in early childhood is neither so clear nor easy to quantify.

### **What is Research in Early Childhood Care and Development?**

The body of research in early childhood is multi-disciplinary, coming from a variety of field, perspectives, sources, and cultures. The interactions between early childhood science, policies, and practices are quite complex, making policy decisions that are aimed at improving the lives of young children and their families problematic. It requires understanding that interventions that work are not simple, may be difficult to implement, and are quite costly (NRC,

2001). Nevertheless, the scientific foundation for intervention is quite broad, encompassing many large and small studies on many continents and in many languages.

Research on early childhood program effects occurs both in short term and long-term studies. Short-term studies generally look at immediate improvements in areas such as cognitive ability, school readiness, and classroom issues (e.g., curriculum, class size, quality, etc.). Longitudinal studies offer opportunities to examine questions that cannot be addressed in short-term studies. Longitudinal studies help answer questions about the impact of events such as early interventions, life experiences (malnutrition, poverty, education, abuse and neglect), and parenting on long-term behavior (e.g., educational achievement, criminal behavior, substance abuse, etc.) (Brooks-Gunn, Fuligni, & Berlin, 2003).

There have been thousands of studies, small and large scale projects across professional domains, which have examined the impact of early childhood programs on the lives of young children. There exists strong evidence that interventions can have significant short-term effects on cognitive abilities, school achievements, and social-emotional adjustment. There is also increasing evidence that interventions can produce longer effects on educational performance (such as school achievement, retention and placement, attitudes and behaviors, and graduation rates) as well as on adult experiences (decreased crime, higher education completion, and job retention, etc.).

The types of programs that can be used are -- by necessity-- different based upon the population, location, and culture of the children and families being served. Some of the consistent outcomes for children (both long-term and short-term) that have been documented include IQ and cognitive/achievement score increases, increased task completion, greater cooperation with peers, as well as reduced remedial placements, retentions and special education referrals (Brooks-Gunn, Fuligni, & Berlin, 2003; Cotton & Conklin, 1989; Reynolds, Wang, & Walberg, 2003). Research has demonstrated a consistent effect on parents of program participants as well. Parents are noted as having better attitudes toward children's schooling, having higher expectations for children's learning, and having greater ability to participate in children's education on both a personal level and within the educational system (Brooks-Gunn, Fuligni, & Berlin, 2003; Cotton & Conklin, 1989; Reynolds, Wang, & Walberg, 2003).

The worldwide public awareness of the importance of early childhood care and development has been increasing in recent years. The need for early care and development has been fueled by an understanding of child development and the importance of the early years of life. The societal changes the world has undergone, concerns for the human rights of children coupled with the recognition of the loss of economic resources in human capital has fueled the

demand for early childhood care and development services. In the public policy world today, the demand for research-based policies and financial accountability has risen. Unfortunately, the public policy debate which has occurred has not always focused on the vast research available about the power and cost-effectiveness of early interventions. What follows is a review of international early childhood care and development programs that can help inform the debate.

### **Specific Highlights of Early Childhood Care and Development Programs**

To assist in the literature review process the following guiding principles were established:

1. The studies reviewed must be considered systematic and rigorous.
2. The studies that are included must view the young child as important determinants of their on-going development.
3. The studies must consider the varying cultural contexts in which they occur.
4. At least some of the studies should describe analyses that look at the economic impact of resource allocation and return on investment (cost-benefit analysis).

While not all studies highlighted address each of these principles, combined they present a variety of methods and approaches to achieve optimal early childhood care and development.

This section of the paper will highlight 11 studies that examine the benefits of early childhood care and development programs. In choosing the studies to be included, an attempt was made to include a variety of:

- Continents, cultures, and countries;
- Research paradigms (including education, psychology, psychiatry, nutrition, etc.);
- Research sponsors, such as the government, universities, and NGO's, such as Save the Children and the World Bank.

The studies are presented in no particular order and importance was not placed on any one study over others. While it is true that most longitudinal studies and cost-benefit analysis have been conducted in the United States, effort was made to include studies from other countries that can provide insight into the effectiveness of a variety of early childhood care and development programs.

The purpose and intent of this review is to show how programs differ and how the combined strength of them illustrates the power of intervention in the lives of young children and their families. Each study will be briefly described along with a summary of important findings. Several of the highlighted studies have conducted cost-benefit analysis for the projects, in these

cases — specifically the North Carolina Abecedarian Project, the High/Scope Perry Preschool Study and the Chicago Longitudinal Study, the cost-benefit ratio is presented.

The studies highlighted include the following:

1. Turkey: Turkish Early Enrichment Project (TEEP)
2. United Kingdom: The Effective Provision of Preschool Education Project (EPPE)
3. New Zealand: Competent Children
4. Cross-National: The IEA Preprimary Project
5. Nepal: Save the Children's Early Child Development (ECD) Programs in Nepal
6. Mauritius: The Effects of Environmental Enrichment at Ages 3-5
7. United States: The North Carolina Abecedarian Project
8. United States: The Chicago Longitudinal Study
9. United States: Parent-Child Education -- The Avancé Strategy
10. United States: The High/Scope Perry Preschool Study
11. United States: Head Start – Early Head Start and Head Start Family and Child Experiences Survey (FACES)

*Turkey: Turkish Early Enrichment Project (TEEP)*

The Turkish Early Enrichment Project is a study of 255 children and their mothers in a low-income, low education area of Istanbul. The studies were conducted over a period of 10 years beginning in 1982. It began as a four-year investigation of the effects of two different types of educational preschool experiences and a mother-training program. It also involved a long-term follow-up of the same children and their mothers conducted seven years after the first (Kagitcibasi, Sunar, & Bekman, 2001).

There were three possible early childhood care experiences for the children – an educationally based day care experience, a custodial day care experience, and no program experience at all. Within each of these groups, a portion of the mothers experienced a mother-training program and the others did not. The mother-training program supported the women in their parenting and spousal roles, taught them better coping and communication skills, instructed them in child development and healthy family relationships, and provided them with information about how to help their children learn. The program included both alternating weekly group discussions and home visits.

With 217 of the original 255 families, the second study looked at children's cognitive development and academic achievement, as well as their attitudes toward academic performance.

### *Summary of Important Findings*

- During the first study, children who attended educational day care performed significantly better than the other two groups on psychosocial and cognitive development assessments as well as school achievement measures.
- Children not in educational care whose mothers received the intervention performed better than their counterparts in many areas.
- Custodial care, however, was shown to be a detriment to children's development. These children had more grade retentions, poor attitudes towards their parents and school, lower self-esteem and were more likely to be delinquent.
- However those children who received custodial care and whose mothers had received the parent-focused intervention had persistently higher vocabulary scores, greater school attainment (length of time in school), higher grades, better attitudes toward school, and better family and social adjustment.
- The mother-training program had significant effects on the mothers. Mothers were found to enjoy higher intro-family status, greater decision-making, more role sharing, and communication with their husband. They had greater satisfaction in their current life situations and positive expectations for the future.
- The second study showed that the mother training program produced better long-term results than any of the educational programs. This may be because the educational nursery schools did not have sufficient levels of enrichment to exert long-term influence (Kagitcibasi, 1996; Kagitcibasi, Bekam, & Goksel, 1995).

### *United Kingdom: The Effective Provision of Preschool Education Project (EPPE)*

The Effective Provision of Preschool Education Project is a longitudinal study examining the development and school success of 3000 children in the United Kingdom. The initial study began in 1997 and is the first European longitudinal study of young children examining the effects of preschool education for 3- and 4-year old children in 141 centers across the country. The initial study has recently entered a second five-year phase, which will examine the effects of preschool education on this same group of children for another five years. The first study collected information about children's homes, preschool settings, and from parents and included information from a sample of children who did not attend preschool. The study also looked at educational practices within classrooms as well.

### *Summary of Important Findings*

- Those children who attended preschool had enhanced educational and social development compared to children who did not attend any preschool.
- Earlier entry to preschool resulted in better intellectual development, independence, concentration, and sociability.
- Disadvantaged children were significantly more likely to benefit from quality preschool experiences if they attended centers that included a mixture of children from differing backgrounds.
- The quality of the preschool experience was directly related to better outcomes for children intellectually, cognitively, socially, and behaviorally.
- Children who spent time learning at home with parents combined with quality preschool experiences had more positive social and intellectual development (Sammons, Sylva, Melhuish, Siraj-Blatchford, Taggart, & Elliot, 2002).

### *New Zealand: Competent Children*

Begun in 1993, the Competent Children Project is a longitudinal study of the contribution of early childhood education to children's educational and developmental growth. It was funded by the New Zealand Ministry of Education and the New Zealand Council for Educational Research. Since inception, the researchers have collected developmental data on over 500 children. The purpose of the study was to analyze the effect of early childhood educational experiences on cognitive, social, communication, and problem solving competencies. The study defines competencies as "...particular combinations of knowledge, skills, and dispositions – that seem to underpin successful learning, growth to adulthood, and adulthood itself" (Wylie & Thompson, 2003). These knowledge, skills, and dispositions were literacy, mathematics, problem solving, communication (receptive and expressive language), perseverance, social skills with peers and adults, self-management, curiosity, and motor skills. The study also examined the effect of family resources, home activities, and engagement in school on these same items. Data has been collected on the children through age 12 and the children will be assessed again when they are 14 years of age.

### *Summary of Important Findings*

The Competent Children Project found for children at age 12 that:

- Competency levels were affected by early childhood educational experiences. Of particular importance for children's learning was the quality of teachers' support as well as the quality of teacher interactions with the children.
- Children's dispositions and experiences prior to school entry, such as family resources, language practices in the home, and the use and understanding of symbols, affected children's literacy and math scores at age 12.
- Parental education levels and family income affected children's literacy and mathematic scores. Higher education and income seemed to result in children having greater knowledge and more varied experiences. Family resources were not evident in attitudes or social skill differences.
- Income levels were related to lower scores. Persistent low income resulted in lower scores at age 12 -- even if family income improved for children between the ages of 5 and 10.
- Starting age of early childhood education was significant. Children who started before age 2 had higher scores in curiosity, mathematics, and reading comprehension (Wylie, Thompson, Hodgen, Ferral, Lythe, & Fijn, 2004).

*Cross-National: The IEA Preprimary Project*

The IEA Preprimary Project is a multi-nation study of preprimary care and education sponsored by the International Association for the Evaluation of Education Achievement (IEA). The purpose of the study was to identify how process and structural characteristics of community preprimary settings affected children's development at age 7. Ten countries participated in the longitudinal study (Finland, Greece, Hong Kong, Indonesia, Ireland, Italy, Poland, Spain, Thailand, and the United States). The study was unique because many diverse countries participated using common instruments to measure family background, teachers' characteristics, setting structural characteristics, experiences of children, and children's developmental status. The IEA was also unique because it was neither an intervention study nor a study that evaluated the quality of settings. Rather it was descriptive in the tradition of ethnographic traditions looking at behavior in natural environments. IEA tried to define the range of experiences that children have in different national settings and attempted to include all major variables representing the setting structures and program elements of high-quality programs that are a part of children's experiences. Looking at child language and cognitive outcomes at age 7 determined which variables or combinations of variables were elements of high-quality programs.

#### *Summary of Important Findings*

- Children's language performance at age 7 improved as the predominant types of children's activities that teachers propose were freely chosen.
- The most important contribution came from free activities in which teachers let children choose the activities.
- Children's language performance at age 7 also improved based upon the greater the numbers of years of full-time schooling the teacher had obtained.
- Children's cognitive performance at age 7 improved as the children spent less time in whole-group activities.
- Children's cognitive performance at age 7 also improved based upon increases in the number and variety of equipment and materials were available to children (High/Scope Educational Research Foundation, 2004).

#### *Nepal: Save the Children's Early Child Development (ECD) Programs in Nepal*

Save the Children's ECD programs in Nepal conducted this study. This study looked at short-term and long-term impacts of early childhood experiences in Nepal. Data was collected on 935 children in 38 ECD centers. The study examined the impact of ECD on school enrollment, attendance, pass rates, and retention. It also included a qualitative component examining the impressions of teachers, ECD facilitators, parents, children and other community members regarding the children and the program. Indigenous people who provided culturally appropriate active learning experiences using a range of low cost materials with a mix of directed and free play activities ran the centers. Additionally, the schools offered advantages the Nepalese children are not used to such as small groups, close attention, songs and stories, and a range of stimulating activities.

#### *Summary of Important Findings*

- Children who participated in the ECD programs were more likely to enter school at the appropriate age as opposed to later or not at all.
- Girls and boys who attended the ECD programs initially enrolled in primary school in equal numbers, compared to a 39% of them being girls and 61% being boys for children with no ECD experience.

- The impression of parents and facilitators is that children who attended a center were better prepared to handle school than their non-ECD peers, both academically and socially.
- ECD children's attendance in school was better than that of their non-ECD peers.
- ECD children were more likely to pass their year-end exams in grades one and two than their counterparts.
- ECD children's pass rates were higher, they were more likely to be promoted, and less likely to be retained or dropout in first or second grade.
- Qualitative reports indicate that the parents of children who participated in the ECD programs were more likely to take an active role in their children's first and second grade of school. This included talking to the teachers, showing an interest in their children's progress, engaging actively with the school management committees, raising issues that concern them, and calling for accountability from teachers and administrators (Save the Children, 2003).

*Mauritius: The Effects of Environmental Enrichment at Ages 3-5*

This study examined the effects of an environmental enrichment program for 83 3- to 5-year old children in Mauritius, a mountainous island in the Indian Ocean. The study matched these children with 355 others based on temperament, nutritional status, and cognitive and demographic variables. This project was unusual because it was specifically looking at the impact of early intervention on mental health (schizotypal personality disorder), conduct disorders, and criminal behavior. Schizotypal personality disorder is a pattern of social and interpersonal deficits. It can include difficulties with relationships, cognitive distortions, and eccentric behavior (American Psychiatric Association, 2000).

The 83 children received an enriched program with three key elements nutrition, education, and physical exercise. The education component consisted of small class sizes (1 teacher to 5.5 children), with a focus on verbal skills, coordination, conceptual skills, memory, and sensation and perceptions as well as the availability of toys, art, handicrafts, drama, and music. The 2.5 hours per day of physical activities included the use of gymnastic and rhythm activities, outdoor activities, and physiotherapies. The nutritional component involved providing the children with daily milk, fruit, hot meals, and salads. The program also included enrichment activities, such as walking, field trips, basic hygiene instruction, and medical evaluations.

The matched sample underwent the traditional Mauritius community educational experience ("petite ecoles") that included a traditional grade-school curriculum, much larger class

sizes (1 teacher to 30 children), no nutritional component, and no structured exercise program. Lunches usually were rice or bread only, or rice and bread combined.

#### *Summary of Important Findings*

- Nutritional, educational, and physical exercise enrichment in the enrichment program were associated with lower scores for schizotypal personality and antisocial behaviors 14-20 years later compared with children who participated in the traditional community educational experience. In other words, they were more socially adjusted, calmer, and were better able to get along with their peers than those in the control group
- Children who were not in the enrichment program and were malnourished at age 3 were more likely to exhibit conduct disorders and motor excesses. The beneficial effects of this study were strongest for children who participated in the enrichment program and were malnourished at age 3.
- At the age of 17, children who were malnourished at age 3 were more likely to have lower cognitive disorganization scores compared to the malnourished subjects in the control group.
- At the age of 23, those children who were malnourished at age 3 and participated in the enrichment program had lower schizotypal personality scores. This was also true for interpersonal deficits.
- At the age of 23, self-report rates of criminal behavior for children who had participated in the enrichment program were significantly lower than those who had not (Raine, Melligen, Liu, Venables, & Mednick. 2003).

#### *United States: The North Carolina Abecedarian Project*

This study examined the effects of early, high quality childcare on low-income children in North Carolina. One hundred eleven infants began the study between 1972 and 1977. They were all healthy newborns, without biological conditions associated with mental retardation but were considered “high risk” based on evaluation which took into account factors such as family income and maternal education level. The children were matched with a comparable sample that experienced a variety of early care environments (including parental care, child care, etc.) typically used by low-income families in the community.

The intervention consisted of high quality childcare with low teacher-child ratios (ranging from 1 teacher to 3 infants and 1 teacher to 6 children at age 5), extensive in-service

training for teachers, and low teacher turnover. The infant curriculum used focused on cognitive, language, perceptual motor and social development. During the preschool years the curriculum focused on language development and pre-literacy skills. Children were assessed as preschoolers and at 6.5, 8, 12, 15 and 21 years of age.

#### *Summary of Important Findings*

- During the toddler phase, both groups were equivalent on measures of intellectual development. After that, children who received the early education treatment outscored the control group from age 18 months through 54 months.
- At age 8, children who had been in the treatment group had higher intellectual test scores than the control group as well as higher standardized math and reading scores. They were also less likely to have been retained in school.
- At age 12, the advantages in IQ, math, reading, and retention were maintained.
- At age 21, children who received the early educational treatment achieved higher overall IQ scores than children in the control group as well as continued higher reading scores and math.
- At age 21, the children in the treatment group were more likely to have attended a 4-year college, postponed childbirth and to be employed
- Cost-benefit analysis of the Abecedarian Project indicates that for every dollar invested returned \$4.00 (U.S.) in education, social welfare, and socioeconomic benefits by reducing public expenditures for income, remedial education, health benefits (Campbell, Pungello, Miller-Johnson, Burchinal, & Ramey, 2001; Campbell, Ramey, Pungello, Sparling, & Miller-Johnson 2002).

#### *United States: The Chicago Longitudinal Study*

The Chicago Longitudinal Study (CLS) was implemented in the Chicago Public Schools between 1983 and 1985. The study contained 1150 children who were enrolled in 20 Child-Parent Centers (CPC) of the Chicago Public Schools. The Centers provided services for children between the ages of 3 and 9, ensuring a stable transition from preschool to early elementary school. The sample was predominantly black and poor. The children were enrolled for varying lengths of time, which allowed the researchers to examine the long-term effects of differing levels of participation beginning at different ages. The comparison group of 380 children was randomly selected from selected schools in poor neighborhoods. The study followed the participants through age 21.

Comprehensive services including health and nutrition services (i.e., health screening, speech therapy, and nursing and meal services) were provided to the program participants. Parents were required to participate. The educational model provided by teachers employed in the Chicago Public Schools took a structured approach to children's cognitive and social development. The preschool program was a half-day experience and kindergarten and primary grades were full day. The program had no set curriculum, but included a structured set of activities that promoted basic math, language and reading skills and encouraging psychological and social development. Teacher ratios were 1 teacher to 8 children in preschool and 1 teacher to 12 children in primary grades.

#### *Summary of Important Findings*

- Children who were involved in the CPC program had higher reading and math scores during adolescence than those who had not participated.
- Children who were involved in the CPC program had experienced lower retention rates and lower special education placement by age 20.
- The longer the children participated in the program (preschool + elementary school versus just elementary school), the better they performed on reading assessments and they were less likely to be retained.
- Children who participated in both the preschool and elementary program had significantly lower delinquency rates at ages 13-14.
- Children who participated in full-day kindergarten intervention had significantly higher rates of school completion by age 20.
- Children who participated in full-day kindergarten intervention had significantly lower rates of official juvenile arrests, violent arrests, and multiple arrests by age 18.
- Children who participated in full-day kindergarten intervention had significantly lower rates of special education and grade retention.
- Cost-benefit analysis of the CPC program indicates that every dollar invested in the preschool program returned \$7.14 in education, social welfare, and socioeconomic benefits by reducing public expenditures for remedial education, criminal justice treatment, and crime victims.
- Cost-benefit analysis in the extended intervention program (4-6 years of participation) provided a return to society of \$6.11 (U.S.) per dollar invested (Reynolds, 2000; Conyers, Reynolds, Ou, 2003; Reynolds, Temple, Robertson, & Mann 2002).

*United States: Parent-Child Education -- The Avancé Strategy*

The Avancé Strategy was a two-generation program that worked with low-income Hispanic families in Houston, Texas. The program, which is a nine-month comprehensive, center-based program, has existed since 1973 and was evaluated between 1987 and 1991. It included weekly 3-hour classes for mothers and their children between the ages of birth to two-years old. The program provided transportation. The evaluation included 486 families- 207 in the program and 279 in the control group.

During class time the mother were instructed in the making of educational toys for their children, child growth and development, empowerment (learning to see themselves as role models), how to teach their children and what social services were available to them in the community. Home visits were an important component of the program, with monthly visits during which the classroom lessons were reinforced and individual support provided. Three measures of teaching effectiveness were used to test the program model.

*Summary of Important Findings*

- Mothers who participated in the Avancé Strategy were significantly more likely to believe they could be effective teachers of their children.
- Mother who participated in the program were found to provide a more educationally stimulating environment for children.
- Mothers, who participated in the program communicated more effectively with their children and provided more positive affect at the end of the program and one year later. They verbalized more, communicated better, and were more encouraging of their children's verbalization (Johnson, Walker, & Rodriguez (1996).

*United States: The High/Scope Perry Preschool Study*

The High/Scope Perry Preschool study is perhaps the best-known early intervention program. Conducted by the High/Scope Educational Research Foundation the study examined the lives of 123 African Americans born in poverty and at high risk of failing in school. Between 1962 and 1965 children aged 3 and 4 were randomly divided into two groups, one group received a high-quality, active learning preschool program and another received no preschool program. Children were selected from among low-socioeconomic status families where the child scored less than 85 on a standard IQ test. The program consisted of 2.5 hours of center-based classes, with a low child-teacher ratio and home visits. Both the control group and the participants have

been followed through age 27. At age 27, 95% of the original study participants were interviewed with additional data gathered from their school, social services, and arrest records.

#### *Summary of Important Findings*

- Children who participated in the High/Scope study children had higher IQ scores at age 4 to 7 than did those in the control group.
- Children who participated in the High/Scope program had significantly higher average achievement scores at ages 9 and 14 than did the control group.
- Children who participated in the High/Scope program had significantly higher literacy scores at age 19 than did the control group.
- The high school grade point averages of program participants were higher than the control group and they were more likely to graduate.
- Program participants were placed in special education services for mental impairment less than those in the control group.
- Female participants in the program had only about two-thirds as many out-of-wedlock births as did the non-participants (57% of births vs. 83% of birth).
- By age 27, only one-fifth as many program members as control group were arrested 5 times or more (7% versus 35%) and only one third as many (7% versus 25%) were ever arrested for drug dealing.
- At age 27, four times as many program members as no-program members earned \$2,000 or more per month (29% vs. 7%). All most 3 times as many owned their own homes (36% vs. 13%); and over twice as many owned two cars (30 vs. 13%).
- Cost-benefit analysis of the Perry Preschool Study indicates that every dollar invested in the preschool program returned \$7.16 (U.S.) in education, social welfare, and socioeconomic benefits

#### *United States: Early Head Start (EHS)*

In 1994 the Administration on Children, Youth and Families (ACYF) created Early Head Start to serve as a two-generational program with the goal of enhancing “children’s development and health, strengthen[ing] family and community partnerships, and support[ing] the staff delivering new services to low-income families with pregnant women, infants, or toddlers” (ACYF, Executive Summary). The first 143 programs were funded between 1995 and 1996. Currently the program operates in 664 communities and serves approximately 55,000 children.

At the inception of the program, ACYF selected 17 programs across the United States to participate in an evaluation that would include a balance of rural and urban sites, racial and ethnic participants, and program approaches (center based, home based, and mixed base). The sample included 3,001 families.

The 3 program approaches were (1) center-based which provided all its services through center-based child care and education, and a minimum of two home visits per year; (2) home-based which provided all its services to families through group socializations (minimum of 2 per month) and weekly home visits; and (3) a mixed approach, which provided both center-based and home-based services or a mixture of both.

#### *Summary of Important Findings*

- EHS programs enhanced cognitive development so that children in the program scored modestly but significantly higher than their control group peers on Bayley Scales of Infant Development (but still lower than the national norms). A smaller percentage of program participants were classified as at-risk on the Bayley Scales than their control group peers.
- EHS programs enhanced language development so that children in the program scored modestly but significantly higher than their control group peers on vocabulary assessment (but still lower than the national norms).
- EHS participants engaged in more positive socio-emotional behaviors than their control peers. These included engaging with their parents more, exhibiting less negative behavior with their parents, attending to play objects more, and exhibiting less aggressive behavior than control children.
- EHS had an impact on parents. Parents were evaluated as being more emotionally supportive, engaged in fewer negative parenting behaviors, exhibited a wider range of discipline strategies, and provided significantly more support for language and learning than their control group peers. EHS parents participated in education and job training more and were more likely to be employed.
- The mixed-approach programs had the strongest pattern of impact among families, although both the center- and home-based services had favorable outcomes. The stronger pattern of impact is evidence of the ability of the programs to adjust services based upon family needs, cultures, and perspectives that allowed them to keep families participating for longer periods of time.

- EHS was particularly effective when working with African American and Hispanic families. The program was effective in child development and parenting outcomes for both groups, raising the assessments of these children closer to the levels of other ethnic/racial groups.
- Early intervention is better. The impact of EHS was greater on children's outcomes whose mothers enrolled during pregnancy (U.S. Department of Health and Human Services, 2002; Berlin, O'Neal, & Brooks-Gunn, 2003).

*United States: Head Start Family and Child Experiences Survey (FACES)*

The FACES study is an ongoing longitudinal study of the characteristics of Head Start classrooms, staff and teachers and Head Start children and their families. The random sample of 3,200 children and families and 40 Head Start programs is nationally stratified. Initial data gathering occurred when children entered in the program in fall 1997 and children were assessed in the spring when they had completed one or two years of Head Start. They were followed up in the spring of kindergarten and first grade.

The study was designed to answer 4 questions:

1. Does Head Start enhance children's development and school readiness?
2. Does Head Start strengthen families as the primary nurturers of their children?
3. Does Head Start provide children with high quality educational, health and nutritional services?
4. How is classroom quality related to child outcomes?

*Summary of Important Findings*

- Head Start children increased their vocabulary and writing skills over the Head Start year. Gains were considered "educationally meaningful" because Head Start children showed significant gains relative to national norms.
- Head Start children who began the program with the lowest school readiness scores made the greatest gain in cognitive skills during the Head Start year.
- Spanish-speaking children who entered Head Start exhibited gains in school readiness skills and English language proficiency over the Head Start year.
- Children exhibited significant improvement in social skills during the program year. Play became more complex, interactive, and appropriate for doing well in school. Children who began the program with the lowest scores exhibited a significantly larger gain.

- Head Start affected parents as well. Head Start parents reported increases in weekly and monthly intellectual and socially stimulating activities they engaged in with their children. Intellectual activities included actions such as story telling, teaching letters, numbers, and words, and going to museums. Socializing activities included household chores, running errands and attending sporting events.
- Parents reported high levels of satisfaction with their Head Start services and reported Head Start taught them a new manner in which to discipline their children. Parents reported a significant increase in their sense of control over their lives.
- Classroom quality in Head Start were generally rated as good or better (75%) with none rated as inadequate, using a measure of classroom environment (ECERS). Student-teacher ratios were better than those required by the National Association for Education of Young Children accreditation standards.
- Classroom quality was directly related to the educational level of the teacher. The greater the level, the better the classroom quality (U.S. Department of Health and Human Services, 2001; Fuligni & Brady-Smith, 2003).

### **Summary and Conclusions**

The impact of early childhood care and development programs on children and families have been well documented in the studies identified in this paper as well as in other research over the past 30 years. In the studies identified in this paper, as Table 1 indicates, there is a great deal of consistency in outcomes, in spite of the country or culture in which the program took place. The strength of ECCD programs can be seen in the combined weight of the findings. The consistent findings included:

- ECCD programs positively influenced children's socio-emotional and cognitive/intellectual development which (when measured longitudinally) often continued into adolescence and adulthood. In the studies highlighted from Turkey, the United Kingdom, Mauritius, the IEA, and the United States, children who attended ECCD programs performed significantly better on both psychosocial and cognitive developmental assessments. Specifically there was enhanced intellectual development and educational readiness. Language, math, and literacy skills were also improved. Children exhibited more positive social behaviors such as independence, concentration, and sociability as well as improved social adjustment. Their play was more complex, interactive, and appropriate for doing well in school

and, in the case of Mauritius, they were calmer and better able to get along with their peers.

- There was a positive influence on child's later school achievement as well as fewer grade retentions and special education placements. In several of the studies both in the United States and on other continents children's participation in ECCD programs impacted enrollment patterns resulting in greater primary school enrollment, primary school enrollment rates that were more gender equal, and better attendance rates. In situations where examinations were required for moving on to a higher grade, ECCD participants were more likely to pass the test. For the Perry Preschool participants, high school grade point averages were higher and they were more likely to graduate. Additionally, in several of the studies, retention rates were reduced at both the primary and high school levels, as were placements in special education classrooms.
- Nutritional intervention was a significant variable in the development of physical and mental health. The Mauritius study was a clear demonstration of the importance of providing nutritional interventions for young children. In this study the nutritional component, educational intervention, and physical exercise included in the enrichment program were associated with lower scores for schizotypal personality and antisocial behaviors 14-20 years later compared with children who participated in the traditional community educational experience. The beneficial effects of this study were strongest for children who participated in the enrichment program and were malnourished at age 3. At the age of 17, the children who were malnourished at age 3 and were included in the enrichment program were more likely to have higher cognitive organizational scores compared to the malnourished children in the control group.
- The quality and/or type of educational experience affected outcomes. Across cultures, continents and countries, definitions of quality in ECCD programs are controversial. Quality tends to be defined by individual countries and cultures. Nevertheless, in many of these studies, the types of program and methods of instruction impacted outcomes for some of these participants. Educational programs, which included a mixture of children from different backgrounds, benefited disadvantaged children more. Educational programs were more effective than programs that provided primarily custodial care. The quality of the teacher's support, their interactions with children, and the experiences they provided for children were important as well. In particular the IEA demonstrated that the types of children's

activities that ECCD teachers proposed, the manner in which children made their choices, and the way the educational day was organized (whole-group versus individually initiated activities) resulted in improved language and cognitive performances at age 7.

- Length of intervention or age at entry affected outcomes (earlier and longer is better).

The starting age of ECCD programs was significant in several of the studies reviewed. In New Zealand children who started early childhood programs before age 2 had higher scores in curiosity, mathematics, and reading comprehension. In the United States, Early Head Start has shown that early intervention is better and in the CPC study the longer the children participated in the program (preschool + elementary school versus just elementary school), the better they performed on reading assessments and the less likely they were to be retained.

- Parenting skills improved and parent participation influenced child outcomes.

In six of the studies presented the impact of parental involvement in the studies coincided with increased child outcomes. For example, in Turkey, children whose mothers received the parent-focused intervention had persistently higher vocabulary scores, greater school attainment (length of time in school), higher grades, better attitudes toward school, and better family and social adjustment. In addition, the program had significant effects on the mothers; mothers were found to enjoy higher intra-family status, greater decision-making, more role sharing, and communication with their husbands. In the United States, the Head Start parents reported a significant increase in their sense of control over their lives. Program participants expressed greater satisfaction in their current life situations and positive expectations for the future. Other studies (New Zealand, Nepal, and the Avancé Strategy) demonstrated that programs that designed interventions for the parents themselves had significant impact on parenting behaviors and skills. After the intervention, parents were seen as providing more educationally stimulating environments, increasing their communication skills, and were more emotionally supportive of their children. They engaged in fewer negative parenting behaviors while exhibiting a wider range of discipline strategies, and providing significantly more support for language and learning. Additionally, parents were seen as better advocates for their children when they entered primary schools. In Nepal, the parents were more likely to take an active role in their children's schools which included talking to teachers, showing an interest in their children's progress while engaging actively with the school

management committees, raising issues that concerned them, and calling for accountability from teachers and administrators.

- ECCD programs positively affected adult behavior of the child participants. The ultimate benefit of any ECCD program would be longitudinal impact of the experience on children who participated when they become adults. Several of these studies (Mauritius, CPC, Abecedarian, and the Perry Preschool) demonstrate the lifelong value of early educational intervention. In Mauritius participants demonstrated increased mental health, in the CPC and Perry Preschool participants had higher rates of school completion, lower rates of criminal behavior and delayed childbirth. Other demonstrated effects included greater secondary school attendance and higher personal incomes.
- ECCD programs exhibit economic benefits. Three of the studies highlighted used a cost-benefit analysis to demonstrate the financial benefits of ECCD programs. These three studies, the Abecedarian Project, the CPC and the Perry Preschool Study consistently demonstrated that for every dollar invested there was a significant return. The rate of return ranged between \$4.00 (US) and \$7.14 (US) in education, social welfare, and socioeconomic benefits by reducing public expenditures for remedial education, criminal justice treatment, and crime victims.

As described earlier the rationale for intervening during the early childhood years of a child's life come from three basic arguments: 1) a foundational argument; 2) a human rights argument and; 3) a socioeconomic argument. After reviewing these studies it is important to determine how well these studies support these arguments. The foundational argument, based on developmental research, argues that early intervention will enhance a child's development intellectually, emotionally, socially, physically, and morally. As clearly described above, ECCD programs have demonstrated their remarkable ability to enhance children's development not only in the short term but longitudinally as well. The human rights argument examines the many societal changes that have occurred in recent years and posits that children have a right to live and develop to their fullest potential. Organizations such as UNESCO and UNICEF have worked to improve the lives of children and families throughout the world. These organizations strongly encourage investment in integrated early childhood programs because allowing children to live in environments without adequate health and well-being as well as the right to free education directed at the full development of the human person is a violation of the most basic human right. The ECCD programs described in this paper document the value of providing nutritional,

educational, and social interventions as early as possible. The earlier the interventions began and the more encompassing the programs were – the greater the benefits were for both children and parents. Lastly, the socioeconomic argument holds that the economic return of an investment should justify the expense. In early childhood programs, evidence of a justified investment is seen in children and families when the rates of economic return are evident in two ways: 1) investment can be seen when participants develop the values and skills necessary to participate in competitive labor markets; and 2) investment is evidenced through decreased public expenditures on later negative or delinquent behaviors. The studies described in this paper clearly supported the ability of ECCD programs to assist children and families in the development of values and skills necessary for productive participation in labor markets through enhanced intellectual, emotional, social, physical, and moral development. The three studies cited which engaged in cost-benefit analysis were clear in their ability to justify the overall cost-benefit of ECCD interventions by calculating the dollar value of the investment in education, social welfare, and socioeconomic benefits.

What is learned from the evidence presented in these studies is strong; nevertheless there remains a great deal of research yet to be done to further our understanding regarding the value of ECCD programs. Specifically, there is a need for greater international and cross-national research that examines the impact of early-integrated comprehensive interventions on young children and their families. This research would further strengthen the evidence if it provides a focus on the three arguments included herein: 1) foundational (looking at both the short-term and longitudinal impacts of ECCD on children’s development); 2) human rights (exploring how ECCD enhances the basic human rights of children and families); and 3) socioeconomic (creating an international economic argument for early intervention). Research with this focus would address many of the skepticisms of policy makers regarding the value of investment in early interventions and potentially increase the amount of money governments are willing to spend on young children and their families.

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Table 1: Summary of Significant Findings

	Turkish Early Enrichment Project	Effective Provision of Preschool Education	Competent Children	The IEA Preprimary Project	Save the Children's Early Child	The Effects of Environmental	North Carolina Abecedarian Project	The Chicago Longitudinal Study	Parent-Child Education -- The	High/Scope Perry Preschool Study	Early Head Start	Head Start (FACES)
Positive impact on child's socio-emotional development	X	X	X		X	X	X				X	X
Positive impact on child's cognitive/intellectual development	X	X	X	X	X		X	X		X	X	X
Positive impact on child's school achievement, including fewer grade retentions and special education placements	X	X			X		X	X				
Quality/type of experience affected outcomes	X	X	X	X							X	X
Parenting skills improved and parent participation affected child outcomes.	X	X	X		X				X		X	X
Nutritional intervention was significant						X						
Length of intervention or age at entry affected outcomes (earlier and longer is better)		X						X			X	

<b>Program affected adult behavior of child participant</b>						<b>X</b>	<b>X</b>	<b>X</b>		<b>X</b>		
<b>Cost-benefit analysis</b>							<b>1:4</b>	<b>1:7.1 4 and 1:6.1 1</b>		<b>1:7.1 6</b>		

