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Preschool Education: A Foundation for Lifelong Well-Being



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outcomes of children between 0 and 3 years of age through structured day care/early childhood intervention are passing in nature and excluded from inference or discussion.

Cognitive Skills: (1) assessed I.Q.; (2) early language (literacy as witnessed by receptive and expressive vocabulary); (3) achievement (as represented by skills in reading and mathematics).

Non-cognitive Skills: (1) Social skills; (2) persistence and motivation; (3) self-regulation and control over attention and behavior.

Synonyms

Foundation: initiation; creation; origination.

Well-being: Positive-trajectory; Life-quality; Prosperity; Mental-health

Definitions

Preschool: Institutional educational establishment or formal learning space offering early childhood education to children before they begin compulsory education at primary school. For the purposes of this entry, preschool is used a term for children between 3 and 5 years of age and can be interchanged with other terms such as nursery school, pre-primary school, playschool, kindergarten, or Pre-K (different nomenclature used in literature). References to findings for learning

Foundations of Child Development as a Tool for Lifelong Well-Being

Introduction

Caring for and educating young children took a formal route, beyond the informal family, household, and community responsibility, as late as the nineteenth century. Research projects to assess long-term impact of formal early childhood education started in the 1960s. In this entry, for context, theories of child development are outlined and findings in the literature with regard to practical implications and outcomes of preschool education are listed. These findings are then used to highlight three key forward-looking dimensions as identified in the literature: (1) making the most of preschool education for long-term well-being; (2) expanding preschool education debate as a “Global” Sustainable Development Goal (SDG)

in the context of disadvantaged (developing) and advantaged (developed) countries; (3) making sense of and reframing the dialogue for execution. Ramey and Ramey's "Four Diamond Model" is used to summarize the framework for quality child development and conclusions are drawn.

At the heart of science is an essential balance between two seemingly contradictory attitudes – an openness to new ideas, no matter how bizarre or counterintuitive they may be, and the most ruthless skeptical scrutiny of all ideas, old and new – Carl Sagan.

Theories of Child Development

Nineteenth- and early-twentieth-century early education proponents Margaret McMillan (1860–1931), Rudolf Steiner (1861–1925), and Maria Montessori (1870–1952) focused on health, playtimes, and learning through exercise and senses as key drivers for learning in young children (Fisher 1992; Bergen 2002). In recent times, as technology has advanced, the "art of play" has started to transform into "gaming" through technology, and the focus of play has had some distractive criticism². The contemporary approach promotes guided learning experiences, individualized learning, and developmentally appropriate learning as doctrines of early childhood education (Wolpert 2009). This "developmental interaction approach" emphasizes on learning through discovery (Jean Piaget; Erik Erikson; John Dewey, and Lucy Sprague Mitchell) with recommendation for teachers (Jean Jacques Rousseau) to focus on a child's individual interests to maximize personal development (Nager and Shapiro 1999; Casper and Theilheimer 2010; Bhat 2016).

Vygotsky, in the 1930s, proposed a sociocultural learning theory, which underscored the impact of cultural and social experiences on development of the mental processes and individualized thinking that is still discussed and referred to almost a century later as means of improving and reforming educational practices. Treated as a social constructivist, he believed that human cognitive system development is a result of social interactions and is inseparable. His concept of

"zone of proximal development," requiring teachers to adjust to specific-learning needs, has proven especially important to educate persons (children) with disability (Vygotsky 1980).

Piaget, gaining significant ground in the 1970s and 1980s, laid the groundwork for "learning from within": constructing knowledge through experience and reflection. He argued that the "first task of education is to form reasoning" with teachers tasked to encourage acquisition of knowledge as opposed to focus on transference of information. According to Piaget, the two processes of "accommodation" and "assimilation" allow young children to learn by equilibrating their mental representations with reality (Piaget 2001) while also incorporating learning from mistakes through experiential education (Piaget 1964).

Piaget's proposition of reflective abstraction has found purchase particularly in mathematical education (Kato et al. 2002). His theory also implies that computers can be a superb educational tool for young children when used for design and construct projects but another research by Plowman and Stephen (2003) found limited application in preschool, which suggests that the role of teachers is critical in adopting computers at preschool level (Townes 2010).

Kolb's experiential learning theory argues that children need to experience things in order to learn – knowledge results from combinations of grasping and transforming experience. The distinctive aspect of this experiential learning theory is that children are seen and taught as individuals, with the teacher asking probing questions for the child to adopt prior knowledge to learning new information. Kolb breaks down learning into four stages – concrete experience, reflective observation, abstract conceptualization, and active experimentation. Children observe new situations, think (reflect) about it, make meaning, and test that meaning within the world around them (Kolb 2014).

Five childhood development domains, which have a broad consensus within literature, are:

- (a) Physical – development of biological (including eyesight) and physical (including motor skills) functions
- (b) Social – interaction with others and understanding of responsibilities
- (c) Emotional – creation of emotional connections and developing self-confidence and sharing
- (d) Language – development of communication skills, both to other people and oneself. “Normal” language development is measured by the rate of vocabulary acquisition.
- (e) Cognitive Skills – mechanism for organizing information (Trawick-Smith and Smith 2014).

Piaget believed that children depict prominent differences in their thought patterns through stages of cognitive development (Doherty and Hughes 2009).

Literature on Practical Implications and Outcomes of Preschool Education

There are a significant number of studies conducted on the outcomes of preschool experimental groups (within the US) as well as topical research around the world. For the purpose of this entry, six extensive research references, summarizing and analyzing numerous studies and papers, have been used (Barnett 2008; Yoshikawa et al. 2013; Melhuish et al. 2015; Sammons and Sylva 2015; Stevens and English 2016; Phillips et al. 2017). Findings and conclusions drawn by these selected and referred research projects and reports, in time-sequential order, are summarized below:

1. Preschool Education and Its Lasting Effects (Barnett 2008)
 - Participation in preschool programs has dramatically increased in the USA with much higher support from public (in 1960, just 10% of 3- and 4-year-olds were enrolled in any form of classroom, and less than half a century later, 75% of 4-year-olds and 50% of 3-year-olds enroll in a preschool classroom).
 - Since policymakers are always challenged between resources and allocation alternatives, they face key questions about value of preschool education, whom it should serve or subsidize, and which program designs are best. Different programs have shown to produce positive effects on children’s learning and development, but these effects vary in size and persistence.
 - Economically disadvantaged children reap (higher) long-term benefits from preschool but children from all backgrounds benefit. Increasing public investment in effective preschool education programs for all children can produce substantial educational, social, and economic benefits.
 - Teachers in preschool programs should receive intensive training and supervision, and the programs should regularly assess children’s learning and development to monitor accomplishment of goals.
 - Preschool programs, in order to produce positive effect on children’s behavior and later reductions in crime and delinquency, should be designed to develop the whole child, including social and emotional development and self-regulation.
2. Investing in our Future: The Evidence Base on Preschool Education (Yoshikawa et al. 2013)
 - Meta-analyses (integrated evaluation of 84 preschool programs) drawing together evidence across decades of evaluation research permit concluding that (high-quality) preschool programs (implemented at scale) can have a substantial positive impact on children’s development for language, literacy, and early math skills, for social and emotional outcomes, and in children’s health.
 - While earlier studies focused on children from low-income families, recent studies encompass families from a wide socioeconomic range and make it possible to say that preschool education benefits children from both middle-income and low-income families (although children from low-income families benefit more).
 - There are positive effects for dual-language children, as well as for those whose home language is English, for children with special needs, and for typically developing children.

- Although test scores (of children who have and have not attended preschool) converge and diminish academic achievement differences over time, and even when this difference declines to zero, children who have attended preschool go on to show positive effects on important adolescent and young adult outcomes (such as high school graduation, reduced teen pregnancies, years of education completed, earnings, and reduced crime).
 - Foundation for positive effects on children are interactions with teachers that combine simulation and support, which build higher-order thinking skills as well as knowledge of specific content. Features of quality (like group size, ratio, teacher qualifications) are important but, on their own, do not ensure simulating and supportive interactions. A more promising route to quality in preschool education is providing support for teachers to implement specific evidence-based curricula and instruction through coaching and mentoring. There are additional benefits of comprehensive services when carefully chosen and targeted (e.g., focused health outcomes through connecting children with medical centers, comprehensive screening, etc.), parenting focus that provides parents with modeling of positive interactions, not just information through classes or workshops.
3. A Review of Research on the Effects of Early Childhood Education and Care (ECEC) Upon Child Development. CARE Project (Melhuish et al. 2015)
- Disadvantaged children benefit particularly from high-quality preschool provision, and children benefit more in socially mixed groups rather than homogeneously disadvantaged groups. Early childhood interventions do boost children's confidence and social skills, which provides for a better foundation for success at school (and subsequently in the workplace). There is also an indication of improved outcome for mothers.
 - For the general population (not just disadvantaged subgroup), evidence is consistent that preschool education is beneficial for educational and social development. OECD report of PISA results (2011) found that students who have attended some preschool outperformed students who had not, by about a year of achievement. Studies indicate that benefits are greater for higher-quality education. There is also evidence that (a) part-time provision produces equivalent effects to full-time provision (deprived children may benefit from full-time provision) and (b) age from 2 years onward is most effective for preschool education.
 - Research demonstrates that the following quality characteristics of early years' provision are important for enhancing children's development: (1) adult child interaction that is responsive, affectionate, and readily available; (2) well-trained staff, committed to their work with children; (3) facilities that are safe, sanitary, and accessible to parents; (4) ratios and group sizes that allow staff to interact appropriately with children; (5) supervision that maintains consistency; (6) staff development that ensure continuity, stability, and improving quality; (7) and developmentally appropriate curriculum with educational content.
 - Child development is affected by children's experiences, particularly in the early years, and early childhood education and care (ECEC) is a substantial part of a young child's experiences. While these experiences play an important role in promoting child well-being, some other (moderating) factors are also important – the relevant factors do not function alone but interact with each other (e.g., family factors such as deprivation and parental sensitivity; child factors such as gender, temperamental reactivity, and self-regulation). Sometimes, the moderating variable may itself be influenced by ECEC, e.g., self-regulation.
 - The increasing evidence on ECEC has fueled increasing interest in the universal

provision of preschool education as a means of advancing school readiness for children and their later attainment of social, economic, and occupational success. Some countries appear to have adopted this perspective to pursue focused efforts for wide ranging ECEC provision.

4. Preschool and Early Home Effects of A-Level Outcomes, UK Government EPSSE Project Report (Sammons and Sylva 2015)

- EPSSE (Effective Provision of Preschool, Primary and Secondary Education) study tracked a large sample of children through different phases of education and identified the effects of background characteristics on children’s cognitive and social behavior development. It showed that attending any preschool, compared to none, predicted higher GCSE scores – the more months spent in preschool, the greater the impact of GCSE scores and scores in English and Math. Additionally, positive parenting experiences, especially a more stimulating home learning environment, helped better long-term outcomes.
- The next step of follow-up research for children aged 17 showed that there are continuing effects of preschool attendance that show higher likelihood of entering AS-levels. If children attended a high-quality preschool, they were twice as likely as those who hadn’t attended preschool to take the AS-levels’ examination.
- For most students, the preschool effect disappeared by the time they took A-levels (generally aged 18), and there were no continuing effects of preschool at entry to A-level exams or on the grades students achieved in them.
- An analysis for the Sutton Trust (2015) showed that there is a lasting impact of preschool for specific subgroup of disadvantaged young people who were classified as high achievers at the end of primary school.
- The quality of home learning environment (HLE) before attending (primary) school, however, does have a continuing effect at ages 17 and 18. Students with good HLE are

more likely to enter AS and A-levels and have higher attainment.

5. Does Pre-K Work? The Research on 10 Early Childhood Programs – And What It Tells Us (Stevens and English 2016)

- The report examines ten of the best-known, widely cited programs of the last half century – Abbot Preschool; Abecedarian; Boston Pre-K; Chicago Child-Parent Centers; Georgia Pre-K; Head Start; Nurse-Family Partnership; Oklahoma Pre-K; Perry Preschool; and Tennessee Voluntary Pre-K. A close look at these programs reveals that they are as different as they are similar (in terms of focus age groups; number of years they covered; and target group, i.e., children or children and families).
- Research conducted on the ten programs varies greatly (some researchers focus on academic skills in kindergarten; some examine performance in elementary school; and others tracked range of long-term social and economic effects into adulthood).
- The research neither shows that “Pre-K” works nor does it show that it doesn’t work. Rather, it shows that some early childhood programs yield particular outcomes, sometime, for some children. This report finds that research provides less useful information than is commonly assumed. It shows that early childhood programs can have a significant sustained impact on the lives of children but falls short of showing that all programs have that impact.
- The most rigorous research shows that the most meaningful, far-reaching effects (or preschool education) occur when intensive, carefully designed and well implemented programs that target young children, engage parents, and teach a broad range of skills.
- The report finds that, within the context of America, most disadvantaged children are facing not an achievement gap but a life’s gap. To close that gap, there is a need to move beyond the narrow focus of improving academic skills and to expand Pre-K as a solution.

6. The Current State of Scientific Knowledge of Pre-Kindergarten Effects (Phillips et al. 2017)

- Studies find greater improvement in learning at the end of Pre-K for economically disadvantaged children and dual-language learners. Pre-K programs are not equally effective and several effectiveness factors may be at work (evidence-based curriculum; coaching for teachers; orderly but active classrooms).
- Children’s early learning trajectories depend on quality of learning experiences not only before and during Pre-K but also following Pre-K. Classroom experiences in elementary (primary) school can serve as charging stations for sustaining and amplifying Pre-K learning gains.
- Convincing evidence shows that children attending diverse Pre-K programs are better positioned for school than children who do not attend. Improvements in numeracy and literacy are most common; a smaller number of studies show modest improvements in social-emotional and self-regulatory development.
- Extensive evidence on long-term impact of preschool learning outcomes is sparse, thereby precluding broad conclusions. The evidence that does exist, however, often shows that Pre-K-induced improvements are detectable during elementary (primary) school. There is ingenuity in design and implementation of various Pre-K programs. Ongoing innovation and evaluation is needed during and after Pre-K to ensure continued improvement in creating and sustaining children’s gains.
- Pre-K programs provide a laboratory for observing learning progress in children with a view to refine programs for future, so that they can fully support intellectual and social skills. Notwithstanding the room for improvement, the scientific rationale, the uniformly positive evidence of impact, and the nascent body of ongoing inquiry about the long-term impacts lead the researchers to conclude that continued implementation of scaled-up Pre-K

programs is in order, as long as the implementation is accompanied by rigorous evaluation of impact.

The Way Forward

1. Making the most of preschool education for long-term well-being.

- *Treating preschool education (and Care) as a “holistic” child development service* (Marope and Kaga 2015): Early childhood care and education place strong emphasis on developing the whole child, i.e., attending to social, physical, emotional, and cognitive needs. “Care” includes nutrition, health, and hygiene in a secure, nurturing, and warm environment; “Education” includes simulation, socialization, guidance, participation, learning, and developmental activities. Children’s care and educational needs are intertwined. Poor care, health, nutrition, and physical and emotional security can affect educational potentials in the form of mental retardation, impaired cognitive and behavioral capacities, motor development delay, depression, and difficulties with concentration and attention. Quality preschool education and care is considered to be one that integrates educational activities, nutrition, health care, and social services.
- *Attention to curricula as a driving force:* Quality of preschool program will be greatly influenced by the quality of its curriculum. Curricula set goals for the knowledge and skills that children should acquire in an educational setting, and they support the educators’ plans for providing the day-to-day learning experiences to cultivate those skills through daily lesson plans, materials, and other pedagogical tools (Ritchie and Willer 2008; Goffin and Wilson 2001). Current curricula can be divided into two broad categories – “whole-child” and “skill-specific” curricula. Whole-child curricula emphasize child-centered active learning cultivated by strategically arranging the classroom environment, to promote learning by

encouraging children to interact independently with equipment, materials, and other children. Skill-specific curricula uses explicit instruction focused on specific academic (e.g., literacy or math) or socio-emotional (e.g., self-regulation or problem-solving) skills and provide the context of play and exploration. An effective, global, and integrated combination of whole-child and skill-specific curriculum does not currently exist. Focus is needed on developing such a curriculum (Jenkins and Duncan 2017).

- *Implementing best practices of classroom processes and intensive teacher training:*
 - (a) Classroom processes: Several classroom processes have emerged that appear to be important. These include (i) the teachers' language complexity and level of instruction; (ii) the teachers' ability to create interesting activities for children that engage their attention; (iii) positive nature of the classroom, specifically more affirmation and warmth and less disapproving and behavioral controls (Farran et al. 2017).
 - (b) Intensive teacher training: Experimental evaluations of supplemental teacher training modules directed at improving children's socioemotional skills and self-regulation have demonstrated success. Implementing intensive professional development for teachers with coaching at least twice a month (e.g., having expert teacher provide feedback and support for in-classroom practice) and using assessments of child-progress to inform individualized instruction. The success of effective preschool learning by children depends greatly on the ability of teachers to promote both cognitive and non-cognitive skills in the context of real-world preschool classrooms (Klein and Knitzer 2006).
- 2. Expanding preschool education debate as a "Global" Sustainable Development Goal (SDG) in the context of disadvantaged (developing) and advantaged (developed) countries.
 - An overwhelming majority of research of the last 50 years on benefits accruing from preschool education has originated from progress-analytics in the "developed" countries and has focused on dividing the child population among "haves" and "have-nots" within the context of "developed" societies. Some research has focused on the potential of ECEC to improve general population outcomes in developing countries. Preschool was found to boost primary school achievement in Bangladesh with similar results reported in review of studies from ten countries. Uruguay study revealed clear benefits in increased academic achievement and decreased dropout rates. Similar analysis in Argentina has found increases in primary school attainment by a moderate but important degree. Similar results were reported from poor district of China and positive effects of development-outcomes in Cambodia. In sum, there is a general pattern of strong evidence across different countries and context that – for over 3-year-old children – participation in preschool education as a routine provision is beneficial for the general population. However, there is inadequate research on additional aspects like duration, starting age, or intensity of preschool program attendance (Melhuish et al. 2015).
 - The case for Universal Pre-K (UPK) vs Targeted Pre-K (within a developed country environment): Proponents of UPK base their arguments on four pillars: (a) everyone benefits; (b) middle class (also) needs help; (c) universal program is easier to administer; and (d) low-income students benefit from interactions with middle-class students. Targeted Pre-K proponents also make four sets of arguments: (a) poor kids benefit most from "good" (quality) Pre-K; (b) Pre-K makes it easier for parents to work; (c) targeted Pre-K is more likely to reduce achievement gaps; and (d) UPK requires classrooms to be integrated by social class. There is a third angle in this debate called "Hybrid Options,"

which take at least four different forms: (1) full-day for poor, half-day for middle class; (2) guaranteed fee system (subsidy by household income); (3) begin with targeted, aim for universal; and (4) geographic targeting (targeting disadvantaged communities).

- What is the right choice from a “Global” standpoint? Ultimately, the answer to that question must come from individual governments (states) (Farran et al. 2017). One key gap, and therefore a worthwhile goal, is for developing a high level of understanding (among developing countries’ governments) of the literature and its findings with regard to benefits of preschool education in order to allocate appropriate funding and implementation policy. Adapting words (Ramey and Ramey 2017) within this context: There is a need to reframe knowledge about early childhood development to produce a fresh, relevant, and constructive agenda for effective action (in developing countries).
3. Making sense of and reframing the dialogue for execution.
- To the extent that scientists, policymakers (within nations and across nations), and public opinion can agree that non-parental care is a shared high priority need for families, they could have a strong basis for moving beyond tired old debates – parents as best teachers; preschool funding only for children deemed at-risk; home visiting programs vs high-quality child care centers. Scientific findings indicate that there are many different and effective methods for providing children with experiences and opportunities they need (Phillips and Shonkoff 2000). A substantial proof-of-concept scientific literature, with multiple replications and variations, exists to support the thesis that systematic early childhood education – in conjunction with health care, good nutrition, physical exercise, and positive family involvement – can be both a short- and long-term positive influence on

young children and their families (Duncan and Magnuson 2013; Haskins 1989; Stevens and English 2016).

- The expectations of “gains” and benefits” must be adjusted to the populations served. Children from families (or communities/nations) that already provide high-quality home environments do not need to “gain” per se but rather need to sustain their healthy growth and development. Children at-risk or already showing delays do need to demonstrate good progress and may likely need supplemental and individualized support at different stages in their early years of life. This early childhood emphasis should not be construed to be in competition with educational services for older children; neither should the public expect that high-quality care and early education alone will inoculate children for the rest of their lives. A lifespan continuum of supports is truly what children need, and so do countries (both developed and developing). In the absence of sufficient amounts of the early learning and health essentials in the first 5 years of life, the later ages and adult outcomes of far too many children will be unnecessarily compromised.
- Families and nations will benefit when children are protected from harm, are well nurtured, and learn at healthy rates so they enter school well-prepared for future academic and social progress. Sharing scientific knowledge about how to provide these positive experiences should further unify cultures and nations. What effective parents and grandparents do for children is truly the same as what effective child care providers and early childhood educators do. Strategies exist to increase adults’ knowledge about how children learn; how best to instruct children in language, early literacy, and math; and how to engage children in learning to become social partners who understand kindness, reciprocity, problem-solving, competition, and conflict resolution. Supporting healthy growth and development requires a set of complex adult

skills, insightful dedication, and enormous energy.

Four Diamond Model for Improving Quality of Early Education and Child Care

Ramey and Ramey (2007, 2017)

- Four Diamond Model of Quality for Early Education and Care Programs proposes four major components, each representing a set of functional activities that research has shown to be reliably associated with more or less positive outcomes. The four sets of activities are:
 1. Health and safety practices.
 2. Adult-child interactions aimed primarily at supporting positive social and emotional development.
 3. Language and learning activities that occur mostly in school.
 4. Caregiver/teacher-family relationships. The latter are vital to facilitating individualized care and education for a child and to encouraging families to provide additional learning supports outside the school or child care settings.
- The Four Diamond Model places these four central components within concentric circles that indicate both the proximal (near) and distal (far) support that influence the quality of education and care. This framework differs from quality rating systems or accreditation criteria that contain multiple structural, administrative, and staffing features as well as observed interactions regarded as actual indicators of a program's quality. The Model views features such as the educational and training background of teachers and other staff, recordkeeping systems, and physical plant dimensions as valuable supports that can facilitate positive interactions in the four diamond areas. Programs are not given credit for simply achieving these features. Instead, the emphasis is on the actual and observable transactions in the four diamonds.
- The functional activities represented by the four diamond need to be understood within the context of broader factors such as the political and economic climate. In conjunction with

the child's family dynamics and with neighborhood characteristics, these broad factors jointly have a direct impact on children's outcomes, including health, cognition, and social competence. In order to improve the quality, availability, and continuous implementation of high-quality child care and education, many people need to be at the table.

Conclusion

Without adequate early learning and health essentials in the first 5 years of life, the later ages and adult outcomes of far too many children will be unnecessarily compromised. Disadvantaged children around the globe are facing a life-skills' gap. To close that gap, there is a need to expand preschool foundation, as a solution, for attainment of social, economic, and occupational success. Children who have attended quality preschool go on to show positive effects on important adolescent and young adult outcomes – high school graduation, reduced teen pregnancies, years of education completed, level of earnings, and reduced crime. Families and nations will significantly benefit when children are protected from harm, are well nurtured, and learn at healthy rates so they enter school well-prepared for future academic and social progress.

From SDG 2030 (SDG-4, target 4.2) perspective, we conclude that any advances within the “developed” countries, with regard to provision of preschool education, will remain a “targeted-preschool education” provision as opposed to “universal-preschool education” from a “global” standpoint, as a vast majority of the world's children reside in “developing” countries. With benefits accruing to “low-income” (developing) families being far more than those accruing to “middle/high income” families, there is a strong case to be made for (a) treating separate “preschool education” targets for “developing” and “developed” countries and (b) sharing scientific knowledge, from the “developed” to the “developing” countries, on how to provide quality preschool education. This would be a key step in the direction of converging nations in terms of

poverty levels, workforce productivity and lifelong well-being of citizens of the world.

Cross-References

- ▶ [Critical Thinking](#)
- ▶ [Education for Sustainable Development](#)
- ▶ [Learning Environments](#)
- ▶ [Skill Building](#)

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