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Shachi Vashisth

Department of Human
Development & Childhood
Studies, Institute of Home
Economics, University of Delhi,
Delhi, India

Veenu Wadhwa

Department of Human
Development & Childhood
Studies, Institute of Home
Economics, University of Delhi,
Delhi, India

Reetu Chandra

Deputy Secretary, Ministry of
Education, Government of India,
Delhi, India

Deriving ECCE Excellence: Impact on later Education

Shachi Vashisth, Veenu Wadhwa and Reetu Chandra

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Abstract

The primary objective of Early Childhood Education (ECE) is to promote the optimal development of young children. A substantial body of research demonstrates the positive effects of early interventions and the lasting benefits of early childhood education, highlighting the connections between educational and care practices and children's developmental outcomes. Limited research has been conducted in India to examine the nature of early childhood education (ECE) experiences and their influence on children's learning competencies. The importance of early childhood care and education (ECCE) lies in the crucial role that the quality of the environment during early developmental years plays in shaping children's growth and learning trajectories. According to Piaget, when children engage with a stimulating and enriched environment, they actively explore and manipulate it, leading to the development of new schemas through the processes of accommodation and assimilation of new information. Recent neuroscience research suggests that the skills necessary to tackle the challenges of the 21st century are established during early childhood. In response to this evidence, the present study evaluates the effects of early childhood education programs on subsequent educational outcomes

Keywords: ECCE, Holistic development, Quality, Curriculum

Introduction

Early childhood care and education (ECCE) play pivotal roles in shaping the developmental trajectories of young children. The period from birth to around eight years of age is widely recognized as a critical phase in human development, characterized by rapid cognitive, emotional, social, and physical growth (Shonkoff *et al.*, 2000) [6]. During this formative period, children's experiences and environments profoundly influence their neurobiological development and lay the foundation for future learning, health, and well-being (Reynolds *et al.*, 2007) [13].

The significance of ECCE is underscored by its potential to mitigate disparities in developmental outcomes among children from diverse socio-economic backgrounds (Ramey & Ramey, 2004) [11]. Access to high-quality ECCE programs has been shown to enhance school readiness, improve academic achievement, and foster socio-emotional competence (Yoshikawa & Kabay, 2015) [20]. Conversely, inadequate early childhood experiences may lead to long-term deficits in educational attainment, socio-economic status, and health outcomes. In recent decades, research on ECCE has expanded, encompassing interdisciplinary perspectives from neuroscience, psychology, education, and public health. Advances in understanding brain development and the influence of early experiences have emphasized the critical importance of nurturing, responsive care giving, and stimulating environments during early childhood (Shonkoff *et al.*, 2012) [6]. Moreover, the recognition of ECCE as a cornerstone of human capital development has prompted global efforts to improve the accessibility, affordability, and quality of early childhood services (UNESCO, 2021) [18]. The renowned ECCE policy succeeded in assessing the issues at great extent but the result could not achieve success. The program implementation has fallen short of expectations, revealing significant gaps that require addressing. An essential consideration in identifying these gaps is the quality of the curriculum and its successful implementation (Reetu *et al.*, 2017) [12]. A high-quality curriculum alone is insufficient for ensuring high-quality preschool education; effective implementation by skilled educators is also essential (Vashisth *et al.*, 2021) [19]. This paper provides a comprehensive overview of current scientific knowledge ECCE.

Corresponding Author:

Shachi Vashisth

Department of Human
Development & Childhood
Studies, Institute of Home
Economics, University of Delhi,
Delhi, India

Objectives

Hence the study entitled “A Study on Cereal and Millet It examines key theoretical frameworks, empirical research findings, and policy implications aimed at promoting optimal developmental outcomes for young children. By synthesizing evidence from various disciplines, this review aims to inform educators, policymakers, and researchers about effective strategies for enhancing ECCE provision and supporting children's holistic development.

Why Early Childhood Education Investment Matters?

Across the globe, there is an increasing recognition that allocating resources to early childhood education yields substantial benefits, equipping children with the capabilities needed to thrive in an evolving society as competent, self-sufficient, and proficient adults. The early years represent a pivotal stage in fostering comprehensive child development, with experiences during this period significantly influencing lifelong outcomes related to education, health, and economic attainment. Failing to optimize the development of young children represents a substantial loss in human capital, leading to a less robust future workforce and deficits in essential skills. Early childhood deficiencies can have enduring consequences across various domains, including physical health and educational attainment, as well as contributing to prolonged unemployment and involvement in criminal activities.

The global demographic shift toward an aging population underscores the need for tomorrow's workforce to enhance current productivity levels. Nevertheless, international investment in early childhood remains inadequate, with many countries disproportionately allocating resources to older children. Infants subjected to severe stressors such as chronic poverty, malnutrition, or exposure to violence may experience diminished neural connectivity in regions crucial for learning and emotional development. Neglecting to provide young children with essential positive experiences can lead to an underprepared and unhealthy workforce, hindered economic growth, and strain societal resources including education, health, and social welfare systems. These factors contribute to economic burdens and perpetuate intergenerational disadvantages. These compelling reasons underscore the necessity for increased investment in early childhood, particularly as nations confront the challenges posed by demographic shifts, migration trends, and technological advancements.

Significance of Early numeracy and FLN

The ability to read, write, and perform basic mathematical operations is fundamental and essential for both future academic success and lifelong learning. Foundational learning serves as a cornerstone for later academic achievement (Newman *et al.*, 2022) ^[7] and is recognized as the gateway to further educational attainment. Investing in foundational learning yields numerous long-term benefits, including improved life outcomes and enhanced economic growth (Nutton, 2020) ^[8]. The Draft National Education Policy of 2019 and the National Education Policy (NEP 2020) ^[6] integrate early childhood care and education (ECCE) into the Foundational Stage, covering preschool years and Grades 1 & 2, emphasizing a unified approach to play-based and discovery-oriented learning for children aged 3 to 8. This underscores the critical importance of ECCE and its enduring benefits throughout an individual's lifespan.

Global landscape and India's initiatives

The concept of early childhood care and education (ECCE) has been recognized globally for many years, but it is in the 21st century that numerous countries have intensified their focus on ECCE initiatives. Key milestones include the Universal Declaration of Human Rights in 1948, the United Nations Convention on the Rights of the Child (UNCRC) in 1989, and the Education for All (EFA) movement, which have significantly influenced this trend (Chandra, 2016) ^[3]. The Education Forum 2000 endorsed the 'Dakar Framework for Action, Education for All', marking a significant milestone in the global Education for All (EFA) movement. According to the EFA Global Monitoring Report (GMR) of 2008, early childhood care and education (ECCE) programs that integrate nutrition, health, and cognitive development components positively affect child well-being (Barakat *et al.*, 2016) ^[1]. However, only 53% of countries worldwide have established official ECCE programs for children under the age of three. Presently, nearly all nations are intensifying their efforts to create robust and high-quality ECCE programs.

India ratified the United Nations Convention on the Rights of the Child (UNCRC) in 1992 and committed to the Education for All initiative, significantly advancing efforts in early childhood care and education (ECCE). Since 1951, ECCE in its comprehensive form, encompassing child welfare, education, health, and nutrition, has been integrated into all national initiatives implemented by the Government of India. Key examples include the Five Year Plans, the National Policy for Children in 1974, the Integrated Child Development Services (ICDS) established in 1975, the 86th Constitutional Amendment Act incorporating Article 45 of the Directive Principles of State Policy, the Right of Children to Free and Compulsory Education Act of 2009 (Section 11, Chapter III), and the National Policy for Children (NPC) of 2013. The Ministry of Women and Child Development plays a central role in driving quality reforms in ECCE, having formulated the National ECCE Policy in 2013. The recent National Education Policy (NEP) of 2020 ^[6] integrates preschool education for children aged 3 to 6 years within the new school education framework structured as 5+3+3+4.

Factors contributing to the “Quality ECCE”

Preschool or pre-primary education represents a significant component of early childhood care and education (ECCE), yet ECCE encompasses a broader spectrum. It addresses the specific needs of children under three years old as well as the transition into formal primary education. In a high-quality ECCE program, 'care' encompasses health, nutrition, hygiene, affection, protection, safety, and psychosocial support, while 'education' extends beyond mere extensions of formal school systems (Unicef, 2021) ^[18]. It includes opportunities to foster learning and guide the acquisition of new skills, knowledge, and values. The overarching objective of ECCE is to achieve optimal outcomes across multiple domains: physical and motor development, cognitive development, socio-emotional and ethical development, cultural and artistic development, as well as communication, early language, literacy, and numeracy skills (NEP 2020) ^[6]. It is widely acknowledged that high-quality early childhood provision is crucial for enhancing children's developmental outcomes.

To comprehend the components of quality within an ECCE program, it is essential to explore the factors that hinder its attainment. Numerous studies highlight a range of challenges that compromise the essential standards of quality in ECCE. These obstacles hinder efforts to enhance ECCE quality at both governmental and operational levels. Issues such as

insufficient funding, inadequate teaching-learning resources, and inadequate assessment methods for measuring outcomes are among the factors identified. There is a scarcity of appropriate teaching-learning materials (TLM) in ECCE centres, and where available, they are often underutilized or inaccessible to children, placed above eye level where they go unnoticed and unexplored.

Research into the universal components of quality in Early Childhood Care and Education (ECCE) has evolved over time. Initially, the focus was primarily on interventions aimed at enhancing children's cognitive development, academic performance, and reducing behavioral issues. A subsequent phase of research shifted towards evaluating the quality of early years settings, leading to the development of various assessment tools (Sakr *et al.*, 2022) ^[14]. Components of early childhood environments that are esteemed in our society and promote the well-being, development, and rights of children, as well as effective family functioning" .The recent literature has brought out the distinction between process quality and structural quality. Process quality involves 'social, emotional, physical, and instructional elements of interactions with young children, elements that are reflected at several levels of the classroom environment: moment-to-moment displays of discrete behaviours as well as global characterizations of the overall setting' (Pianta *et al.*, 2016) ^[9]. Structural quality relates to inputs that are more easily observed, measured and regulated. In general, the elements of structural quality that have emerged are: Staff to child ratios; Group size; Staff training, education and experience; Staff wages and working conditions; and Staff stability (Slot *et al.*, 2015) ^[17]. Although process and structural quality are interconnected, research indicates that structural quality provides the foundation for effective implementation of process quality, which significantly influences children's outcomes (Fenech, 2011) ^[5]. Within these aspects, three elements are often referred to as components of 'the iron triangle': workforce training and professional development, child-to-staff ratios, and group/classroom size. Quality in this context pertains to infrastructure, curriculum, teaching-learning methodologies, educators, and the learning environment. Despite these factors, certain challenges and critical priority areas have emerged in the development and maintenance of equitable quality Early Childhood Care and Education (ECCE), necessitating prompt attention. Adequate provisions, suitable systems, and streamlined processes are essential components for the effective planning and execution of quality ECCE programs.

Ensuring quality in ECCE is a complex endeavor, and several elements or factors contribute to its achievement:

- i) **Teacher-student interactions and processes:** The primary component involves the daily interactions between teachers and students, which significantly influence child development from pre-primary through third grade. However, teachers often prioritize teaching basic skills over facilitating activities that encourage analysis, reasoning, or problem-solving. This disparity particularly impacts disadvantaged students and those with special needs, exacerbating their assimilation challenges. The quality of interaction between teachers and children, encompassing both instructional activities and curricular aspects, is equally crucial. Children's active engagement in classroom tasks and activities predicts higher achievement levels in preschool and early elementary grades. The duration of the school day also plays a correlated role in these outcomes.
- ii) **Curriculum planning and content:** Thoughtfully

designed curriculum and content can enhance teacher-student interactions. For example, employing problem- or project-based activities in teaching mathematics can foster children's critical thinking and analytical skills. Such instructional approaches are applicable not only to academic subjects but also to the teaching of social, emotional, and self-regulatory skills.

- iii) **Teacher capacities:** The preparation and enhancement of teachers' personal capabilities significantly influence teacher-child interactions within Early Childhood Care and Education (ECCE) settings. To effectively implement high-quality pedagogical strategies and practices, teachers and teaching assistants require comprehensive training in ECCE.
- iv) **Planning and resource allocation:** Sustaining quality in ECCE programs necessitates adequate funding. Given that ECCE is a multi-sectoral initiative, achieving integration and coordination across early childhood development services and related social sectors, known as "convergence of interventions," proves more effective than fragmented policies and programs.
- v) **Family and community engagement:** The effectiveness of ECCE largely hinges on engagement with families and communities, as early learning begins in the home environment. Therefore, it is crucial for educators and local authorities to collaborate with families and communities, fostering partnerships centered on children. Enhanced parental involvement, characterized by active facilitation of responsive and stimulating interactions, along with early nurturing care encompassing health, nutrition, responsive care giving, safety, security, social-emotional well-being, and early learning, correlates with children's cognitive, social, and emotional development, as well as their motivation to learn.
- vi) **Quality assurance and enhancement:** Assessing and monitoring quality are essential for continuous improvement. Without systematic and thorough data collection, understanding the dynamics within and across different country contexts becomes challenging. Addressing this requires contextualizing definitions and operationalizing quality indicators tailored to the specific circumstances of each country's Early Childhood Care and Education (ECCE) programs.

Impact of ECCE in later years of Life

There are extensive advantages of good quality ECCE programme. ECCE impacts the holistic development of children. Various research studies have shown that children who received good quality ECCE programmes lead a more healthy life as well as successful primary education which directly helped in minimising wastage and stagnation.

Several case studies have concentrated on establishing both backward and forward linkages within the educational framework. These efforts aim to enhance learning outcomes, foster school readiness, mitigate educational disparities among vulnerable and disadvantaged populations, prevent student dropout rates, ensure enjoyable learning experiences, implement remedial interventions, boost self-confidence and self-esteem, and facilitate accelerated learning throughout different stages of schooling, thereby contributing to holistic development (Ramachandran, 2003) ^[10]. Individuals who engage in early childhood education can enhance their pedagogical comprehension and increase their academic performance. This, in turn, enables them to maximize their earnings as they enter the workforce, even with lower educational attainment levels (Shamsu, 2023) ^[15]. Early Childhood Care and Education (ECCE) facilitates the

development of essential skills critical for learning and growth. These skills empower children to make healthy decisions for themselves and their families later in life. Investments in early childhood education appreciate over time rather than depreciate. This investment yields improvements in a child's lifelong trajectory, benefiting individuals, society, and the economy in multiple dimensions (Bartik, 2014) ^[2]. Enhanced skills enable children to access higher-paying jobs, fostering familial and social stability, thereby contributing to increased productivity, economic growth, and overall development.

Conclusion

The importance of Early Childhood Care and Education (ECCE) in any community is immense, given its proven advantages for children and families. These benefits encompass enhanced academic preparedness among students and the development of crucial life skills, which ultimately contribute to improved career prospects and overall quality of life. Increased participation of parents in the labor force and long-lasting intergenerational impacts significantly contribute to holistic development and economic advancement. However, these benefits hinge on the provision of high-quality Early Childhood Education (ECE) programs that are effectively implemented. According to the 2011 census, the total number of children aged 0-6 years was 164.5 million, accounting for 13.59% of the total population, a figure that has likely increased substantially in recent years. By offering high-quality Early Childhood Care and Education (ECCE) to this age group, it is anticipated to enhance their learning outcomes across all developmental phases and throughout their lives. This approach aims to maximize the demographic dividend in the forthcoming decades. In achieving this goal, well-trained and motivated preschool educators are pivotal for ensuring high-quality standards. The challenges to maintaining such standards include the diverse facets of Indian society-linguistic, cultural, and socioeconomic-as well as the array of preschool service providers and educational models. Issues such as disparities in salary, heavy workloads, inadequate support systems, large teacher-to-child ratios, and the lack of regulation in teacher preparation further complicate the landscape of preschool education quality (Chandra, 2021) ^[4].

Author contributions

Conceptualizations, methodology and analysis by VS and CR; Writing-original draft preparation by VS; Writing-review and editing by CR and WV; Project administration by WV.

Declaration of interests

All authors state that no competing conflicts of interest exist regarding authorship and publication of article.

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