

# Foundational Literacy and Numeracy as a Gateway for Effective Early Childhood Care and Education: Importance and Challenges

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**Abstract:** The National Education Policy (NEP) seeks to enhance foundational literacy and numeracy skills for young children, supporting effective Early Childhood Care and Education (ECCE) in India. This paper aimed to examine the importance of Foundational Literacy and Numeracy (FLN) for effective ECCE. This paper examines Government initiatives and implementation challenges, synthesizing existing literature to provide a comprehensive understanding. A comprehensive review of academic journals, policy documents and government reports are given priority in this study. Content analysis reveals importance of FLN, including essential foundation, academic success, empowerment and confidence, lifelong learning and practical life skills etc. The findings identify potential challenges, such as hurdles in ECCE, gaps in early literacy education, limited emphasis on working memory of children, shortage of trained teachers and resources etc. Furthermore, the study provides suggestions considering various reviews for addressing the emerging challenges and attainment of universal FLN skills among young children.

**Keywords:** Foundational Literacy and Numeracy, ECCE, NIPUN Bharat, NEP-2020.

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## I. INTRODUCTION

Early childhood care and education creates the base for lifelong learning and foundational literacy and numeracy skills are essential components of this foundation. In early years children are energetic, curious and interested about the people and events occurring around them. Children are active learners who acquire knowledge and understanding through practical experiences. To foster their cognitive, social and emotional development parents should provide opportunities for children to explore and interact with their environment, engage in experimentation and investigation and ask questions to prompt them. This experiential learning approach is particularly crucial in the early years, as it forms the basis for the development of foundational literacy and numeracy by introducing children to these fundamental concepts through play-based and interactive experiences an effective ECCE can be achieved in 21<sup>st</sup> century. Evidences suggested that effective ECCE programs improve school readiness, academic achievement and socio-emotional

competence which helps in children's overall growth and long-term educational success (Vashisth et al., 2024). Therefore, the National Education Policy (NEP) 2020 emphasizes the importance of foundational literacy and numeracy for children in the early years to enable children to succeed in schooling and future learning.

In this context, Kanujia & Jaiswal (2025) stated that NEP 2020's focus on ECCE and FLN can strengthen the foundation of education in India by supporting holistic and inclusive learning from early years. However, this requires proper teacher training, active community support and strong coordination. Moreover, many children around the world still lack access to quality education in basic literacy and numeracy. To address this, it is essential to identify and apply strategies that are both effective and culturally appropriate across different educational settings (Laxman, 2024). This paper seeks to review and bring together studies explaining significance of literacy and numeracy in early childhood education.

➤ *Concept of Foundational Literacy and Numeracy*

Literacy is the ability to understand, interpret, create and communicate effectively to achieve personal goals and solve problems in everyday life. Whereas numeracy refers to the ability to perform basic operations with numbers, apply mathematical skills and understanding to solve problems to meet the requirements of daily life.

According to UNESCO foundational literacy and numeracy are basic skills of reading, writing and mathematics. Furthermore, NEP 2020 defines foundational literacy and numeracy as the basic skills in reading, writing, and mathematics that children need to acquire in their early years, laying the foundation for future learning.

## II. OBJECTIVES

- To examine the importance of Foundational Literacy and Numeracy for effective ECCE
- To identify challenges by synthesizing national and international studies on FLN concerning ECCE.
- To provide remedial suggestions for addressing the challenges.

## III. METHODOLOGY

This study adopts a qualitative research design to examine the importance of Foundational Literacy and Numeracy for effective ECCE. This study began with a thorough literature review that includes empirical articles, review articles and policy documents available in the field of FLN concerning ECCE. Content analysis was used to examine the existing literature that helps to identify a framework for understanding the importance of FLN on early education and its implications for the sector. Google scholar and ResearchGate are two search engines which have been used to search relevant articles. A total of 20 articles, policy document and frameworks relevant to FLN and ECCE have been included in this study. The findings have been systematically organized in line with objectives of the study to assess the importance of FLN for effective ECCE concerning emerging challenges and remedial suggestions.

## IV. FINDINGS

➤ *Importance of FLN for Effective ECCE*

The comprehensive review of academic literature highlights the significant role of FLN skills in early childhood education. It emphasizes multiple important aspects of FLN, each contributing uniquely to the holistic development of young learners and strengthening their basic learning abilities. The aspects are discussed as under;

➤ *Essential Foundation*

Studies argued that there is need of adapting local conditions, cultural and socioeconomic contexts in numeracy programs to maximize the impact and well-designed programs

can significantly improve early childhood outcomes (Hidayah & Retnawati,2024). India's National Curriculum Framework for Foundational Stages (NCF-FS), launched in 2022 emphasizes the importance of FLN skills in ECCE. The "Jaadui Pitara" learning kit available in multiple languages, provides play-based materials to foster FLN skills in children aged 3-8, with a digital version extending learning beyond the classroom (Chandra, 2024).

➤ *Academic Success*

Children with weaker working memory (WM) skills are more likely to struggle academically. Additionally, both basic and complex WM abilities play a significant role in determining children's proficiency in FLN skills (Shvartsman & Shaul,2024). Moreover, investing in quality improvement of early childhood education is crucial for developing productive and effective human capital. Foundational reading and numeracy skills is essential, as these skills create the basis for future growth, development, and academic success (Yadav, 2023). Acquiring FLN skills will enable students to achieve better learning outcomes, reduce dropout rates and increase completion rates, ultimately contributing to a more educated and self-reliant society (Goel, 2022).

➤ *Empowerment and Confidence*

The Indian government launched the NIPUN Bharat Mission in 2021 and it is implemented under the Samagra Shiksha scheme with the goal of achieving universal foundational literacy and numeracy skills in children aged 3-9 years by 2026-27. This mission focuses on preschool to class III students, at the same time provides support to classes IV and V students who have not achieved these essential skills (Khandpur, 2024) & (Chandra, 2024). Mastering FLN skills boosts children's confidence, fostering a positive attitude towards learning that encourages them to continue learning and motivates them throughout their education (Vats & Malik, 2024).

➤ *Lifelong Learning*

Early childhood education lays the groundwork for future academic success highlighting evidence-based methods to enhance core literacy and numeracy skills. In this context, Vats & Malik (2024) argued that by addressing the persistent challenges, especially in oral reading fluency ensures strong foundation for future learning. By adopting these strategies, children will be able to reach their full potential, ultimately strengthening the educational foundation of our society (Laxman, 2024) & (Kumar & Behera, 2022).

➤ *Practical Life Skills*

Fundamental education in literacy and numeracy is vital for learners to accomplish daily tasks, such as reading signs, managing money, being conscious of time etc. which ultimately empowers them to be independent (Vats & Malik, 2024). Furthermore, activities like counting, board games, number facts, real-life activities, counting, experimenting with objects, learning through patterns, building block towers, connecting the

dots, playing card games, shopping and role-playing can enhance literacy and numeracy skills (Kumar & Behera, 2022).

## V. CHALLENGES

In spite of the recognized importance of FLN for effective ECCE, India faces numerous challenges in ensuring universal attainment of FLN skills in early years. The key challenges include;

### ➤ *Hurdles in ECCE*

Despite efforts to improve early childhood education, several challenges hinder the attainment of FLN skills. These challenges include unequal access to quality preschool education, outdated teaching methods that prioritize rote learning over competency-based education and a shortage of qualified and dedicated preschool teachers (Chandra, 2024).

### ➤ *Gaps in Early Literacy Education*

The absence of engaging storytelling and meaningful texts in early literacy education can deprive students of rich learning experiences. Furthermore, limited access to literacy resources can hinder their ability to develop a positive perception of reading, writing, and numeracy skills (Naeem, 2024). Children who fall behind in early years often continue to lag in the future. It is essential to address the remaining challenges, particularly in oral reading fluency and comprehension, to ensure that all students have a strong foundation for future learning. (Vats & Malik, 2024).

### ➤ *Limited Emphasis on Working Memory of Children*

Most kindergarten teachers don't assess working memory (WM) abilities, it is crucial for them to understand that weak working memory skills can negatively impact children's early literacy and numeracy development. Furthermore, children with WM impairments often struggle in classroom activities that place heavy demands on the WM (Shvartsman & Shaul, 2024).

### ➤ *Shortage of Trained Teachers and Resources*

A key challenge in achieving foundational numeracy is ensuring teachers receive adequate education and training, requiring a revamp of teacher education curriculum and ongoing professional development (Gandhi, 2020). There is language gap between the teachers and students and teachers for which multilingual approach should be adopted in every institution.

### ➤ *Limited Parental Participation*

Limited parental participation is a significant challenge in achieving Foundational Literacy and Numeracy (FLN) skills in children. Factors contributing to this issue include large family size, shortage of resources, disadvantaged socio-economic status, lack of awareness, limited educational background, and time constraints. These barriers hinder parents' ability to engage with their child's education, ultimately affecting their ability to achieve FLN skills (Kumar & Chowdhury, 2023).

### ➤ *Lack of FLN Based Pedagogical Approaches*

Current activities employed in the early childhood education settings are not learner centered in true sense. The learning materials, methods employed by the teachers do not suit to equity and inclusive pedagogy. The learning activities are not designed as per the developmental needs of different categories of children. Moreover, NEP 2020 aptly remarked that lack of efficiency of teachers in play-based pedagogy is a major barrier in achieving FLN.

## VI. SUGGESTIONS

- NEP 2020 strongly advocated that FLN to be strengthened in a mission mode and launched NIPUN- Bharat with a vision to ensure universal literacy and numeracy for Class 3 children by 2026-27 (Bashir & Jan, 2023). The mission is implemented under Samagra Shiksha scheme focusing on preschool to class III students, while also providing support to classes IV and V students who need to catch up on these essential skills.
- Community-led action research and best practices can effectively implement national programs, ultimately enhancing the lives of local children (Bleach, 2015).
- To foster FLN skills in early childhood education a range of strategies can be employed including play-based learning, teacher training and support, family and community involvement, use of technology (Vasoya & Vansdadiya, 2023) & (Jha, & Manushi, 2022).
- Addressing the challenges requires a comprehensive approach and collective commitment from the parents and teachers to ensure that all children acquire foundational learning skills, unlocking their full potential and securing a brighter future (Chandra, 2024).
- Kindergarten teachers should be aware of working memory's importance to identify at-risk of learning-disabled children. Those struggling should receive WM, linguistic and numeric abilities assessments, and educational programs should be designed to address WM-related learning difficulties (Shvartsman & Shaul, 2024).
- Role-Playing Game based educational app can enhance early childhood numeracy skills through interactive, narrative-driven gameplay, incorporating local cultural elements to make learning fun, relevant, and engaging (Mariyana et al., 2025).
- Teacher recruitment and training should be handled locally, with a focus on promoting multilingual instruction to help teachers connect with students from diverse linguistic backgrounds (Gandhi, 2020).
- Global collaboration between researchers, educators, and policymakers is crucial to sustain and scale effective numeracy programs, while addressing educational inequalities and ensuring equal access to quality interventions (Hidayah & Retnawati, 2024).
- Improving foundational learning requires an integrated approach, addressing challenges and leveraging opportunities. This can lead to a developed education

system that fosters basic skills, critical thinking, and culturally aware productive citizens (Safdar et al., 2024).

## VII. CONCLUSION

The Foundational Literacy and Numeracy skills have their roots in the early childhood education. Therefore, development of FLN skills is crucial for bringing effective ECCE. The content analysis of various studies across different geographical regions and government reports found that FLN skills are essential for effective ECCE. However, various results suggest that despite numerous initiatives, there are significant challenges that need to be addressed for enhancing early literacy and numeracy initiatives. The study concludes that collective efforts from the stakeholders are essential prerequisite to achieve the goal of FLN, which will ultimately bring development in the field of ECCE.

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