

Assessment of Grade 3 Students' Concerning Foundational Literacy and Numeracy Levels and the Influence of Key Factors

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Abstract

In a nation's social and political context, education is viewed as a vital driver of social progress, economic prosperity, political development, and modernisation. Acquiring Foundational Literacy and Numeracy (FLN) skills during the early years of schooling equips children with essential abilities for learning and everyday life. In this context, the present study aims to examine the FLN skills of Grade 3 students from government schools in Delhi. The study uses a mixed-methods approach and draws data from 150 students and 50 teachers. Descriptive and inferential statistics were applied using the Statistical Package for Social Sciences (SPSS). Data collection involved self-structured questionnaires for students and semi-structured interviews with teachers. Factor analysis was employed for analytical purposes.

The findings show that participants demonstrated medium-level literacy skills in oral language, phonological awareness, and print awareness, but low levels in writing and reading fluency. In numeracy, students achieved medium levels in basic number concepts, addition and subtraction, patterns, and number series, but exhibited low performance in shape identification. The study further identifies key factors influencing literacy and numeracy learning, including parental involvement, student engagement, learning environment, external support, teacher and peer influence, and teacher feedback. These factors play a critical role in the acquisition of FLN skills. The study recommends that policymakers and other stakeholders strengthen FLN at the primary stage by integrating technology-based approaches and training parents to support children's skill development.

Keywords: Foundational Literacy and Numeracy (FLN), Assessment, Feedback Practices

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INTRODUCTION

India has made substantial progress in expanding access to education over recent decades; however, the quality of learning in classrooms remains a persistent concern. Numerous reforms, commissions, and committees have addressed aspects of education, yet significant improvements in learning outcomes are still required. The first nationwide ASER (2005) survey revealed serious learning deficits—findings that were consistently reaffirmed by subsequent ASER reports, NAS, and independent studies (ASER 2005–2014; Educational Initiatives 2006–2014; NCERT 2006–2015; Young Lives 2014). ASER data show that after five years of schooling, only half of Grade 5 students can read a Grade 2 text, with mathematics performance even weaker. Declining learning levels (ASER 2010; ASER 2014) and steep fall in the arithmetic skills indicate stagnation and limited prospects for catching up later (Pritchett and Beatty, 2012). Globally, the emphasis on building a knowledge-based society reinforces the need for Universal Quality Education (SDG Goal 4.1, 2016) (United Nations, 2016). In response, the Ministry of Education launched NIPUN Bharat (2021), under National Education Policy (NEP) 2020, to ensure that all children achieve FLN by the end of Grade 3.

The importance of FLN is widely recognised (Beeharry, 2021). Foundational literacy skills—such as print awareness, phonological awareness, letter recognition, oral language, and writing—prerequisites for reading and writing (Lonigan *et al.*, 2000; Niessen *et al.*, 2011; NIPUN Bharat, 2021). Numerous studies highlight their significance for literacy development (Anthony *et al.*, 2002; Owodally, 2015; Lonigan *et al.*, 2008; Morrow, 2011). Peeters (2011) notes that gaps in these early skills can create substantial learning challenges. Similarly, early mathematical development forms the foundation for later achievements (Jordan, 2007; NMAP, 2008; NRC, 2009; Luit and Pennings, 1999). Core skills—such as number sense, geometry, pattern recognition, and problem-solving—enable cumulative and complex learning (Aunola *et al.*, 2004; Purpura *et al.*, 2013). Literacy and numeracy are therefore fundamental life skills that shape long-term learning trajectories and career success (Jordan *et al.*, 2003; NELP, 2008; NRC, 2009; Snow *et al.*, 1998). Yet many children continue to struggle to achieve grade-level competencies (Kushwaha and Srivastava, 2011; Kushwaha, 2012), and early academic difficulties often persist over time (Chall *et al.*, 1990; Aunola *et al.*, 2004).

Recent ASER reports (2022, 2023) present a concerning picture—despite some improvements, a majority of

children in Grades 3 and 5 still cannot read Grade 2 level text or perform basic arithmetic. Evidence suggests that timely support, assessment, and feedback can substantially improve learning outcomes (NMAP, 2008; NELP, 2008; ASER 2023). ASER further emphasises that developing cognitive skills in early years—not rote memorisation—enhances future learning potential.

The development of literacy and numeracy skills is shaped by several factors, including home environment, parental education, socio-economic status, pedagogy, and assessment practices. Kumar and Chowdhury (2023) observe that family education levels, socio-economic status, and school type significantly influence children's foundational reading and numeracy skills. Research also underscores the role of assessment and feedback in improving FLN outcomes (Black and Wiliam, 1998; Adarkwah, 2021; Swargiary, 2024). Continuous assessment, when integrated with instructions, enhances achievement, especially for low-performing learners. Constructive feedback consistently contributes towards improved performance (Graham *et al.*, 2007; Chapin *et al.*, 2009; Mamoon-Al-Bashir *et al.*, 2016; Neema Amani, 2025). Hattie and Timperley (2007) emphasises that feedback is most effective when it is clear, timely, and task-focused. National frameworks such as NEP 2020 and NIPUN Bharat (2021) similarly highlight the need

for regular and specific feedback as a core component of effective teaching and learning.

Although extensive literature discusses persistent academic underachievement in India (ASER 2005–2014; NAS 2006–2015; Educational Initiatives 2006–2014; Sarama 2009; Patel *et al.*, 2013; Young Lives 2014; Ball *et al.*, 2014; Ghosh 2021; Azim Premji Report 2021; UNICEF Report 2021; Hossain 2022), research specifically on FLN within the Indian context remains limited and warrants deeper investigation. Against this backdrop, the present article examines the levels of literacy and numeracy among Grade 3 students in Delhi's government schools, identifies factors influencing these skills, and explores teachers' perspectives on classroom assessment and feedback practices.

THEORETICAL FRAMEWORK

Literacy and numeracy are essential skills that enable individuals to function effectively in society and achieve personal and professional goals. Although the importance of reading and numeracy for meaningful participation is widely acknowledged, their theoretical grounding remains relatively underexplored, as illustrated in Fig. 1. These skills can be examined through the perspectives of behaviourist, constructivist, and alternative theoretical frameworks, including socio-cultural and cooperative theories.

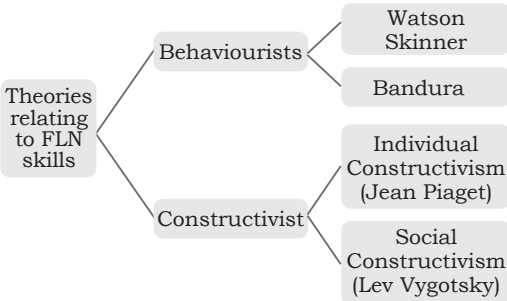


Fig. 1

Behaviourist theorists, such as Skinner and Watson, emphasised the role of reinforcement, repetition, and practice in learning, while Bandura expanded this view through social learning theory, highlighting the role of observation and imitation. Piaget's (1967) stages of cognitive development offer a framework for understanding how children's thinking evolves and how they acquire literacy and numeracy concepts. From a constructivist standpoint, children actively construct their understanding of numbers, ideas, and operations by engaging with their environment and building knowledge internally. Similarly, Vygotsky (1962; 1978) underscored the influence of social and cultural contexts, proposing the Zone of Proximal Development (ZPD) to explain how guided interaction and scaffolding support learning. Taken together, these theories suggest that the literacy and numeracy develop through a combination of reinforcement, active knowledge construction, social interaction, and guided support—though each lens provides only a partial explanation of the complex processes involved.

FOUNDATIONAL LITERACY AND NUMERACY SKILLS IN INDIA

The ages from zero to eight constitute a critical period for a child's growth and development, laying the foundation for all subsequent learning. Children who participate in high-quality early childhood education programmes show significant improvements in social, academic, and cognitive domains compared to those who do not. Establishing strong foundations in the early years has enduring effects, enhancing children's engagement in formal education and improving their long-term learning outcomes. Quality early learning and early childhood education programmes also contribute to improved academic performance across school levels by reducing drop-out rates and grade repetition.

Despite several years of schooling, many children and adolescents across the world still lack basic literacy and numeracy skills (Pritchett *et al.*, 2020; Spaull *et al.*, 2015). Even graduates from high schools, vocational institutes, and colleges, often fall short of the competencies these institutions are expected to develop among them. A key challenge is that too few children receive adequate cognitive stimulation in the early years (Grantham-McGregor *et al.*, 2007). Recognising this gap, international organisations have increasingly prioritised the development of FLN skills. Ensuring that all children

and a substantial proportion of adults achieve proficiency in reading and mathematics is central to one of the targets under Sustainable Development Goal 4 (SDG 4, 2016) (United Nations, 2016).

In recent years, the concept of “foundational literacy and numeracy” has gained prominence, both globally and within India. As part of the implementation of the NEP 2020, the Government of India launched the NIPUN Bharat Mission to strengthen FLN across the early grades. The mission emphasises joyful learning, where children build strong learning foundations through play, storytelling, rhymes, activities, and exposure to local art, craft, and music. It aims to promote holistic development and structured progression of learning outcomes, ensuring that children acquire essential literacy and numeracy skills

in a developmentally appropriate and engaging manner.

KEY COMPONENTS OF NIPUN BHARAT FLN SKILLS

A range of factors influence language and literacy development during the early primary school years. These include the growth of oral language skills in the child’s home language, exposure to the school language—which should be supported by strong listening comprehension skills, the development of print and phonological awareness, and the emergence of early reading and writing abilities during the pre-school years. Children who have a strong command over their mother tongue are generally better equipped to acquire English or any other second language. The key components of foundational language and literacy include the following:

Table 1
Key Components of Foundational Language and Literacy

Developing Oral Language	Experience in oral language is essential for developing skills in reading and writing.
Phonological Awareness	It includes the competency of awareness about words, rhymes, and sounds within words, which should emerge from their meaningful engagement with language.
Decoding	It encompasses print awareness, <i>akshara</i> knowledge and decoding, and word recognition competencies.
Vocabulary	It encompasses oral, reading, and writing vocabulary skills, as well as morphological analysis of words.
Reading Comprehension	It covers the competencies of understanding the text, retrieving information from it, and interpreting the text.
Reading Fluency	The ability to read a text with accuracy, speed (automaticity), expression (prosody), and comprehension, enables children to derive meaning from the text.

Concepts about Print	Children need exposure to a variety of print-rich environments to develop comprehension skills.
Writing	It encompasses the skills of writing aksharas and words, as well as writing for expression.
Inclination towards Reading	It involves the motivation to engage with a wide variety of books and other reading materials.

Source: NIPUN Bharat, 2021

FOUNDATIONAL NUMERACY SKILLS

Foundational Numeracy refers to the ability to use deductive reasoning and to apply basic arithmetic concepts in practical situations. During the pre-school years, children develop essential pre-number and number concepts, such as comparing, sorting, classifying, and recognising patterns, which serve as the basis for mathematics learning in the early primary grades. Early mathematics includes (Table 2) components and dimensions to study the perceptions of teachers regarding factors that can influence students’ attainment of FLN skills in Grade 3.

In primary education, government initiatives have concentrated on fundamental literacy and numeracy skills. The aim is to ensure that students achieve the basic competencies in reading, writing, and arithmetic.

Assessment and Feedback as a Resource to Enhance Students’ FLN Skills

Feedback is a powerful resource that can significantly enhance students’ performance and learning outcomes. Research consistently demonstrates the positive impact that effective feedback can have.

Table 2
Key Components of Foundational Numeracy and Mathematics Skills

Pre-number Concepts	Count and understand the numeration system
Numbers and their Operations	Learn the conventions necessary for mastering mathematical techniques, such as using the base ten system to represent numbers.
Measurement	Understand and use standard algorithms to perform operations of addition, subtraction, multiplication, and division on numbers up to 3 digits.
Shapes and Spatial Reasoning	Perform simple computations in your own way, up to 3-digit numbers, and apply these to your current activities in various contexts.
Patterns	To expand students’ understanding of the space and spatial objects, learn vocabulary for relational words.

Source: NIPUN Bharat, 2021

student achievement and growth. Most of the researchers found that students who received regular feedback on their reading comprehension skills made significantly more progress than students who did not receive feedback. Researchers found that third-grade students who received regular feedback on their writing skills made significantly more progress than students who did not receive feedback. (Graham and Perin, 2007). Researchers found that fifth-grade students who received regular feedback on their mathematics skills made significantly more progress than students who did not receive feedback. (Chapin, *et al.*, 2009). Hattie and Timperley (2007) suggest that feedback is most impactful when it is clear, timely, and directed toward the task rather than the individual. Additionally, Black and Wiliam (1998) conducted a seminal study on formative assessment and found that feedback plays a crucial role in enhancing student performance. The NEP (2020) also provides recommendations for how assessment feedback can enhance the learning process.

Therefore, appropriate assessment and feedback practices can enhance students' FLN skills.

RESEARCH QUESTIONS

- What are the significant dimensions related to FLN skills among Grade 3 students?
- What are the literacy and numeracy proficiency levels of Grade 3 students?

- What factors, such as parental involvement, classroom assessment and feedback practices, etc., affect students' literacy and numeracy skills?
- What is the perception of teachers about factors that influence the attainment of FLN skills?

RESEARCH OBJECTIVES

- To examine the major dimensions and the level of FLN skills among Grade 3 students discussed under NIPUN Bharat Mission.
- To know various factors influencing FLN skills among Grade 3 students from Delhi government Schools.

METHODOLOGY

This study employed a mixed-methods approach using an explanatory sequential design to assess the levels of FLN skills among children and to identify the factors influencing FLN development among Grade 3 students from Delhi government schools.

Participants

Purposive sampling was used to select the student participants for this study. The sample comprised 150 Grade 3 students, of whom 39 per cent were male and 61 per cent were female, and 110 teachers, with 45 per cent male and 55 per cent female participants. The sample was drawn from government schools in Delhi, specifically from various schools located in East and South Delhi, as presented in Table 3.

Table 3
Sample of the Study

Participants	Test Papers		Questionnaire	Semi-structured Interview	Focus Group Discussion
Students	150		—	—	—
	Male	59			
	Female	91			
In-service Teachers	—		110	20	10
			Male 50 Female 60		

Tools for Data Collection

The researchers developed three assessment tools to evaluate the foundational literacy and numeracy levels of third-grade students. To collect primary data, three types of instruments were used. First, literacy test papers in English and Hindi were designed to assess students’

skill acquisition across multiple domains. Each test consisted of five components—oral language (5 points), phonological awareness (5 points), print awareness (5 points), letter recognition (5 points), and writing development (5 points). Thus, each literacy test, in both English and Hindi, had a maximum score of 25 points (Table 4).

Table 4
Task Components of English and Hindi Language Assessments

Parameter	Sub-task	Description of Subtask	Skill Development
Listening	Reading Comprehension	The researcher asked the students to answer questions related to the narrated story	Students will be able to explain, extend, give examples, make inferences, predict and summarise, construct meaning, and think critically
Speaking	Concept about Print	The researcher asked the students to talk about the printed picture	Students will be able to construct ideas, develop comprehension skills, speaking skills, skills of decoding, brainstorming and predicting
Writing	Writing	The researcher asked the students to write sentences about their family and friends	Students will be able to communicate and be creative, develop critical thinking, creativity and self expression,
Vocabulary	Dictation	The researcher asked the students to write dictation words from 3 letters to 5 letters	Students will be able to understand the meaning, distinct among similar words, develop memory and speaking skills
Reading	Reading Fluency	The researcher asked students to read chapters from the textbook	Students will be able to develop skills to extract meaning from the text, predict, self correction, pronunciation, critical thinking, extend, make inferences, and summarise

A numeracy assessment test was also developed to measure students' foundational mathematical skills across multiple domains. The test comprised five components: essential number identification (0–999), including place value and three-digit numbers (5 marks); addition and data handling involving three-digit numbers (5 marks); subtraction of three-digit numbers (5 marks); identification of geometrical shapes (5 marks); and completing patterns and shapes (5 marks). The test items were adapted from the NCERT Grade 3

mathematics textbook. The overall numeracy test carried a total of 25 marks (Table 5).

A self-constructed questionnaire on teachers' perceptions was administered using a 5-point Likert scale, along with semi-structured interviews, to identify the factors influencing FLN skills among Grade 3 students. The questionnaire consisted of 40 items covering parental involvement, child–school-based engagement, learning environment, role of external support, teacher and peer influence, and teacher feedback practices. After data

Table 5
Task Components of the Numeracy Assessment

Parameter	Sub-task	Description of Subtask	Skill Development
Pre-number Concept	Number Identification	The researcher asked students questions related to the number identification in words and place value	Students will be able to explain, extend, give examples, make inferences, predict, and summarise, construct of meaning and think critically
Numbers and Operation on Numbers	Addition and Data Handling in Addition	The researcher asked the students to addition by breaking the numbers and data handling sums	Students will be able to construct ideas, develop comprehension skills, decoding, speaking skills, brainstorming, prediction
Number and Operation on Numbers	Subtraction	The researcher asked students to do subtractions of double digits.	Students will be able to develop communication skills, creativity, critical thinking, and self-expression
Geometrical Shapes	Shape Identification. Corners, Edge	The researcher asked the students to identify and name the shapes, corners, and edges	Students will be able to understand the meaning, develop skills of memory, and distinct among similar words.
Patterns in Numbers and Shapes	Patterns of Image and Numbers	The researcher asked students to complete and fill the shapes and number patterns	Students will be able to develop skills to extract meaning from the text, predict, self correction, pronunciation, critical thinking, extend, make inferences, and summarise

collection, responses were entered into Excel and subsequently analysed using SPSS 21 for factor analysis.

Data Collection Procedure

The questionnaires and test papers were administered in person. Grade 3 students were reached through the principals and teachers of the selected schools, and formal permission was obtained from the school principals. Data collection was carried out in classrooms within the schools, with the cooperation and facilitation of the teachers.

Validity and Reliability of the Research Tools

To ensure the validity of the three research tools, the test items were first reviewed and validated through consultative meetings with teachers responsible for teaching English, Hindi, and mathematics at the Grade 3 level. In the second phase, pilot testing was conducted with a group of 20 students who were not part of the main sample. Feedback from both validation and pilot testing informed the refinement of the final instruments.

For scoring, the following criteria were used:

- **High level of achievement:** 60–100 per cent (mean score > 3.3)
- **Medium level:** 35–59 per cent (mean score between 1.7 and 3.2)
- **Low level:** 0–34 per cent (mean score < 1.6)

A cutoff of 35 per cent was selected as it corresponds to the minimum passing grade in the Indian education system. This scoring method was applied to each component of the FLN tests as well as to the overall scores.

Data Analysis Technique

Descriptive statistics, including percentages and cross-tabulations, were computed for initial analysis. Factor analysis using the principal component method was applied to the questionnaire data, with components rotated using the Direct Oblimin method. This procedure grouped the original statements into newly derived variables, enabling clearer interpretation of influencing factors. Narrative data from interviews were also integrated to complement and strengthen the quantitative findings.

FINDINGS

Findings Related to the Literacy Test in English

Descriptive statistics indicate the English literacy levels of Grade 3 students, as shown in Table 6. The participants, on average, performed moderately well in “reading comprehension”, with a mean score of 2.46. However, the standard deviation of 1.72 reflects considerable variability in individual performance. More than half of the students were able to answer the reading comprehension questions based on their understanding.

A moderate level of understanding was also observed for the “concept

of print,” with a mean score of 2.12 and a standard deviation of 1.63, again suggesting variability among learners. The overall writing skills of the students were found to be at a medium level, with a mean score of 1.85. The relatively high standard deviation of 1.96 indicates a wide range of performance within this component.

“Vocabulary dictation”, yielded a mean score of 1.40, reflecting below-average performance, with comparatively lower variability (SD = 1.60). Reading fluency was found to be low, with a mean score of 1.37, indicating limited proficiency in this area. The standard deviation of 1.68 suggests notable differences in fluency levels among the students, with some performing substantially better or worse than the average.

Table 6

Mean Scores, Standard Deviations, and Levels of Literacy Skills in English

Themes	Total Score	Mean	SD	Literacy Level
Reading Comprehension	0.5	2.46	1.72	Medium
Concept about Print	0.5	2.12	1.63	Medium
Writing	0.5	1.85	1.96	Medium
Vocabulary Dictation	0.5	1.55	1.60	Low
Reading Fluency	0.5	1.37	1.68	Low

*Indicates literacy level is defined as per mean score less than 1.6-(Low); 1.7 to 3.2 (Medium); and above 3.3-(High)

Source: Compiled by the author

Findings Related to the Literacy Test in Hindi

The given test paper was based on the curricular content of the students' textbooks (Annexure 1.b), and the assessment parameters were aligned with those used in English. Table 7 presents the Hindi literacy performance of the participants. The students achieved an average score of 2.90 in Hindi “reading comprehension”, indicating a medium level of proficiency, with a standard deviation of 1.30, suggesting relatively low variability in performance. For the “concept of print”, the participants obtained an average score of 1.88, which also reflects a medium level of understanding; however, the standard deviation of 1.70 indicates considerable variation among student scores.

Table 7

Means, Standard Deviations, and Levels of Literacy Skills in Hindi

Themes	Total Score	Mean	SD	Literacy Level
Reading Comprehension	0.5	2.90	1.30	Medium
Concept about Print	0.5	1.88	1.70	Medium
Writing	0.5	2.07	1.90	Medium
Vocabulary Dictation	0.5	1.49	1.43	Low
Reading Fluency	0.5	1.45	1.41	Low

*Indicates literacy level is defined as per mean score less than 1.6-(Low); 1.7 to 3.2 (Medium); and above 3.3-(High)

Source: Compiled by the author

Hindi “writing skills” were found to be at a medium level, with a mean score of 2.70. The relatively high standard deviation of 1.90 suggests substantial variability in individual writing abilities. Similar to the results observed in English, “vocabulary dictation” in Hindi showed a low level of proficiency, reflected in a mean score of 1.49 and a standard deviation of 1.43. Students also demonstrated weak performance in Hindi “reading fluency”, with a mean score of 1.45, indicating a low level of proficiency; the standard deviation of 1.41 shows notable variation among participants.

Overall, the findings indicate that the students attained a medium level of proficiency in Hindi “reading comprehension”, “concept of print”, and “writing”. However, their skills in “vocabulary dictation” and “reading fluency” in Hindi remained comparatively low.

Findings Related to the Numeracy Test

The participants, on average, demonstrated medium proficiency in number identification. The standard deviation of 1.65 indicates some variability in individual performance. Students’ performance in addition operations was also at a medium level, with a mean score of 1.78 and a standard deviation of 1.48—reflecting moderate variability. Subtraction skills showed a similar trend, with an average score of 1.92, classified as medium proficiency, and a standard deviation of 1.38.

In contrast, shape identification reflected a relatively low proficiency level, with a mean score of 1.26. The standard deviation of 1.38 suggests noticeable variation in performance among the students. For patterns and number series, the mean score was 1.52, indicating medium proficiency, with the standard deviation of 1.65 showing considerable variability.

Overall, the findings indicate that the participants achieved a medium level of numeracy skills in number identification, addition, subtraction, patterns, and number series. However, their proficiency in shape identification was comparatively low. The standard deviations across all skills, point to variability in individual performance within each numeracy domain.

Table 8
Means, Standard Deviations, and Levels of Numeracy Skills

Themes	Total Score	Mean	SD	Literacy Level*
Number Identification	0.5	2.59	1.65	Medium
Number Operation (Addition)	0.5	1.78	1.48	Medium
Number Operation (Subtraction)	0.5	1.92	1.78	Medium
Shapes Identification	0.5	1.26	1.38	Low
Patterns and Number Series	0.5	1.52	1.65	Low

*Indicates literacy level is defined as per mean score less than 1.6- (Low); 1.7 to 3.2 (Medium); and above 3.3- (High)
Source: Compiled by the researcher

Qualitative Findings: Insights from Semi-structured Interviews and Focus Group Discussions

Below are excerpts gathered from semi-structured interviews and focus group discussions with teachers, highlighting factors that influence students' Foundational Literacy and Numeracy (FLN) skills.

"According to me, parent involvement plays a critical role in a child's foundational literacy and numeracy development. When parents actively participate in their child's education and support their learning journey, it can positively impact their academic success."

(English Language Teacher: Neha [F, 30 yrs])

"Students from lower socio-economic backgrounds or with less educated parents face challenges in acquiring foundational skills and require additional support and interventions."

(Maths Teacher: Geeta [F, 44 yrs])

"Parental education level can influence the language environment at home. Parents with higher education levels may have more advanced language skills and use a broader vocabulary, which can positively impact a child's language development—a critical aspect of foundational literacy."

(Hindi Language Teacher: Pratibha [F, 38 yrs])

"I believe parental involvement in a child's early years can significantly influence their language development, a crucial aspect of foundational literacy. Most students who come to Delhi government schools are from

working-class families; their parents are workers and labourers, so they cannot help their children with their studies. When parents engage with students in various activities, such as reading to their children, telling stories, and having conversations, they expose the child to a rich language environment. This exposure helps the child to build a strong vocabulary, develops understanding of grammar, and enhances communication skills essential for later reading and writing proficiency."

(English Language Teacher: Seema [F, 45 yrs])

"I think when a child is engaged in a positive home and school environment, they are more likely to be motivated, attentive, and committed to their studies. Engaged students often exhibit better academic performance, higher levels of understanding, and increased problem-solving skills."

(English Language Teacher: Vaishali [F, 38 yrs])

"I believe external support plays a crucial role in supporting students of Grade 3 in developing foundational literacy and numeracy skills. As students transition from early childhood to elementary school, these foundational skills become even more critical for their academic success."

(English Language Teacher: Preeti [F, 38 yrs])

"Teachers and peers positively influence students—enhancing foundational literacy and numeracy skills as well as self-efficacy and confidence. Students with higher confidence are more likely to approach learning challenges with a positive

attitude and a belief in their ability to succeed.”

(English Language Teacher: Rubina [F, 29 yrs])

“Engaged students are more likely to be attentive and motivated, which can positively impact their learning of foundational literacy and numeracy skills. Active participation in reading, writing, and math exercises can reinforce these foundational skills and improve academic outcomes.”

(Maths Teacher: Pooja [F, 32 yrs])

“From my experience, constructive feedback fosters a supportive learning environment that boosts students’ confidence in their abilities. Feeling encouraged and supported motivates students to learn foundational literacy and numeracy actively.”

(Maths Teacher: Kajal [F, 26 yrs])

“To be honest, feedback motivates students to think critically about their work and learning. This reflective process enables them to pinpoint areas for improvement and gain a better understanding of their strengths and weaknesses in foundational literacy and numeracy.”

(Hindi Language Teacher: Yasmeen [F, 32 yrs])

INTERPRETATION OF QUALITATIVE FINDINGS

The qualitative analysis reveals that Grade 3 students’ FLN skills are influenced primarily by their home environment, socio-economic background, and engagement with teachers and school activities. While individual learning pace varies, the findings underscore a strong

combined influence of family and school contexts.

Parents who actively participate in their child’s learning—by promoting reading habits, facilitating numeracy activities, or providing a supportive learning environment—significantly contribute to the child’s development of essential FLN skills. These patterns align with existing literature, which affirms that parental intervention directly affects FLN achievement (Frances L. *et al.*, 2013).

Teachers’ narratives further highlight the importance of external support systems such as tutoring, community programmes, and educational technologies. These additional supports help to bridge learning gaps and provide students with extended opportunities to strengthen literacy and numeracy.

Bernstein’s concepts of class, language, and education provide an interpretive lens for understanding these findings. Many students in government schools use restricted linguistic codes at home due to working-class family backgrounds. This limitation affects vocabulary growth, language comprehension, and ultimately literacy skills. The findings also echo earlier research demonstrating that family support is vital for numeracy learning (Behera, 2022).

Overall, limited parental participation and varying levels of teacher engagement pose challenges in fostering a comprehensive and nuanced understanding of students’ FLN needs

(Barham *et al.*, 2019). Strengthening home-school collaboration remains central to improving FLN outcomes.

Factors Influencing FLN Skills Among Grade 3 Students

Factor analysis of the 40 questionnaire items resulted in the identification of six key variables. From the original set, 28 statements met the loading criteria and were retained. These factors are summarised below:

Factor 1: Parental Involvement

Include parental-child interactions at home, parental education and occupation, home language patterns, and socio-economic status.

Factor 2: Child-School Engagement

Captures engagement in reading or writing activities, numeracy games, peer interactions, continuous teacher assessments, and buddy evaluations.

Factor 3: Learning Environment

Includes access to print materials, availability of educational games, quality of the school environment, and opportunities for real-world application.

Factor 4: Role of External Support

Covers tutoring, community programmes, and digital or online platforms that strengthen FLN skills.

Factor 5: Teachers' and Peers' Influence

Represents the influence of teacher encouragement, peer collaboration, and motivational support on FLN skill development.

Factor 6: Teachers' Feedback

Encompasses written, constructive, corrective, and immediate feedback that helps students to reflect and improve upon their learning.

Table 9
Variables Included in Each Factor and Factor Loadings

Factors	Variable and Statements	Loadings
Factor 1: Parental involvement	• I believe parental engagement with students at home positively influences literacy skills.	0.76
	• Parents' education level (illiterate or below 10) affects the enhancement of students' FLN skills.	0.69
	• The language used at home contributes to the students' FLN skills.	0.84
	• Socio-economic status of students affects their enhancement of FLN.	-0.77
Factor 2: Child-school-based Engagement	• Students are engaged in reading activities (English and Hindi) at school.	0.95
	• Games related to literacy and numeracy are incorporated into classroom activities.	-0.82
	• I always think time spent on weekly FLN key components, acts positively for attaining FLN skills.	0.74
	• Continuous assessment by teachers and buddy assessment can be assessed daily in class.	0.79
	• Students who do not engage in self-reflection have strong FLN skills.	0.71

Factor 3: Learning Environment	• Every student gets an exposure to print materials (books, magazines) in the home environment.	–0.73
	• School environment enriches and promotes a positive attitude towards FLN.	0.73
	• I always integrate real-world applications into numeracy lessons for students.	0.84
	• I always remember individual differences and teach students accordingly using PPT, textbooks, and other methods.	0.71
Factor 4: Role of External Support	• External tutoring positively impacts students' FLN skills.	0.81
	• Various community programmes enhance students' FLN skills.	0.76
	• Educational apps or online platforms help to improve students' literacy skills.	0.82
	• Students who study at home with the help of siblings and parents have better FLN skills.	–0.76
	• Parents sometimes may not be able to afford the tuition fee, which affects students FLN.	0.95
	• Remedial teaching helps to enhance FLN.	0.91
Factor 5: Teachers' and Peers' Influence	• Teachers always encourage students to read books other than language textbooks.	0.83
	• I always instruct students in language (Hindi or English).	0.77
	• I force students to talk in English, as it helps to enhance literacy skills.	–0.84
	• Positive teacher-student relationships impact students' literacy development.	0.72
	• Peer interactions contribute to the enhancement of students' FLN skills.	0.91
Factor 6: Teachers' Feedback	• I believe delayed feedback hinders students' ability to attain FLN.	0.74
	• It is possible to give immediate feedback daily to students in achieving FLN.	–0.78
	• Corrective feedback always plays a positive role in the attainment of FLN.	0.91
	• I believe written or comprehensive feedback help to students attain FLN.	0.83

Source: Calculated by the researcher

After identifying six distinct factors through factor analysis, an index was calculated for each factor. Prior to index computation, the dataset was normalised using the formula.

The normalised values were multiplied by the respective factor loadings and weights. The weights

used in the final index computation were derived from the factor loadings and eigenvalues obtained from Principal Component Analysis (PCA).

Based on this procedure, a parental involvement index was created. Similarly, indices were computed for:

- child-school engagement,
- learning environment,
- external support,
- teachers and peers, and
- teacher feedback.

These composite indices provide a structured quantitative assessment of the factors influencing Foundational Literacy and Numeracy (FLN) skills.

SUMMARY OF FINDINGS

The study's findings indicate that Grade 3 students demonstrated an average level of proficiency in reading comprehension, writing, and concepts about print, in both English and Hindi. However, their proficiency was lower in vocabulary dictation and reading fluency, signalling areas that require targeted intervention.

For numeracy skills, the study revealed a near-average proficiency in number identification and basic addition and subtraction. However, performance was low in shape identification, pattern recognition, and number series, indicating gaps in conceptual understanding.

The qualitative findings reinforce these results, particularly highlighting parental involvement as a central determinant of FLN development. Parents play a vital role in children's educational growth, and the study's findings align with prior research (Coneus *et al.*, 2009; LeFevre *et al.*, 2009), which demonstrates that parental active engagement positively influences academic achievement.

Research has shown substantial variation in access to home learning materials between high- and middle-income and low-income families (Cheung *et al.*, 2011). Scholars further link parental involvement to academic success (McNeal, 2015; Wang and Sheikhhkhalil, 2014), socio-economic status and home language (Bernstein, 2015), and motivation (Frenzel *et al.*, 2010; Lipnevich *et al.*, 2016; Simpkins *et al.*, 2006).

Child-school engagement emerged as another influential factor. Active participation in classroom activities, regular assessments, exposure to educational games, and interactive reading activities were found to support the development of FLN skills. These findings are consistent with earlier research that demonstrates the positive effects of meaningful student engagement on academic performance (McClelland *et al.*, 2006).

The learning environment, both at home and at school, was identified as a crucial determinant of FLN acquisition. Parents' attitudes toward learning and teachers' instructional practices shape a child's exposure to print, numeracy materials, and supportive literacy experiences (Cheung *et al.*, 2011). Conversely, misalignment between home and school language environments negatively affects literacy and numeracy development (Bhattacharjea *et al.*, 2011).

External support, such as tutoring, community programmes,

and mentorship, also emerged as an important factor in strengthening foundational skills. This finding aligns with research demonstrating the importance of community and home environments in supporting early learning (Ball *et al.*, 2014).

Additionally, teachers and peers played a significant role in fostering confidence, motivation, and independence in reading and writing activities. Prior research suggests that the teachers must understand students' social networks and how peers influence academic performance (Cooc and Kim, 2016).

Lastly, teacher feedback (Wiliam and Black, 1998) was identified as a critical factor. Constructive, immediate, and comprehensive feedback helps students correct misconceptions, strengthens conceptual understanding, and motivates continuous improvement. Effective feedback supports teachers in adjusting instructional strategies to meet student needs (NEP, 2020; Cooc *et al.*, 2016).

IMPLICATIONS OF THE STUDY

The findings emphasise the urgent need to ensure that students acquire purposeful reading and writing skills by Grade 3, as envisioned in national policy documents. Students should also be equipped to integrate real-life experiences into classroom learning to strengthen literacy and numeracy.

The study has several implications for policymakers, school administrators, teachers, and families:

Strengthening FLN Policy Implementation

Effective implementation and monitoring of FLN initiatives are critical. Research by Jordan *et al.* (2003) highlights that mastering foundational reading, writing, and mathematics is essential for long-term academic success.

Addressing Learning Gaps Early

National concerns regarding the learning deficits underscore the need for early interventions. Evidence consistently shows that the children who lag in foundational skills fall further behind over time, making remediation challenging (NIPUN Bharat, 2021).

Enhancing Home Learning Environments

A lack of educational resources, insufficient parental involvement, and low literacy environments significantly hinder FLN development. Families should be supported with:

- storybooks, flashcards, workbooks,
- board and card games for literacy,
- number charts, counting books, and numeracy games.

Strengthening Teacher Capacity

Teachers play a pivotal role in improving FLN outcomes. The study recommends:

- ensuring an adequate number of qualified teachers across grades,
- conducting regular capacity-building programmes aligned to FLN competencies,

- providing targeted training to strengthen reading comprehension, reasoning, measurement, and spatial understanding skills.

Encouraging Parental Engagement

Teachers can organise regular reading engagements, workshops, and interactive home-based activities for parents. Schools should promote frequent parent-teacher interactions and encourage parents to participate in school committees.

Using External Support Systems

Incorporating community volunteers, mentors, counsellors, and supplementary learning platforms can provide additional learning opportunities for struggling students.

Promoting Student Self-reflection

Encouraging students to self-report their daily learning experiences strengthens self-regulation, motivation, and accountability.

CONCLUSION

This study contributes significantly to the understanding of factors influencing FLN skills in Grade 3 students in Delhi government schools. By examining both quantitative and qualitative dimensions, it highlights the multifaceted nature of FLN development and underscores the importance of integrating home, school, and community support systems.

The findings reinforce national educational priorities articulated in the NEP 2020, NIPUN Bharat 2021, NCF-SE 2022, and other FLN-focused reforms. As India continues to invest in improving early-grade education, it is vital that policies, teaching practices, and community initiatives maintain a unified focus on strengthening foundational skills.

Ensuring that children develop strong FLN abilities by Grade 3, is not only essential for academic progress but also crucial for fostering lifelong learning and breaking cycles of educational disadvantage.

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