

Chapter 4

Representation of Prepositions in English Textbooks of Lower Primary Grades: A Case Study of NCERT Textbooks in India

4.1 Introduction

Prepositions are a class of words that establish spatial, temporal, and abstract relationships between nouns, pronouns, and other words in a sentence. Prepositions like "in," "on," "at," "with," and "to" are some examples of frequently used prepositions. When paired with additional elements of language, these seemingly simple words add to the complexity and depth of human communication.

According to Byrd and Benson (2001), prepositions serve as linguistic elements frequently employed to denote adverbial modifiers, thereby conveying pertinent details pertaining to both spatial and temporal dimensions. As per Quirk and Greenbaum (1989), prepositions can be categorised into two distinct classes: simple prepositions, which are composed of a single word, and complex prepositions, which are comprised of multiple words. In the publication titled "Analysing English Grammar" authored by Klammer et al. in 2004, a comprehensive compilation of prepositions has been provided. Specifically, the authors have meticulously documented a total of 60 simple prepositions and 39 complex prepositions.

Polysemous Nature of Prepositions

Prepositions tend to be polysemous, implying that they exhibit multiple meanings. According to Tyler Mueller & Ho (2011, p 182), the various senses of the preposition

emerge from a more proto-typical sense. For instance, the preposition “in” in the following three sentences has different sense representation: -

1. The boy is *in* the room.
2. I was born *in* September.
3. The dog ran away *in* pain.

All three sentences have different senses of the preposition “in”. In the first sentence, the preposition “in” is used in the *spatial* sense. In the second sentence, the preposition “in” is used in the *temporal* sense. In the third sentence the preposition “in” is used in the *metaphorical* sense. Yet they have a related meaning of *containment*.

4.2 Addressing Pedagogical Challenges in Teaching Prepositions

Teaching prepositions can be challenging for language educators due to the polysemous nature of these linguistic elements. Prepositions are crucial in conveying relationships between words and phrases, but their proper usage often eludes language learners. Below, we explore some pedagogical problems associated with teaching prepositions and look at some strategies to address these challenges effectively.

1. Ambiguity and Multiple Meanings

One of the primary difficulties in teaching prepositions is the presence of multiple meanings and the potential for ambiguity. Prepositions such as “in,” “on,” and “at” can have various interpretations depending on the context. This challenges learners who struggle to discern the appropriate preposition for a specific situation. The teachers can address this issue by providing clear and context-based examples and exercises.

2. Idiomatic Usage and Collocations

Prepositions often form idiomatic expressions and collocations, further complicating their mastery. Learners may encounter phrases like “take care of,” “look

forward to,” or “depend on,” where the meaning of the preposition cannot be deduced from its individual components. Teachers should emphasize the importance of learning prepositions in collocations and idiomatic expressions through authentic language use, extensive reading, and communicative activities.

3. Lack of Direct Translation

Prepositions do not always have direct equivalents in other languages, making the translation process challenging for learners. The subtle nuances and usage differences can lead to inaccurate or awkward translations. Educators should encourage learners to focus on understanding the prepositional system and usage patterns of target language rather than relying solely on translation. This can be achieved through contextualized examples, guided practice, and the use of visual aids.

4. Preposition-Verb Combinations

Certain verbs in combination with prepositions create specific meanings, adding another layer of complexity to prepositional usage. For instance, “look after” means to take care of someone or something, while “look for” refers to searching for someone or something. Learners may struggle to grasp these verb-preposition combinations, particularly if they differ from their native language. Teachers can address this by explicitly teaching common verb-preposition collocations, providing ample practice opportunities, and encouraging learners to engage in meaningful conversations.

5. Contextual Appropriateness

Determining the appropriate preposition to use in a given context is a persistent challenge for language learners. Contextual appropriateness involves understanding a sentence's spatial, temporal or abstract relationships between entities. Teachers can help learners develop this skill by incorporating authentic materials, real-world examples, and

interactive activities, encouraging learners to analyse and discuss appropriate prepositions in various contexts.

6. Limited Exposure and Practice

Insufficient exposure and practice with prepositions can hinder learners' internalization of their usage. Traditional grammar instruction often provides limited exposure, focusing on rule memorization rather than meaningful language use. Educators should integrate prepositions into all language skills, including listening, speaking, reading, and writing. Authentic materials, multimedia resources, and interactive exercises can allow learners to encounter and practice prepositions in diverse contexts.

Research involving 50 teachers was conducted by Delija & Koruti in 2013. Data were gathered via questionnaires administered to English teachers from Albania, Greece, and Kosovo. The purpose of the questionnaires was to ascertain whether the teachers instructed on prepositions in the classroom. The research findings indicated that the majority of EFL instructors teach what is either lacking in the textbook or fails to elucidate them entirely. Most of the teachers believed that English prepositions are challenging to instruct to nonnative speakers for numerous reasons which have been listed above.

4.3 Application of Cognitive Linguistics in Teaching English Prepositions

The conventional pedagogical methods used to teach English prepositions in many non-English speaking countries mostly rely on translation, verbal explanations, and vivid illustrations (Hung, 2018 & Lorincs & Gordon, 2012). Supporters of language function categorise prepositions based on their roles in different language segments, such as preposition of place, preposition of time, and preposition of direction. They propose that teaching prepositions should focus on their functions in these language segments

(Chomsky, 1981). These instructional approaches are also recommended in textbooks published by international publishers (Hopkins & Cullen, 2007; & Oxenden, Latham-Koeing & Seligson, 2008).

The advent of Cognitive Linguistics (CL) has implications for teaching prepositions. CL focuses on the connection between the human mind and language and proposes that teaching prepositions should be based on their meaning and employ image schemas. Humans initially perceive the spatial relationship between objects in the real world and then express this relationship through linguistic coding. Prepositions can have both prototypical and non-prototypical spatial meanings. This can be illustrated in Herskovits (1986) examples.

- (1) the cat *in* the house
- (2) the flowers *in* the vase
- (3) the bird *in* the tree
- (4) the ring *in* the finger

In example 1, the preposition *in* has a proto-typical meaning. The Trajector, *the cat*, is completely enclosed within the Landmark, which is *the house*. However, the Trajector, *the flowers*, does not entirely fall within the boundaries of the landmark, *the vase*. This indicates that the preposition *in* in this particular instance has a non-prototypical meaning. In example (3), it is crucial to include all the branches of the tree as LM as to use the non-prototypical meaning of the preposition *in*. In this case, a three-dimensional (3-D) space should be construed. In example (4), the finger is conceptualized as TR in a particular position and the ring is construed as LM covering some part of TR. To sum it up, the preposition *in* in example (1) is prototypical, while examples (2), (3) and (4) illustrate non-prototypical meanings of the preposition *in*.

Several quasi-experimental studies (Bielak and Pawlak, 2013; Boers, 2011; Evans and Tyler, 2005; Tyler, Mueller and Ho, 2011 & Vasiljevic, 2011) were identified as relevant references for this study because they applied CL (Cognitive Linguistics) to ELT (English Language Teaching) in EFL (English-as-a-foreign-language) contexts. These studies had commonalities. Initially, drawing from the Theory of Image Schemas, the researchers employed symbols to depict the semantic meaning of the target items in the form of symbols. In addition, explicit formal instruction was implemented. The researchers that endeavoured to instruct conceptual metaphors prioritised teaching physical spatial meanings initially, as they serve as fundamental information for comprehending conceptual metaphors. Recent research influenced by the CL method have introduced communicative activities with the aim of enhancing learners' communication skills and aiding in the retention of target items (Norris & Ortega, 2000).

In a study by Hung, B. P., Vien, T., & Vu, N. N. (2018), an examination of the effectiveness of utilising a cognitive linguistics-based approach in instructing the spatial and metaphorical connotations of prepositions was carried out. The study also contrasted the results obtained from the CL-based instructional description with the conventional instructional description. The results of this investigation were consistent with previous local and international studies that have utilised similar strategy (Huong, 2005; Song et al., 2015 & Tyler, 2012). The Cognitive Linguistic-based method offered L2 learners with substantial insights into the spatial and metaphorical connotations of prepositions. Following a series of Cognitive linguistics-based tutorials lasting a total of 6 hours, the participants demonstrated significant improvements, mostly with the use of visual aids provided through PowerPoint slides.

Teaching prepositions poses several pedagogical challenges, including ambiguity, idiomatic usage, translation difficulties, verb-preposition combinations, contextual

appropriateness, and limited exposure. Teachers can help learners better understand prepositions and master their usage more confidently by employing effective instructional strategies and focusing on meaningful language use. With patience, practice, and a learner-centered approach, teaching prepositions can become more engaging, accessible, and effective.

4.4 The British National Corpus

The corpus employed in the current study is the British National Corpus. The corpus under consideration comprises a substantial collection of textual data, amounting to a staggering 100 million. This extensive corpus encompasses a diverse range of linguistic expressions, encompassing both written and spoken forms of language. Written samples constitute the majority, accounting for approximately 90% of the corpus, while spoken samples make up the remaining 10%. The collaborative effort for the development of this project involved three prominent publishing houses, namely Oxford University Press, Longman, and W&R Chambers, along with the esteemed institutions of University of Oxford and Lancaster University, as well as the prestigious British Library. The corpus, spanning from 1991 to 1994, is an exemplary assortment of linguistic data capturing the prevailing language usage during that specific temporal epoch. It serves as an invaluable repository for scholars and learners of the English language, furnishing them with a rich and indispensable source of information.

One of the major aims of the British National Corpus (BNC) was to offer a comprehensive depiction of the way the English language was employed within the United Kingdom during the latter part of the 20th century. The corpus encompasses a diverse array of textual genres, encompassing both imaginative and factual compositions, scholarly

discourse, journalistic publications, periodicals, as well as oral communication originating from both formal and informal contexts.

The British National Corpus (BNC) holds significant value as a fundamental resource for scholars in the fields of linguistics, lexicography, and language pedagogy. This tool possesses the capacity to facilitate the examination of vocabulary and grammar, while also enabling the investigation of the utilisation of words and phrases within diverse contextual frameworks. The corpus, as an analytical tool, facilitates the identification of frequently co-occurring words and the examination of semantic variations of a given word in relation to its contextual environment.

The British National Corpus (BNC) serves as an invaluable resource for individuals seeking to engage in the scholarly examination of the linguistic transformations that have transpired within the English language across temporal epochs. This corpus can be juxtaposed with other corpora, such as the American National Corpus, to elucidate the linguistic transformations that have transpired across diverse nations. The British National Corpus (BNC) can be conveniently accessed through online platforms, accompanied by a range of software tools that have been specifically designed to facilitate efficient searching and comprehensive analysis of the corpus. The attributes mentioned above have rendered it a widely utilised asset across a multitude of domains, encompassing but not limited to language pedagogy, lexicographic endeavours, information retrieval endeavours, and text mining endeavours. In summation, it can be posited that the British National Corpus holds substantial value for individuals harbouring an inclination towards the study and exploration of the English language. The considerable dimensions and extensive array of textual genres render it an indispensable instrument for scholars, learners, and linguistic experts.

The rationale behind the choice of the British National Corpus for our current study is because it is a standard representative of the British variety of English. Our educational system is also influenced by the British variety of English (specially when it comes to the usage of vocabulary and spellings). Since India was a British colony until 1947, the influence of the British variety is still pertinent in the educational setting.

4.5 Studies on Textbook Representation of Prepositions

This study aims to analyse and compare the frequency of prepositions in two distinct corpora, namely the British National Corpus (BNC) and the English textbook corpus. The objective is to ascertain the frequency of prepositions within these corpora. Three studies conducted by Kennedy (1987), & Holmes (1988), and Mindt (1997) have employed comparable methodologies, wherein they have utilized sample textbooks and standard English corpora to investigate corpus-related phenomena.

Kennedy has conducted extensive research on the methodologies employed for the representation of quantification and frequency within ESL textbooks. Holmes, on the other hand, has undertaken a comprehensive examination of the various strategies employed for the expression of doubt and certainty within ESL textbooks. Lastly, Mindt has conducted an in-depth investigation into the utilization of future time expressions within German textbooks. Numerous scholarly investigations conducted in this particular domain have consistently revealed the existence of disparities or substantial variances between the content conveyed in textbooks and the authentic language usage patterns exhibited by native speakers, as substantiated by corpus-based evidence. The implication pertains to the domain of materials development, specifically in the realm of textbook writing.

Biber, Conrad and Reppen (1994) have suggested, “corpus-based research sheds new light on some of our most basic assumptions about English grammar, and as a result it offers the possibility of more effective and appropriate pedagogical applications.”

Mindt and Weber (1989) studied prepositions in American and British English using the Brown Corpus and the LOB corpus. In the Brown and LOB corpora, the 14 most frequent prepositions were listed which accounted for about 90% of prepositional use.

Biber et. al (1999, p91-93) studied prepositions in different varieties of English mainly conversation, fiction, newspaper language, and academic prose. Although it is commonly believed that function words (in this case prepositions) are frequent in any text as opposed to individual lexical words, there do exist wide differences among registers.

Textbook representation of prepositions in English has been studied by Mukundan and Roslim (2009). It was a corpus-based investigation on English prepositions which were presented in the three English language textbooks of the lower secondary schools in Malaysia. The aims were to find out the distributions of prepositions, its frequency order in comparison with the British National Corpus (BNC) and the differences in terms of their co-occurrence with other parts of speech. The findings showed that there is a difference between the textbook corpus and the BNC in terms of the frequency order of certain prepositions and there are similarities and differences in terms of their co-occurrence with other parts of speech. Roslim and Mukundan, (2011) looked at the studies on prepositions from a corpus linguistics perspective. The paper focused on the development of sequence of studies of prepositions in three decades. This paper also looked at the scenario of English language corpus work in Malaysia. Based on these reviews, this paper gave more tangible and practical applications in dealing with prepositions from the perspectives of the teaching and learning of prepositions. Borreguero (2020) in his M.A dissertation explored how Spanish students are exposed to different prepositional usage starting from their early

childhood. For his study, he analysed English as a Foreign Language (EFL) textbook from Grade I-VI of Primary Education.

In a recent work by Roslim, Aziz, Abdullah & Nimehchisalem (2021) uses corpus linguistics to make informed decisions on what prepositions to learn based on their suitability according to the maturity level of the learner. This research seeks to analyze the distribution patterns of prepositions within the Common European Framework of Reference (CEFR) Grammar Profile across its various levels. They also investigated how the frequency order of prepositions listed in the CEFR Grammar Profile aligns with their actual usage in the British National Corpus (BNC). This study examined the representation of prepositions from the CEFR Grammar Profile within the English Language of Malaysian School Students (EMAS) Corpus, particularly focusing on their assigned mastery levels. Finally utilizing the textbook corpus, they explored the types of tasks associated with prepositions included in the CEFR Grammar Profile. The results have shown many insights into the teaching and acquisition of prepositions. First, the distributions of prepositions in the CEFR Grammar Profile are a great resource for selecting appropriate and relevant material to learn. Second, the frequency order of prepositions indicates that, as CEFR levels rise, a broad range of simple and complex prepositions are used, providing guidelines. The limited use of simple prepositions from A1 is followed by this pattern. Thirdly, by using prepositions again and often, students can become proficient in their use. Lastly, a range of activities that are evenly dispersed for each preposition should be included in the task types for teaching and learning prepositions. They should also have been presented in a more conversational manner.

Chauhan & Ghosh (2024) aimed to determine the representation of English prepositions in English Language textbooks developed by the National Council of Educational Research and Training (NCERT) for Grades I and II in India. In this work, we

chose the British National Corpus for a comparison of preposition frequency in English. The analysis indicated that although the selection of prepositions in the textbooks aligns with their frequency in the standard English corpus, their meanings are not consistently primary, i.e., spatial and includes metaphorical uses also. The part of this chapter is an extension of our work cited above.

4.6 Acquisition of Prepositions

Cognitive linguistics (CL) has consequences for the instruction of prepositions. CL, or cognitive linguistics, focuses on the connection between the human mind and language. It proposes that teaching prepositions should be centred around their meanings and utilise image schemas. Humans initially encounter the spatial relationship between items in the real world and then express this relationship through language using a coding system.

**Table 4.1: Classification by order of acquisition between 1 and 8 years of age
(based on Bowerman, 1996: 388, 405; Coventry et al., 2008)**

Acquired earliest	<i>in, on, up, down, under</i>
↓	<i>next to, beside, between</i>
Acquired latest	<i>in front of, behind, in back of above, left, right</i>

According to Johnson (1985), the concept of space in early stages is extremely tightly tied to the functions of objects, namely those that involve confinement and support. Other conceptions of space, such as closeness, separation, surrounding, and order, arise in later stages of life. These stages can be thought of as a progression through life. When it comes to the acquisition of prepositions, a similar process is mirrored. This process of acquisition that we are going to talk about is almost similar across the languages of the

world. It starts off with the acquisition of spatial notion pertaining to containment (*in*) and contact and contiguity (*on*). Later on, comes the notions such as that of proximity (*beside, between*), and finally order (*behind, in front of*).

According to Blades & Spencer, C (1994), Piaget's theory posits that the construction of spatial representation through action is a vital component within his comprehensive framework of cognitive development. According to the proposal put out by Piaget, children engage in an active process of constructing their comprehension of the world by means of their interactions with the surrounding environment. In accordance with his theoretical framework, the development of spatial representation, which pertains to the comprehension and navigation of physical space, occurs progressively across a sequence of cognitive phases (which is already discussed). Piaget emphasized the active involvement with the environment as a crucial factor in constructing spatial representation across these phases. He believed that children acquire knowledge through active engagement, wherein their physical encounters with things and environments are the foundation for their cognitive representations.

Table 4.2: *In* and *on* across three domains of experience (adapted from Reda, 2017, p. 10)

Prepositional Primary Sense	Spatial Domain LOCATION	Temporal Domain TIMES ARE LOCATIONS	Abstract Domain STATES ARE LOCATIONS
In (containment)	In the box	In 2019	In love
On (contact/support)	On the table	On Tuesday	On call

4.7. Explanation of Various Image Schema

1. Containment Image Schema

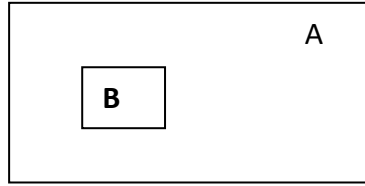


Fig 4.1: CONTAINMENT Image Schema

The image schema above depicts CONTAINMENT where TRAJECTOR B is contained in the LANDMARK B. For example: -

He lives in the house.

House is the CONTAINER, and *he* is CONTAINED.

The experience of CONTAINMENT typically involves protection from or resistance to external forces. E.g., *Now hide in your shell* (CONTAINER: Spatial)

CONTAINER *shell* provides protection from the external force. CONTAINMENT also limits and restricts forces within the container; because of this restraint of forces, the contained object gets a relative fixity of location. E.g.

Fill in the box with the right colour. (CONTAINER: Spatial)

The *box* acts like a CONTAINER in which the *colours* are to be filled.

Psychological STATES are LOCATIONS (extension of physical spatial sense)

Appu ran away in pain. (CONTAINER: Abstract METAPHORICAL state)

Pain is a psychological state, and *Appu* is CONTAINED in that state.

True containers not only envelop things but support them as well.

E.g., *sleep a little in your bed.* (CONTAINER and SUPPORT)

The *bed* is a CONTAINER as well as a SUPPORT for the TRAJECTOR who sleeps in it.

2. Support Image Schema

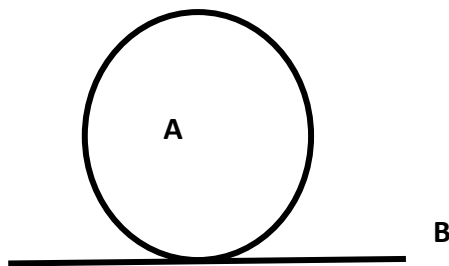


Fig 4.2: SUPPORT Image Schema

The image schema above depicts SUPPORT where A is in contact with B and is also supported by B. Typically SUPPORT schema has the TRAJECTOR vertically located on the LANDMARK. For Example: -

He sat on the mat. (mat is the Landmark and he is the Trajector)

At times, the Trajector is metaphorically supported by the Landmark as in the following example,

Say this in your own language and then in English.

LANDMARK (language, English) which is used to speak acts as a SUPPORT for thing to be spoken.

3. Path Image Schema



Fig 4.3: PATH Image Schema

The image schema above represents the PATH image schema originating at a *source* and terminating at a *goal*. For example,

I met her on my way to school

The preposition *on* here is used to depict the PATH Image Schema where *school* is the GOAL of the Path starting at a certain point.

4. Part-Whole Image Schema

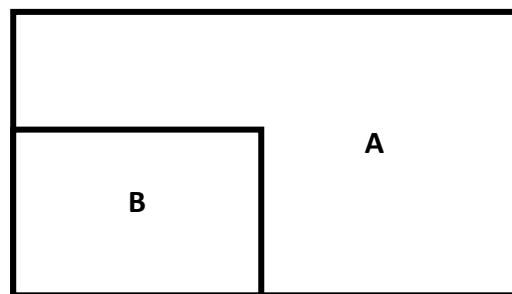


Fig 4.4: PART-WHOLE Image Schema

The image schema above denotes the PART-WHOLE relationship wherein B is a part of A. For example, in the question,

How many kinds of creatures are there in the poem?

Here the TRAJECTOR *creatures* are a part of the LANDMARK *poem*.

5. Force Image Schema

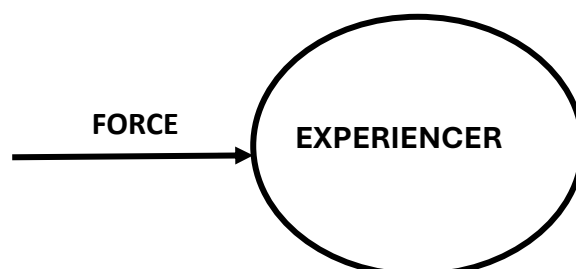


Fig 4.5: FORCE Image Schema

The figure above depicts the FORCE Image Schema wherein a force acts on a body referred to as an EXPERIENCER. For example,

She hits him on his face

Here, *she* is applying a force on the EXPERIENCER *him*.

4.8. Data Analysis

In the chart below, we will look at the frequency distribution of prepositions across the three grades in the NCERT English textbooks from grades 1-III.

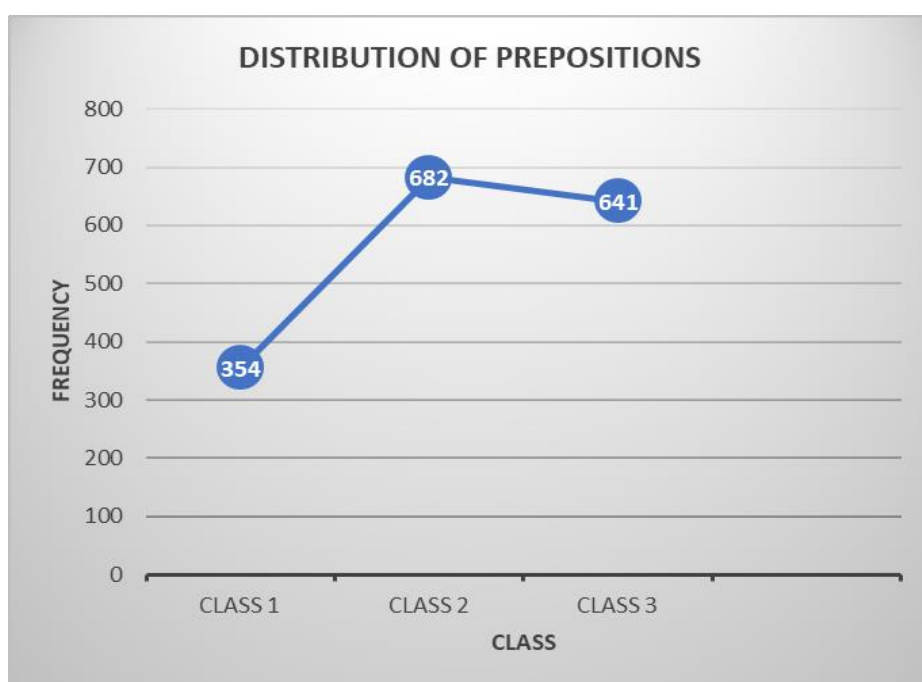


Fig 4.6: Distribution of Prepositions across the three grades in NCERT English textbooks

4.8.1. Comparison with the BNC

In the tables below, we have compared the frequency distribution of the 10 most frequent prepositions found in the NCERT English textbooks individually for grades 1, II

& III with the British National Corpus. Finally, we have also compared the frequency of the prepositions cumulatively for the three grades with the BNC.

Table 4.3: Comparison of Ranks of Prepositions in the NCERT Grade 1

English Textbook with the British National Corpus

Rank In the Textbook	Preposition in Grade 1	Rank in the BNC
1	IN	2
2	OF	1
3	WITH	*
4	TO	3
5	ON	4
6	AT	6
7	FROM	7
8	FOR	*
9	INTO	*
10	OVER	*

* Signifies absence in the BNC

Table 4.4: Comparison of Ranks of Prepositions in the NCERT Grade 2 English

Textbook with the British National Corpus

Rank In Textbook	Preposition in Grade 2	Rank in the BNC
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1	IN	2
2	OF	1
3	ON	4
4	TO	3
5	WITH	*
6	FOR	*
7	AT	6
8	FROM	7
9	LIKE	*
10	INTO	*

* Signifies absence in the BNC

Table 4.5: Comparison of Ranks of Prepositions in the NCERT Grade 3 English

Textbook with the British National Corpus

Rank In Textbook	Preposition in Grade 3	Rank in the BNC
1	IN	2
2	OF	1
3	ON	4
4	TO	3
5	FOR	*
6	WITH	*
7	AT	6
8	ABOUT	*
9	INTO	*

10	NEAR	*
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* Signifies absence in the BNC

Table 4.6: Comparison of Ranks of Prepositions in the NCERT English Textbooks with the British National Corpus

Rank across the three textbooks	Preposition across the three grades	Rank in the BNC
1	IN	2
2	OF	1
3	ON	4
4	TO	3
5	WITH	*
6	FOR	*
7	AT	6
8	FROM	7
9	ABOUT	*
10	INTO	*

* Signifies absence in the BNC

Grade 1 and Grade II have a 60% match in the comparison of the prepositions in the English textbooks and the British National Corpus while, Grade 3 has a 50% match. Overall, across the three grades, there is a 60% match in the frequent prepositions found in the three textbooks and the BNC.

Six prepositions in the textbooks i.e. *in*, *of*, *on*, *to*, *at* and *from* are represented in the BNC at the 2nd, 1st, 4th, 3rd, 6th and 7th positions. Only four prepositions i.e. *with*, *for*, *about*, and *into* do not find a spot in the BNC in the 10 most frequent prepositions in the BNC.

Let us now delve into the distribution of the two prepositions *in* and *on* across the three grades and study the different senses and image schema representation that they exhibit. In the figure below, we show the distribution of these two prepositions across the three grades.

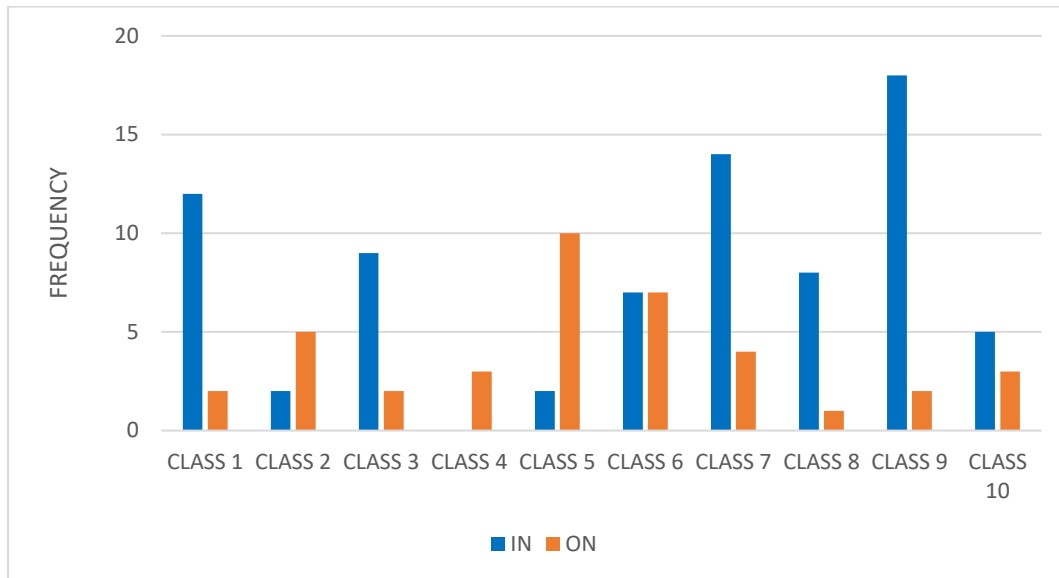


Fig 4.7: Chapter-wise Distribution of ‘in’ and ‘on’ in Grade 1 NCERT Textbook

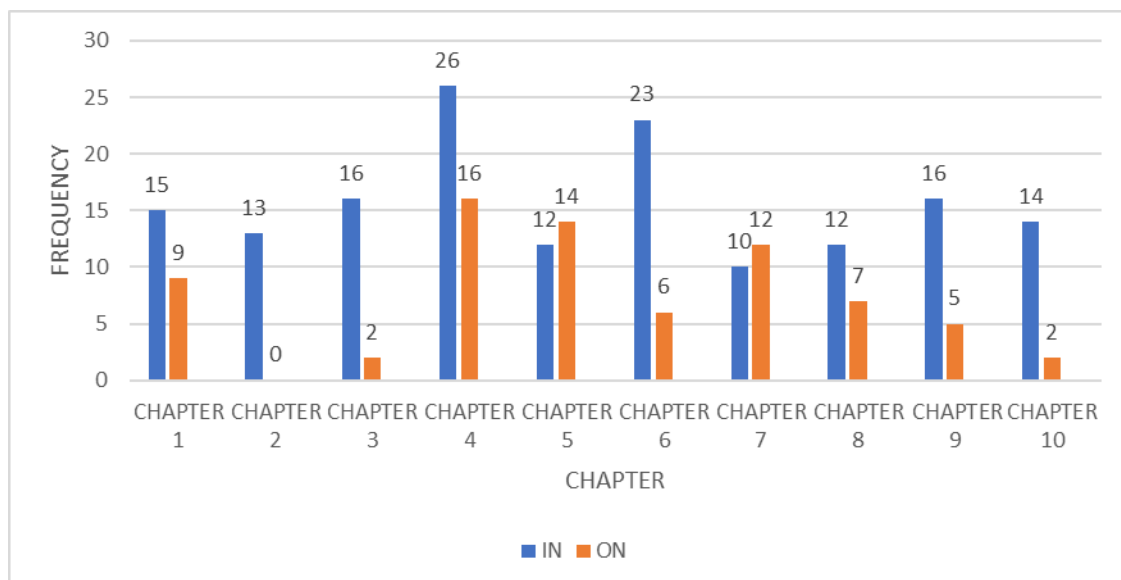


Fig4.8: Chapter-wise Distribution of ‘in’ and ‘on’ in Grade II NCERT Textbook

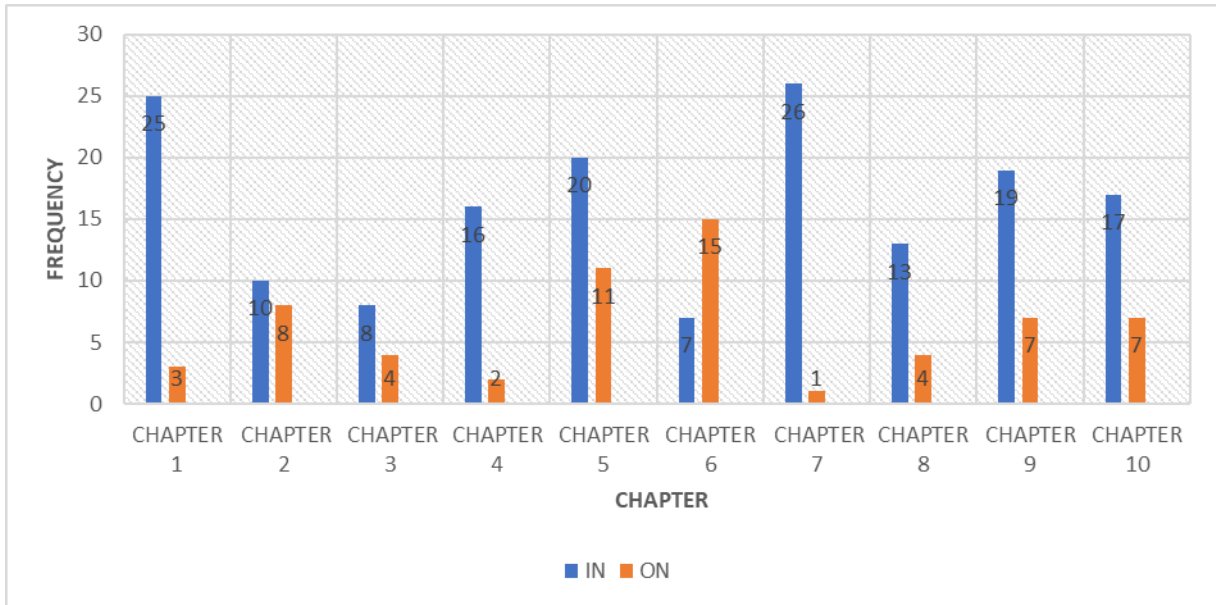


Fig 4.9: Chapter-wise Distribution of ‘in’ and ‘on’ in Grade III NCERT Textbook

4.8.2 Analysis of the Preposition *IN*

The eight Image Schema associated with the preposition *in* are: -

1. CONTAINMENT

E.g.: Circle what you can carry in your school bag.

2. CONTAINMENT (METAPHORICAL)

E.g.: Appu ran away in pain.

3. CONTAINMENT (TEMPORAL)

E.g.: Find food in winter

4. PATH

E.g.; Rearrange the following sentences in the right order

5. PATH (METAPHORICAL)

E.g.: Everyone is great in his own way!”

6. PART-WHOLE

E.g.: The Sun was up there shining in its yellow glory.

7. SUPPORT

E.g.: White cloud floated in the sky.

8. SUPPORT (METAPHORICAL)

E.g.: Now can you say this in English?

The tables below will show how these schemas are quantitatively represented in the three grades in the NCERT textbooks.

Table 4.7: Image Schema Distribution of *in* in Grade 1 NCERT Textbook

Sl. No	IMAGE SCHEMA	FREQUENCY	PERCENTAGE
1	CONTAINMENT	42	55%
2	CONTAINMENT (METAPHORICAL)	1	1%
3	PATH	8	10%
4	PART-WHOLE	8	10%
5	SUPPORT	5	7%
6	SUPPORT (METAPHORICAL)	13	17%

A total of six image schemas are used to represent the preposition *in* in Grade 1. The CONTAINMENT image schema accounts for more than half of the total occurrence. CONTAINMENT and SUPPORT image schema have metaphorical extensions.

Table 4.8: Image Schema Distribution of *in* in Grade II NCERT Textbook

Sl. No	IMAGE SCHEMA	FREQUENCY	PERCENTAGE
1	CONTAINMENT	99	64%

2	CONTAINMENT (METAPHORICAL)	13	8%
3	PATH	2	1%
4	PATH (METAPHORICAL)	1	1%
5	PART-WHOLE	8	5%
6	SUPPORT	10	6%
7	SUPPORT (METAPHORICAL)	21	14%
8	CONTAINMENT (TEMPORAL)	2	1%

Eight image schemas are represented in Grade II. The image schema *CONTAINMENT* has the highest representation (64%). *CONTAINMENT*, *PATH*, and *SUPPORT* exhibit metaphorical extensions. Temporal instances of the preposition *in* is observed first in this grade.

Table 4.9: Image Schema Distribution of *in* in Grade III NCERT Textbook

Sl. No	IMAGE SCHEMA	FREQUENCY	PERCENTAGE
1	CONTAINMENT	112	70%
2	CONTAINMENT (METAPHORICAL)	4	2%
3	PATH	1	1%
4	PATH (METAPHORICAL)	3	2%
5	PART-WHOLE	17	11%

6	SUPPORT	17	10%
7	SUPPORT (METAPHORICAL)	2	1%
8	CONTAINMENT (TEMPORAL)	5	3%

Like Grade II, eight image schemas are represented in Grade III. The image schema *CONTAINMENT* has the highest representation (70%). *CONTAINMENT*, *PATH*, and *SUPPORT* are represented in the metaphorical domain. There are instances of temporal domain as well but is quite less as compared to the metaphorical domain.

Table 4.10: Sense Distribution of the preposition *in* across the three grades in NCERT Textbooks

SENSES	GRADE 1	GRADE II	GRADE III
SPATIAL	82%	75%	91%
TEMPORAL	0%	1%	3%
METAPHORICAL	18%	24%	6%

Clearly, the spatial sense which is proto-typically attested with the preposition *in* has the maximum representation across the three grades in the NCERT textbooks (accounting for 83% of the total representation). The *CONTAINMENT* Image Schema is represented across all the three domains. Surprisingly the temporal senses are not only introduced in the second grade but also has significantly lower representation (accounting for a little over 1%) than the metaphorical sense which is 16%. *CONTAINMENT*, *PATH*, and *SUPPORT* exhibit metaphorical extensions.

4.8.3 Analysis of the Preposition *ON*

The eight image schema associated with the preposition *on* are: -

1. SUPPORT

E.g.: Draw a marigold flower on the paper.

2. FORCE

E.g.: What trick did Kalu play on Appu?

3. PATH

E.g.: What sounds do you hear on the road?

4. PART-WHOLE

E.g.: The wipers on the bus

5. CONTAINMENT

E.g.: Mohini drew three lines on her circle.

6. SUPPORT (TEMPORAL)

E.g.: He always comes on market days

7. SUPPORT (METAPHORICAL)

E.g.: Write three sentences on what the trees give us.

8. LOCATIVE

E.g.: Lock the door on the outside.

The SUPPORT image schema is realised in all the three senses, i.e. spatial, temporal and metaphorical. In the subsequent tables below, we would enlist the various image schema used and the various senses in which the preposition occur.

Table 4.11: Image Schema Distribution of *on* in Grade 1 NCERT English Textbook

Sl. No	IMAGE SCHEMA	FREQUENCY	PERCENTAGE
1	SUPPORT	33	86%
2	FORCE	1	3%

3	PATH	1	3%
4	PART-WHOLE	1	3%
5	CONTAINMENT	2	5%

A total of 5 image schemas is used with the preposition *on* is used in Grade 1. However, the predominance of SUPPORT image schema which constitutes 86% of the total occurrence, indicates that the proto-typical sense is well-represented.

Table 4.12: Image Schema Distribution of *on* in Grade II NCERT English Textbook

Sl. No	SCHEMA	FREQUENCY	PERCENTAGE
1	SUPPORT	47	63%
2	SUPPORT (METAPHORICAL)	6	8%
3	FORCE	1	1%
4	PATH	10	14%
5	SUPPORT (TEMPORAL)	6	8%
6	LOCATIVE	2	3%

Six image schemas (which is the highest in the three grades) have been used for the preposition *on* in the Grade II NCERT English textbook. The *SUPPORT* image schema has been realised in all the three senses, i.e. spatial (63%), temporal (8%), and metaphorical (8%).

Table 4.13: Image Schema Distribution of *on* in Garde III NCERT English Textbook

Sl. No	IMAGE SCHEMA	FREQUENCY	PERCENTAGE
1	SUPPORT	47	84%
2	SUPPORT (METAPORICAL)	4	7%
3	SUPPORT (TEMPORAL)	2	4%
4	LOCATIVE	3	5%

In Grade III textbook we only find two image schemas for the preposition *on*. These are SUPPORT and LOCATIVE. The SUPPORT image schema is realised in all the three senses, i.e. spatial, temporal and metaphorical.

Table 4.14: Sense Distribution of the preposition *on* across the three grades in NCERT English Textbooks

SENSE	GRADE 1	GRADE II	GRADE III
SPATIAL	97%	84%	89%
TEMPORAL	0%	8%	4%
METAPHORICAL	3%	8%	7%

Just like the representation of the preposition *in* we find that the proto-typically attested sense, i.e. the spatial sense is pre-dominant for the preposition *on* across the three grades in the NCERT English textbooks (accounting for 90% of the total representation).

The *SUPPORT* image schema is represented across all the three senses. The temporal senses do not find representation in the 1st grade and has comparatively lower representation (accounting for 4%) than the metaphorical sense which has a representation of 6%. The *SUPPORT* image schema exhibit metaphorical extension.

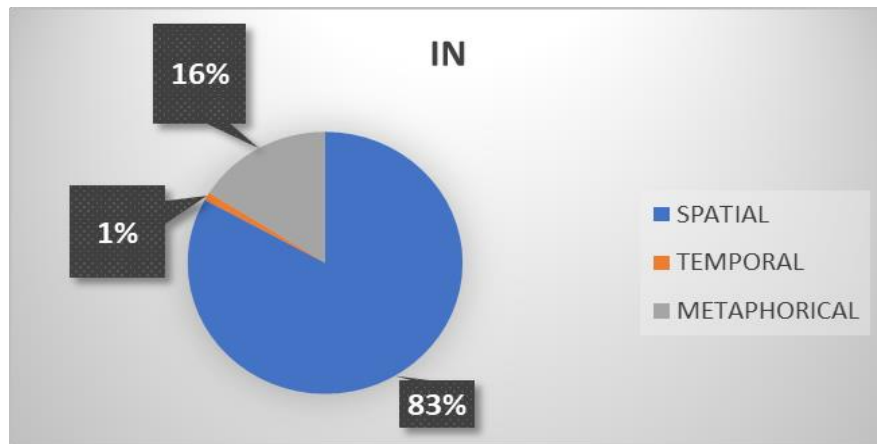


Fig 4.10: Sense Distribution of ‘in’ across the three grades in NCERT Textbooks

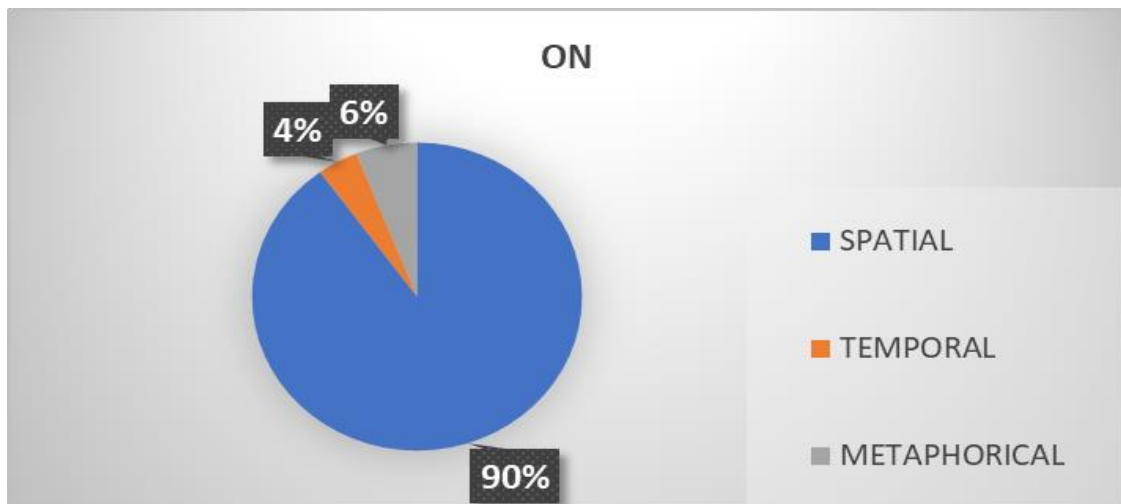


Fig 4.11: Sense Distribution of ‘on’ across the three grades in NCERT Textbooks

In all the three grades we can see that the spatial sense is more frequent than the temporal and metaphorical senses. However, the metaphorical sense is much higher than

the temporal sense. *In* has 16% metaphorical uses while *on* has 14% metaphorical uses which is much more than the temporal usage (*in* has 4% while *on* has 1% representation respectively). This indicates that the textbooks under our consideration have been aptly designed keeping in mind the cognitive maturity of the learners.

4.9. Conclusion

The study has revealed numerous insights. The order of prepositions in English Language textbooks for Grades I, II, and III has indicated the frequency of their usage. Students have been exposed to these prepositions to varied degrees, either directly or indirectly. The learning of prepositions is vital since the frequency of individual words or phrases is significant (Tognini-Bonelli, 2001). In an ESL setting, it is crucial for students to have extensive exposure to the language to acquire adequate input and familiarity.

The spatial senses of these two prepositions are mostly found in Grades I-III NCERT English textbooks. However, some temporal and metaphorical senses of both these prepositions are also attested. The metaphorical senses are extensions of the CONTAINER, SUPPORT, PATH, and FORCE image schema. The primary schema found is of CONTAINER for *in*. The predominant image schema found for *on* is SUPPORT. These image schemas are also proto-typically attested in other corpus-based studies. The senses are mostly spatial in Grades I-III textbooks for both the prepositions which should come first in the usage of a child's language. The temporal use of *in* and *on* is not found at all in the Grade I and is later introduced in the textbook of the next grades and we recommend it should be introduced before providing them with the metaphorical use. The metaphorical usage of the preposition *in* is comparatively much more (16%) than the temporal usage (1%) across the three grades. Similarly, the metaphorical usage of the preposition *on* is

slightly higher (6%) than the temporal usage (4%). This indicates that there are less instances of temporal senses than the metaphorical ones.

The findings of this study, which is corpus-based, can be utilised as a framework to offer suggestions on how to teach the English language. According to Biber, Conrad, and Reppen (1994), corpus-based research provides fresh insights into fundamental assumptions about English grammar, hence offering the potential for more efficient and suitable instructional applications. Curriculum planners can determine the specific prepositions that should be introduced and maintained at each grade level. They can additionally assess whether the current curriculum is suitable for the individual needs of learners in relation to prepositions. Developers of English as a Second Language textbooks can also benefit from this corpus study in making informed decisions regarding priorities of vocabulary items in ESL teaching materials by giving data on the frequency of use of linguistic features (Conrad 2000). Teachers can identify prepositions that require additional focus by analysing their overall frequency throughout the textbook. Teachers can equip themselves with solutions and offer additional exercises to address prepositions that are less frequently encountered.

Integrating cognitive linguistic inputs to analyse the uses of the prepositions in the textbooks help the curriculum developers design the textbooks for learners based on their cognitive level. Such insights will also benefit the teachers as they can inculcate the image schema theory into their pedagogical practices.