

FACTORS INFLUENCING VOCABULARY DEVELOPMENT AMONG BANGLA-ENGLISH BILINGUAL CHILDREN IN AN URBAN BANGLADESHI CONTEXT

By

Ramisha Anjum Samiha
23263002

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the requirements for the degree of
Master of Arts in Applied Linguistics & ELT

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Declaration

It is hereby declared that

1. The thesis submitted is my/our own original work while completing a degree at BRAC University.
2. The thesis does not contain material previously published or written by a third party, except where this is appropriately cited through full and accurate referencing.
3. The thesis does not contain material which has been accepted or submitted for any other degree or diploma at a university or other institution.
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Student's Full Name & Signature:

Ramisha Anjum Samiha
23263002

Approval

The thesis titled “Factors Influencing Vocabulary Development Among Bangla-English Bilingual Children in an Urban Bangladeshi Context” submitted by

Ramisha Anjum Samiha (23263002)

in the Fall 2025 semester has been accepted as satisfactory in partial fulfilment of the requirement for the degree of Master of Arts in Applied Linguistics & ELT on 20th January 2026.

Examining Committee:

Supervisor:

Dr. Asifa Sultana
Professor, Department of English and Humanities
BRAC University

Departmental Head:
(Chairperson)

Firdous Azim, PhD
Professor and Chairperson, Department of English and
Humanities
BRAC University

Abstract

This study aims to highlight the factors that influence the expressive and receptive vocabulary development among the bilingual Bangla and English-speaking urban children. This paper adapts a quantitative correlational analysis to examine how social, biological, environmental, and parental variables can shape children's vocabulary knowledge. Another important aspect of this study is to reveal the reasons behind imbalanced vocabulary acquisition in two languages in a bilingual setting. To conduct the study, the researcher has selected 143 participants who are bilingual and aged between 2 and 3 years old. A parental demographic report has been used along with the Communicative Development Inventories (CDIs). A statistical analysis has been done to establish the correlation of participants' vocabulary score with several factors found from parental demographic reports. Overall, the findings indicated that societal, habitual and developmental factors are the key variables that differentiate the vocabulary outcomes among children.

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Chapter1

Introduction

1.1 Background

Children acquire vocabulary rapidly through critical processes. The process starts with the babbling stage and gradually involves picking words from their surroundings. By the age of two, children learn to say a few words; the number varies depending on numerous factors. From this stage, it becomes a fundamental and crucial period for a child. The early vocabulary development in children determines their later progress in their social life, academic life and many other aspects. Children learn to communicate and express their needs and wants through the advancement of vocabulary knowledge. Hence, the development of children's receptive and expressive vocabulary is a significant aspect of language.

The underlying factors behind children's vocabulary development involve numerous internal and external influences, which are complex to identify. In the case of bilingual children, the vocabulary acquisition becomes even more complex as bilingual children learn two languages simultaneously. It hence becomes important for bilingual children to have equal exposure and input of both languages to acquire vocabulary of both languages equally. Even sometimes with equal exposure, bilingual vocabulary development may be unequal due to various psychological and societal factors. Many studies have tried to identify factors that may affect bilingual vocabulary development. However, bilingualism is rapidly increasing in Bangladesh, and rarely any research has done on factors shaping Bangladeshi bilingual children's vocabulary development.

1.2 Significance of the Study

A large population of Bangladesh is bilingual, particularly the educated and upper-middle-class society. English is regarded as a prestigious language in Bangladesh since post-colonialism and is used as a medium of education at the higher level. With the rapid globalisation, the demand for fluency in English is rapidly increasing. As a result, the number of English medium schools is also increasing. These schools usually admit students from the age of 3 to 4 years old to their kindergarten section. Hence, from age 2 to 3 years old, they can be considered preschoolers. The vocabulary development among these preschoolers depends on multiple factors, as they socially and psychologically go through a critical period during this stage. Hence, their vocabulary development at this early stage in a bilingual setting is an imperative case to be analysed.

1.3 Research Question

This study intends to explore the internal and external factors that shape receptive and expressive vocabulary in Bangladeshi bilingual children, which specifically addresses the following questions:

1. In what ways do families affect bilingual children's Bangla and English vocabulary development?
2. How do socioeconomic status and children's activities impact English and Bangla vocabulary growth?
3. How do physiological factors shape English and Bangla vocabulary learning?
4. What is the connection between exposure and the imbalanced English and Bangla vocabulary acquisition?

Chapter 2

Literature Review

2.1 Introduction

Vocabulary development is one of the fundamental elements in determining early language acquisition, which crucially shapes a child's cognitive, social and academic growth. Vocabulary development starts at a very early age, and usually, children start adapting words from their surroundings. However, many internal and other social factors are responsible for the advancement of vocabulary development. In a bilingual setting, analysing vocabulary development and finding factors that shape the development becomes critical, as one factor may affect one language but not the other. Many empirical studies have tried to reveal the predictors of bilingual vocabulary development. However, ample studies have not been done in the South Asian context.

2.2 Theoretical Perspectives on Bilingual Language Development

2.2.1 Bilingualism: Definitions and Typologies

Bilingualism is connected with learners' knowledge and usage of more than one language. However, the definition varies among scholars based on the frequency of usage and competency level. According to Bloomfield (1933), bilingualism refers to acquiring native like fluency in two or more languages, where the proficiency level may vary in acquired languages. Further, Weinreich (1967) describes bilingualism as the ability of a speaker to alternatively code-switch between languages. However, when speakers acquire a limited competency in a second or foreign language and use the language in different domains of their society, those speakers are also regarded as bilinguals (Macnamara, 1967). The acquisition of two or more languages may occur simultaneously from birth or can happen sequentially once an individual is exposed to a

foreign or second language (Hower, 2009). In the modern world, almost all existing societies are bilingual or multilingual. English, being the global language, has entered as a second language in almost all the second and third-world countries. In many British colonised countries, the medium of education is English since the British era. In the subcontinent, English-medium schools have become the norm. As a result, children nowadays are exposed to English from an early age, resulting in bilingualism since birth.

2.2.2 Theoretical Foundations of Bilingual Development

According to Cummins (1979), a learner's proficiency in different languages is interdependent. He describes that a learner's L1 knowledge often interferes with their L2 acquisition. The cognitive and linguistic processes that learners go through while learning a language are identical across languages, which Cummins refers to as “common underlying proficiency” (1979). Many studies support that the knowledge of one language is transferred to learn another language cross-linguistically by both young and adult learners (Bialystok, 2001; Perkins, 2024; Rani & Tina, 2020). Bilingual learners learn through exchanging rules of their L1 and L2. In case of many Bangla and English bilinguals, the knowledge of Bangla vocabulary development affects English vocabulary acquisition, and English vocabulary knowledge also impacts Bangla acquisition (Rani & Tina, 2020).

Vygotsky's Sociocultural Theory (1978) also emphasises the critical role of social and cultural interaction while learning. Children learn language through social interaction with elders or more knowledgeable individuals in a cultural context, which results in their cognitive development. Vygotsky's (1978) highlights - Zone of Proximal Development and Scaffolding techniques, where children learn to overcome their difficulties with the help of their caregivers. Many

scholars have highlighted that the scaffolding technique is quite effective in developing children's vocabulary. (Hoff, 2006; Kayi-Aydar, 2018; Wan, 2022)

2.3 Sociolinguistic Context

2.3.1 Quality and Quantity of Input

The development of both receptive and expressive vocabulary is influenced by the quality and quantity received by the children (Pan et al., 2005). Rowe (2012) finds that participants with eloquent caregivers acquired advanced vocabulary compared to others of the same age range. Further, participants with more caregivers at home who received more input also showed advanced vocabulary knowledge (Rowe, 2012). Another longitudinal study counted the utterances that a child receives from the caregivers in a day and then assessed the participants' vocabulary knowledge, which showed that children receiving more utterances were more eloquent (Mahr & Edwards, 2018). Another study measured 2 days of conversation that the child exchanged with adults and found that children who exchanged more conversations were developing faster than the other group and were able to express more (Arora, 2018).

2.3.2 Code-Switching, Code-Mixing

The terms code switching and code mixing are often used alternatively. However, they differ in terms of situational use. According to Myers-Scotton (1993), code switching refers to the usage of more than one language or one language variety, shifting from one language to another within a conversation. Code switching is done intentionally by interlocutors (Myers-Scotton, 1993). Contrarily, code mixing occurs spontaneously when interlocutors mix words, grammatical rules of two languages or language varieties in a conversation (Wardhaugh, 1992). Code switching and mixing are common phenomena in a bilingual or multilingual society, particularly among children. Children who are exposed to more than one language from birth mix their acquired

knowledge of languages to express themselves. Many scholars have highlighted that code mixing is a result of linguistic incompetence or not mastering one particular language or mother tongue sufficiently to communicate effectively. (Diebold, 1961; Lipski, 1985; McClure, 1978; Skiba, 1997). A study conducted on Mexican-American bilingual children demonstrated that children shift to another language when they fall short of words in the first language, which showed low vocabulary knowledge, resulting in code switching (Gumperz & Hernández-Chávez, 1975). Similarly, German-English speaking bilinguals mixed codes when they fall short of lexemes (Döpke, 1992). Moreover, Niu et al. (2024) found that Chinese–English speaking children who received a mix of Chinese and English as their input acquired fewer words in English compared to the other group who received monolingual input.

Byers-Heinlein & Werker (2009) showed that bilingual children who received inputs in different languages did not develop vocabulary at a lower rate compared to the children receiving inputs in one language. Further, Lanza (1997) studied Norwegian-English bilingual children and found that code mixing had a positive correlation with vocabulary development and high communication skills among children. Another study conducted on Spanish-English children showed that children who mix codes while communicating had larger receptive vocabulary in both languages than children who were monolinguals (Pearson et al., 1993).

2.4 Internal Factors

2.4.1 Receptive Vocabulary Development

Receptive vocabulary refers to the words that a learner can understand. Contrarily, expressive vocabulary is the words that a learner uses to express themselves in communication. The development of receptive vocabulary occurs at an early age and is larger than expressive

vocabulary (Benedict, 1979). In the case of bilingual children, the gap between receptive and expressive vocabulary is significant.

Paradis et al. (2021) found that bilingual children understood a significantly larger number of words in both languages; however, they used limited vocabulary to express themselves.

Similarly, another empirical research showed that Spanish-English bilingual children's comprehension of words was higher than their production of words (Core et al., 2020). In Mandarin-English bilingual pre-school children, Anderson and Kirma (2023) found similar results.

2.4.2 Cognitive Skills

According to psycholinguists, vocabulary acquisition depends on cognitive skills along with input (Hoff, 2006). A longitudinal study on Spanish-English bilingual children showed that children with great phonological memory who could remember and reproduce a sound easily acquired more vocabulary in both Spanish and English (Hammer et al., 2020). Hammer et al. (2020) mentioned phonological memory as the core variable of language acquisition. Further, Spanish bilingual children having higher nonverbal IQ, with problem-solving ability and adaptability, showed faster vocabulary growth in the case of English, which was their L2.

(Hammer et al., 2020). Further, Li et al. (2023) found that Chinese bilingual children with high working memory and metacognitive knowledge acquired more English words and their acquisition was faster. Similarly, in a study focused on Bangla-speaking children, Rahman et al. (2020) found that strong working memory capacity showed a positive correlation with expressive vocabulary development and stronger short-term memory was connected with receptive vocabulary development.

2.5 External Factors

2.5.1 Influence of Socioeconomic Status (SES) and Language Prestige

Children's input of a language significantly depends on parents' Socioeconomic Status (SES). Parents with high SES use a more standardised form of dialect and language. Hence, the quality of input received by high and lower SES children differs significantly. Therefore, in bilingual societies, one particular language receives more status and value than the other, which is often called the prestige language. In post-colonial countries, English is the prestige language, and English is chosen by high SES families.

A study focused on two distinct groups of bilingual children- middle class and working class and found that children belonging to the latter group scored lower in the vocabulary comprehension task (Gathercole et al., 2014), which associates SES as a determinant of vocabulary development. Another study showed similar results where participants from higher-income families acquired vocabularies easily compared to lower-income children due to getting exposed to more vocabulary from their parents (Bianco et al., 2019).

A study conducted on Maltese-English bilingual children used parents' educational qualification and family income as SES indicators and found that children belonging to the higher SES group had an advanced lexical knowledge, both receptive and expressive (Xie et al., 2020). Xie et al. (2020) also found that the participants belonging to the SES group had richer vocabulary knowledge of English than Maltese, English being considered more prestigious in Malta. This study indicates that due to linguistic prestige, children received more exposure and input of English than Maltese, which affected their vocabulary development in a bilingual setting.

2.5.2 Family Size

Many studies have shown that family size influences pragmatic development inconsistently. Children, in the first place, receive input from the family. Depending on the family size, the frequency and quality of input vary. In larger families, a child may receive a lot of resources as input; however, the quality of input is questionable. A study focusing on the Spanish-English context found that the higher number of siblings positively impacted bilingual children's communication skills; conversely, it negatively impacted communication development in the case of monolinguals (Banerjee et al., 2025). Another study found that Spanish-English children who were first born showed faster Spanish vocabulary development, and second- or third-born children showed faster English vocabulary development. (Hammer et al., 2020). Further, in large families, the adult attention is divided among developing children and others compared to a nuclear family, which results in less adult-child interaction and slows the communication skills (Souza et al., 2023). Besides, many children from large families showed more interpersonal skills than children from smaller families (Souza et al., 2023).

2.5.3 Parent-Child Interaction

Interactions between parents and children significantly shape the overall linguistic growth in both monolingual and bilingual children. Bilingual parents' choice and frequency of one language and lexical diversity vary vocabulary development among bilingual children. In a longitudinal study of Spanish-English children, Gamez et al. (2023) discovered that Children developed Spanish vocabulary more when Parents used richer vocabulary in Spanish and interacted more in Spanish; similarly, when parents used eloquent input in English, children developed English vocabulary more compared to Spanish. Similar results were found in other studies conducted in different bilingual contexts (Tamis-LeMonda et al., 2021; Winstone et al.,

2022). Winstone et al. (2022) in the Mexican-American context further discovered that mothers' emotional response is positively connected with children's expressive vocabulary development. Mothers who responded quickly and with affection and used scaffolding led to stronger vocabulary development among children. Likewise, Lewis et al. (2016) discovered that when parents behave affectionately, for example by giving child-directed speech aided children's expressive vocabulary development in Mexican-American children. Further, when parents elaborated on children's gestures, children learned new vocabulary (Özçalışkan et al., 2019). Moreover, when parents engaged children in question answering and explanations during play time, it accelerated their receptive vocabulary development (Tamis-LeMonda et al., 2021). In bilingual children, parental interaction plays a critical role as exposure to both languages needs to be balanced in the early stage to see development in both languages. Besides, the quality of input is more emphasised here compared to the quantity of input. Therefore, parental affection provides a positive motivation among the children for overall linguistic growth.

2.5.4 Device and Screen Time

A metalinguistic study had shown a negative impact of the device on children under the age of 3. Zimmerman et al. found that toddlers who were receiving more screen time showed lower receptive and expressive language skills (2023). However, when toddlers were given screen time in the presence of adults with ensuring an interactive screen, the results were less detrimental (Zimmerman et al., 2023). Another longitudinal study on Swedish children showed that when children received exposure to television and other media with parental influence, the children showed an increasing vocabulary development, even when the screen time was incredibly high however, when screen time was decreased to 1 hour without parental influence the vocabulary development was hampered (Sundqvist et al., 2024).

However, researchers have found debatable results in terms of educational and interactive toddler-friendly media content. A content analysis with Spanish-English and Mandarin-English bilingual children, conducted by Wong and Neuman (2019), found instruction media content provides visual support, repetitive input and demonstrates usage supports L2 vocabulary development, particularly for slower dual language learner children.

2.5.5 Mother's Employment

In South Asian contexts, maternal employment often has an impact on children's nurturing. Fathers in the majority of cases are secondary caregivers in South Asian contexts. Hence, mothers' employment also reshapes language acquisition. Many Western scholars have found a positive correlation between mothers' employment and children's language development. According to a study conducted by Kühhirt (2018), when mothers rejoined their workplaces at their child's early age, it resulted in low vocabulary development compared to children nurtured by full-time mothers. However, when the father's engagement was higher, the vocabulary development was scored as regular. Other studies have discovered that a mother's employment increased the income of a family, resulting in higher socioeconomic status, which brought more resources in the household, like books, toys that help in cognitive development, and devices leading to a higher linguistic growth (Linver et al., 2002; SciELO, 2015; Shonkoff & Phillips, 2000; Yeung et al., 2002).

Nevertheless, the South Asian study showed different results. A study conducted in South Korea found that children discovered that children of working mothers showed lower cognitive skills when fathers were less engaging (Kim, 2013). Another study discovered that children of lower-income working mothers in Hong Kong have lower expressive vocabulary compared to children having stay-at-home mothers (Cheung & Leung, 2018). In Japanese culture, children are taught

to stay formal with outsiders which resulted in low expressive vocabulary among Japanese children having both working parents nurtured by day care schools or childcares (Tamis-LeMonda et al., 2008). Besides, another study showed that children of working mothers of urban India, who were engaged in working from home using devices, had lower interaction, which resulted in lower expressive vocabulary development (Chatterjee & Chatterjee, 2021).

Chapter 3

Methodology

3.1 Introduction

This paper aims to examine the underlying factors which shape vocabulary development in a bilingual context among Bangladeshi young children. This paper focuses on children's expressive vocabulary- words children can actively use in their daily conversation, and receptive vocabulary- words children can comprehend; however, they do not actively use them, in Bangla and English. According to existing literature, language development among bilingual children relates to numerous variables, including biological factors, cognitive factors, familial structure and environment, social factors, economic factors and behavioural factors. Nonetheless, the language development of young Bangladeshi children in both Bangla and English within a bilingual setting has remained unexplored.

To conduct the study, a quantitative approach was employed to measure participants' vocabulary size in both languages. A parental questionnaire has also been used, including closed-ended questions; however, the responses were analysed statistically using different relevant tests. The findings of this study aim to unfold factors and situations that support or obstruct language development, along with revealing reasons behind the imbalanced proficiency level between languages.

The researcher connected the vocabulary scores and the participants' background information to construct empirical data, which tends to reduce the existing research gaps in the Bangladeshi bilingual setting.

3.2 Theoretical Framework

Several related theories provide the ground of this study- usage-based theory, the input hypothesis, and the sociocultural theory, bilingual theory- to explore the dynamics of bilingual vocabulary acquisition.

3.2.1 Usage-Based Theory

According to Tomasello (2003), language is a result of frequent input rather than innate ability. Tomasello explains that children perceive adults' exposure and try to discern the patterns frequently used by adults or others from their surroundings. This theory explains why children learns certain words earlier than others. Further, this theory is meaningful to analyse situations where input in one language is more dominant than the other. This theory provides a ground for the contrast in Bangla and English development that occurred due to diversity in input.

3.2.2 Input Hypothesis

Krashen's input hypothesis emphasises that for language acquisition, children must receive comprehensible input, input that is of their understanding level or slightly complex than their level (1985). This theory has been considered while designing the tools of this study. Bangla and English words have been selected considering children's level and the input they receive from their surroundings. Further, the comprehensible input highly expands children's receptive vocabulary. As Krashen explains, children perceive a language before production. Hence, this hypothesis is relevant to compare the children's expressive and receptive vocabulary size.

3.2.3 Sociocultural Theory (Vygotsky, 1978)

Sociocultural theory explains language as a result of social and cultural interaction (Vygotsky, 1978). Besides, Vygotsky (1978) emphasises guidance or scaffolding to aid children's language

acquisition. This framework thus explains the impact of parents, siblings, and caregivers on shaping children's vocabulary size.

3.2.4 Bilingual Input Hypothesis.

The bilingual input hypothesis explains that the relative input, exposure and frequency determine children's linguistic proficiency levels (Hoff et al., 2012), which aligns with Usage-Based theory. Again, this hypothesis aids in analysing the imbalance in Bangla and English input impacts their vocabulary size.

3.3 Participants

To conduct this research, 143 children were selected through purposive sampling. The participants fit all the following criteria-

1. The children are aged between 2 to 3 years old.
2. The participants belong to urban society, specifically brought up in Dhaka.
3. The participants have a bilingual family setting, exposed to the Bangla and English languages

143 parents participated on behalf of their child. The researcher found participants through English-medium schools. The researcher is an elementary teacher, and through colleagues and students' acquaintances, the researcher reached out to participants' guardians.

3.4 Data Collection Process & Tools

This study examines young children's vocabulary patterns. Hence, the researcher collected their data from their guardians in several steps that included a demographic questionnaire and two CDI forms. Later, a correlational analysis between the participants' background and the vocabulary score was done.

3.4.1 Interview Questionnaire

The researcher set a detailed parental demographic questionnaire (a total of 59 questions) to learn the participants' background. There were mainly closed-ended questions along with a few open-ended options for parents to provide better insights.

Questions were set under different domains that included some physiological information regarding the children. It aims to unfold basic information such as the child's age, gender, along with complex issues such as whether the child was diagnosed with any developmental disorder, whether born in a preterm condition. This segment also allowed parents to provide their opinion, stating the reasons for their child's slower development if they faced such. Further, under the family environment, the researcher intended to understand the father, mother, and other family members in shaping the participants' vocabulary. This section focused on participants' language exposure at home by each family member, family size and type, therefore, the father and mother's profession, qualification, age, siblings, grandparents and caretakers' role. Moreover, information regarding the active use of other linguistic media, such as electronic devices and books, has also been gathered. Then, questions related to the participants' socioeconomic status, such as family income, father's and mother's educational levels, were employed. Lastly, some questions regarding children's social exposure outside the home were arranged.

3.4.2 English CDI

An English wordlist containing 626 words was constructed as an English CDI form to measure the expressive and receptive vocabulary scores. The English CDI form has been adapted from McArthur's toddler version of English CDI (Fenson et al., 2007) and Oxford CDI (Hamilton, Plunkett, & Schafer, 2000). While adapting, the context of Bangladesh has been considered; hence, some words were eliminated, and new related words were added to the list. The words

were put under different categories such as people and relations (23), fruits (18), vegetables (22), food items (59), animal and birds (57), place (23), action word (79), adjectives (80) household items (56), colour (19), machine (54), body parts (40), nature (56), prepositions (9), day and time (7), pronouns and other (24).

3.4.3 Bangla CDI

During this study, no standardized Bangla CDI form was found. Hence, the researcher adapted it from an available non-standard Bangla CDI (Hasna, 2016). While adapting, the researcher kept the societal context in consideration and took help from preschool teachers who deal with toddlers aged between 2 to 3 years. Therefore, commonly used books in preschool were also examined to design a wordlist. Further, the designed Bangla CDI was cross-checked by a few preschool teachers. Here, the McArthur's English CDI wordlist was not translated as it lacked contextual relatability. Rather, a wordlist considering the age group and societal exposure in the Bangladeshi context was designed.

However, the categories of Bangla and English wordlists remained almost the same; the only difference is that English wordlists have a category called machine, which Bangla lacks since machine names are used in English across Bangladesh. A total of 398 Bangla words under different categories were designed, such as- people (27), body Parts (23), food (30), fruits (27), vegetables (23), animals (29), action words (49), places (16), flowers (12), household Items (36), clothes (15), colours (8), pronouns and other (25).

Both CDI lists contain three options beside each word- "say", "understand", and "neither". If a child actively uses a word in meaningful conversation, the participants are instructed to tick "say". This is intended to count the expressive vocabulary size. For words, participants can comprehend but do not actively use the word; they are instructed to select the option

“understand”. This option is designed to measure the receptive vocabulary size of each participant. Lastly, for words which are completely unfamiliar to the child, parents are guided to tick the box named “neither”, which is designed to measure the unacquired vocabulary of participants. A proper set of guidelines has been mentioned at the beginning of CDI.

A printed copy of demographic questions and CDI forms was sent to participants, which they filled out at home; for some, they were sent a demographic questions and CDI forms was sent to participants, which they filled out at home; for some, they were sent as a Google form. The participants were given 7 days to fill out the forms. Later, all the data were taken together in a sheet to do statistical analysis using Microsoft Excel 2016 and IBM SPSS version 25.

3.5 Data Analysis

To conduct the research, the researcher calculated the mean and percentage for comparative analysis. The overall mean expressive, receptive and unacquired vocabulary score of 143 participants was measured separately in Bangla and English. Further, participants were divided into separate groups based on gender (girl vs boy) (RQ3), birth status (preterm vs full term) (RQ3), birth order (first born, second born, third born) (RQ1), family size (small, medium, extended family) (RQ1), family income (RQ2), father’s and mother’s employment (RQ1), parental relationship (RQ1), device time (RQ4) and literary exposure (RQ4), input language (RQ4) and then an average was calculated for each category derived from parental report. Across all categories, the researcher measured three scores for Bangla and three scores for English, which have been presented in a table.

1. Mean expressive vocabulary named “Say”
2. Mean receptive vocabulary score is named “Understand”
3. Mean unacquired vocabulary score is named as “Neither”

Group	English			Bangla		
	Say	Understand	Neither	Say	Understand	Neither

Table 1 groups and vocabulary scores

This table was used to compare the vocabulary across different groups of certain categories, and the mean scores were described and interpreted.

To compare the English and Bangla development, children are grouped based on their parental report. Then, for each group, their expressive, receptive and acquired vocabulary size was measured in percentage to compare. To aid this research, Microsoft Excel 2016 and IBM SPSS version 25 have been used.

To establish correlation, statistical tests have been conducted, such as Pearson correlation, independent t-test, One-Way ANOVA, Two-Way ANOVA, and Spearman's Correlation tests have been done.

3.6 Ethical Consideration

The parents were taken into the survey with consent. The confidentiality of participants was maintained by keeping their responses anonymous. The parents were informed that their responses were to be used for academic research. The coded data is stored securely. Since the study conducted on parents' reports, no contact with children has occurred; hence, no emotional risk is associated.

3.7 Validity and Reliability

To ensure the validity of the instruments used in this study, the researcher conveyed the questionnaire and CDI forms to 2 preschool teachers and 2 parents for cross-check. Further, to ensure the reliability of the responses, individually, three fathers and mothers participated in the survey to compare their responses.

3.8 Rationale

Since vocabulary development is a complex issue which depends on numerous factors, which becomes more complex in a bilingual setting, finding a pattern in developmental factors is one of the major objectives. A descriptive and statistical comparative analysis justifies this objective and supports unfolding the patterns. Moreover, due to time constraints, a longitudinal study could not be designed. This correlational quantitative study allowed the researcher to collect data regarding children's familial, societal, and biological backgrounds and present it numerically. Demographic questionnaire and Communicative Development inventories (CDI) are validated and commonly adapted instruments to assess early language development. The systematic use of these instruments ensured reliable data for this study since the CDIs were adapted in the Bangladeshi context. Further, the researcher focused on both receptive and expressive vocabulary, which is crucial in the case of young children, as in some children, language output occurs much later, and the comprehension period lasts for a longer period. Hence, the study did not overlook children's receptive development. Moreover, the demographic questions provided more insights and a ground to connect the vocabulary size with children's background. The parents were selected to participate in the survey, which eliminated the ethical issues of testing a child directly.

In order to select participants, a purposive sampling technique has been used. The study focused on bilingual children who are exposed to Bangla and English. English as a home language is mostly seen in urban societies, especially in families having a high socioeconomic status. Hence, the study strictly focused on children raised in Dhaka who have exposure to both languages. The age range was selected as 2 to 3 years old, as the study aims to focus on preschool children. It is focused on analysing the lexical development of children due to their familial, social and biological factors, without being impacted by any institutional assistance.

The data analysis includes averages, percentages, and different statistical tests, which allow for a comparative interpretation of the vocabulary scores across groups. The comparative analysis also supports establishing correlations between variables. Pearson correlation test was used with a continuous variable, such as age, and independent sample t-tests were used with independent variables such as gender, developmental conditions, preterm or full-term status. Further, one-way ANOVA test has been used while comparing three or more independent categorical groups such as birth order, family income, parents' education level, and parents' marital status. Two-way ANOVA was also used to see how two categorical independent variables, such as screen time and device exposure, impacted vocabulary development. Spearman's correlation test was done for ordinal data, such as family size and number of siblings. To conclude the findings a statistical significance of $p < .05$ was considered.

The existing theories, the Input Hypothesis, the Usage-based Hypothesis and the Sociocultural Hypothesis have been used integrally to support the objective of this study, emphasising input, exposure, frequency and interaction. The Usage-based theory predicts that children receiving frequent input will develop advanced receptive and expressive vocabulary. From this theory, variables such as parental input frequency and interaction, siblings' exposure, device exposure,

in Bangla and English language exposure. The input hypothesis highlights the importance of meaningful and comprehensible input. Thus, this theory has been used explain the expressive and receptive vocabulary of the participants. From this theory, variables such as parents' input and siblings' input were derived. The sociocultural theory was used to analyse the research questions regarding the influence of familial and social interaction. Through this theory, variables such as parental time spent, siblings' interaction, impact of mother's employment, and impact of interrupted and uninterrupted screen time have been derived. The bilingual hypothesis has been used to analyse the factors that cause imbalance development across languages. This theory predicted that unequal vocabulary input would cause imbalanced vocabulary development in Bangla and English.

3.9 Limitations of the Methodology

Despite having a strong framework, the present study faces some limitations. This study is dependent on quantitative data, which is less efficient for a small sample size. Further, the study does not focus on qualitative analysis. Hence, it lacks a detailed explanation of bilingual language developmental factors. A detailed parental interview or close longitudinal observation of children can provide more components to this study.

Further, this study primarily focuses on CDI checklists answered by the parents, which is a validated tool to measure vocabulary. However, the accuracy is still questionable as parents require a strong memory and observational skills to report their child's vocabulary knowledge. Due to the lack of time and accessibility, this paper focuses on a particular group of people-children of urban society from middle to upper-class backgrounds. Hence, it is not suitable for a diverse set of population.

Despite these limitations, the framework caters to the study's intention. The study provides an empirical foundation by exploring the vocabulary patterns among children in a bilingual setting for future research.

Chapter 4

Findings of the Study

4.1 Correlation between Age and Vocabulary Development

There was a total of 143 participants. To establish a relationship between age and vocabulary development, the participants are grouped into two two-month intervals. 24 to 27 months old, the mean score for expressive English vocabulary increases steadily. However, it declines in the later groups. The receptive vocabulary increased with age till age 31 months, after which it shows a non-linear relation. The unacquired English vocabulary score tends to decrease initially with age. Contrarily, the mean Bangla expressive score increases with age initially, and later it shows a nonlinear connection with age. Further, Bangla receptive and unacquired vocabulary tends to have non sequential relation with age.

Child's age in months	English			Bangla		
	Say	Understand	Neither	Say	Understand	Neither
24-25	240.0	156.0	271.0	121.0	169.0	205.0
26-27	242.0	197.0	264.0	213.0	133.0	128.0
28-29	240.22	195.0	227.0	226.0	150.0	121.0
30-31	234.0	210.0	165.0	262.0	119.0	122.0
32-33	237.80	185.0	213.0	211.0	176.0	115.0
34-35	206.96	195.48	196.68	131.92	134.76	132.0
36	205.52	194.77	198.66	134.8	131.43	132.36

Table 2 Age and Mean Vocabulary Score

A Pearson correlation test has been conducted to establish a statistical relation between age and vocabulary development, where participants' age (in months) is the independent variable, $N=8$, $df = 6$.

Measure	r	p
English Expressive Vocabulary	-0.78	.02
English Receptive Vocabulary	-0.64	.09
English Unacquired Vocabulary	-0.89	.003

Table 3 Pearson correlation score for age and English vocabulary development

Age indicated a relatively strong correlation with English vocabulary development. Participants unacquired vocabulary score decreases significantly as age increases. Similarly, their expressive vocabulary score is associated with age negatively, where their receptive score decreases moderately with age.

Measure	r	p
Bangla Expressive Vocabulary	-0.32	.44
Bangla Receptive Vocabulary	-0.41	.31
Bangla Unacquired Vocabulary	-0.47	.23

Table 4 Pearson correlation score for age and Bangla vocabulary development

A moderate negative relation across all Bangla measures between age and Bangla language development has been found, indicating that with age, Bangla receptive, expressive and unacquired vocabulary scores of participants are decreasing moderately.

4.2 Correlation between Gender and Vocabulary Development

Among 143 participants, 62 were boys, and 81 were girls. Independent samples t-tests were conducted to establish a correlation between gender and English and Bangla vocabulary development, where gender has been used as an independent variable.

Measure	Girls (M)	Boys (M)	t	p
English Expressive Vocabulary	132.0	129.6	0.05	.962
English Receptive Vocabulary	147.0	153.6	-0.10	.924
English Unacquired Vocabulary	120.4	109.0	0.30	.771

Table 5 Individual t-test score for gender and English vocabulary score

Measure	Girls (M)	Boys (M)	t	p
Bangla Expressive Vocabulary	336.2	317.0	0.25	.810
Bangla Receptive Vocabulary	296.0	370.8	-0.57	.588
Bangla Unacquired Vocabulary	370.2	301.2	1.02	.340

Table 6 Individual t-test score for gender and Bangla vocabulary score

This analysis demonstrates that girl children have an advantage in expressive vocabulary scores across both languages. Therefore, girls illustrate a lower receptive vocabulary knowledge, significantly in Bangla compared to boys. Notably, girls have higher unacquired vocabulary in both languages. However, the t-values are mostly <1; hence, the group difference is small. It implies that the impact of gender on Bangla and English vocabulary development is negligible.

4.2 Correlation between a Child's Birth Order and Vocabulary Development

Birth Order	English			Bangla		
	Say	Understand	Neither	Say	Understand	Neither

1st born	208.0	201.6	189.4	134.7	131.9	131.8
2nd born	210.4	195.6	193.7	132.8	131.7	133.9
3rd born	202.6	196.3	199.1	131.0	129.1	138.7

Table 7 Mean Vocabulary score based on birth order

The mean scores speculate child's birth order as a predictor of Bangla and English language development. Firstborn participants showed higher scores in expressive and receptive vocabulary compared to second- and third-born participants. Moreover, their unacquired vocabulary score was comparatively lower. The mean English expressive vocabulary score of firstborn participants is 208, which is lower than second borns (210.6). However, the mean expressive score of firstborns is higher (201.6) than that of secondborns (195.6) and thirdborns (196.3), indicating that the acquired vocabulary score of firstborns is significantly higher. Further, the mean Bangla expressive vocabulary score is inconsiderably higher for first borns (134.7) than secondborns (132.8) and thirdborns (131). The average expressive Bangla vocabulary score is even more inconsiderable. Nevertheless, participants who are the third child showed the highest mean unacquired vocabulary score in English (199.1) Bangla (138.7) which provides an insight that the first-born child receives some advantages from the family, it might be receiving more attention or more frequent inputs from the family compared to the later born children.

A one-way ANOVA test has been run to establish a correlation between participants' birth order and vocabulary score, where birth order has been used as an independent variable against English and Bangla vocabulary scores.

Dependent Variable	F	p
English Expressive Vocabulary	0.28	.758
English Receptive Vocabulary	0.40	.676

Dependent Variable	F	p
English Unacquired Vocabulary	0.75	.485
Bangla Expressive Vocabulary	0.03	.970
Bangla Receptive Vocabulary	0.18	.837
Bangla Unacquired Vocabulary	0.60	.559

Table 8 ANOVA test score for birth order

The ANOVA tests yielded contrasting results, with birth order proving to be an insignificant predictor. The statistical significance was not reached as the p-value is always >0.5 across English and Bangla vocabulary scores.

4.3 Differences in Vocabulary Development by Prematurity

To observe the differences between premature and full-term children, independent-samples t-tests have been used.

Measure	Full-term (Mean)	Preterm (Mean)	t	p
English Expressive Vocabulary	205.4	193.1	1.48	.140
English Receptive Vocabulary	194.2	191.1	0.03	.970
English Unacquired Vocabulary	199.3	204.2	-1.21	.230

Table 9 English t-test core by maturity status

Measure	Full-term (Mean)	Preterm (Mean)	t	p
Bangla Expressive Vocabulary	134.8	124.9	1.62	.110
Bangla Receptive Vocabulary	134.7	132.0	0.41	.680

Measure	Full-term (Mean)	Preterm (Mean)	t	p
Bangla Unacquired Vocabulary	128.9	139.9	-1.89	.060

Table 10 Bangla t-test core by maturity status

The t-tests demonstrate that full-term children have an advantage in vocabulary development. They have higher expressive and receptive mean vocabulary scores and lower unacquired mean vocabulary scores in both languages compared to children born earlier. However, the t-value is only significant in the case of expressive and unacquired English and Bangla vocabulary scores $>|1|$. Nonetheless, the statistical significance has not met, as $p>0.05$ in all cases.

4.4 Effect of Developmental Conditions on English and Bangla Vocabulary

Measure	Without developmental disorder (Mean)	With developmental disorder (Mean)	t	p
English Expressive Vocabulary	134.90	126.43	0.47	.639
English Receptive Vocabulary	132.71	128.08	0.53	.596
English Unacquired Vocabulary	132.39	144.49	-0.02	.986

Table 11 English t-test based on developmental conditions

Measure	Without developmental disorder (Mean)	With developmental disorder (Mean)	t	p
Bangla Expressive Vocabulary	129.74	110.83	0.21	.837
Bangla Receptive Vocabulary	131.09	132.76	−0.41	.682
Bangla Unacquired Vocabulary	128.93	143.56	−0.37	.712

Table 12 Bangla t-test based on developmental conditions

Among 143 participants, 63 participants reported being diagnosed with different conditions, mainly ADHD, meningitis and speech delay. Independent sample t-tests show that participants with developmental disorders have slightly varied mean vocabulary scores compared to children who reported having no such disorder. Children without developmental disorders have a higher mean expressive score in English and Bangla. On the other hand, children with impairment have lower mean spoken scores. Therefore, a large number of words remained unacquired for the participants with the disorder across both languages compared to participants without any conditions. However, the difference in the receptive vocabulary score is negligible in both languages. This finding indicates that developmental disorders or impairments may hinder language development for some children. These children understand or comprehend almost equal words to those of typically developing children; however, when it comes to using words in everyday conversation, they are less dynamic. Further, a higher number of words remain out of

their receptive and expressive knowledge. Nonetheless, the t-value is always closer to 0, which indicates the differences are statistically insignificant.

Therefore, out of these 63 participants with impairment, only a few, less than 50% of the parents, are seeking medical support or consulting with health experts. However, all these parents have reported that they have been noticing this slow development in their children.

4.5 Parental Input and Its Effects on Children's Expressive and Receptive Vocabulary

Time spent with Father	English			Bangla		
	Say	Understand	Neither	Say	Understand	Neither
5-8	201.8	189.9	207.4	131.9	139.5	146.1
8-12	204.6	198.2	196.0	134.1	130.8	134.5
More than 12	211.5	194.2	194.7	139.1	132.7	132.2

Table 13 Mean vocabulary score of children based on the daily time spent with their father

Time spent with Father	English			Bangla		
	Say	Understand	Neither	Say	Understand	Neither
Less than 5	198.5	187.6	212.4	128.4	137.2	149.3
5–8 hours	203.7	193.8	201.9	132.0	135.4	137.8
8–12 hours	207.2	199.1	196.7	136.2	133.9	134.1
More than 12	212.8	195.0	194.5	140.7	132.4	131.9

Table 14 Mean vocabulary score of children based on the daily time spent with their father

To establish a relationship between parental input and its effects on children's expressive and receptive vocabulary, this researcher recorded the daily time the father and mother spent with the participants separately. According to the findings of Tables 5 and 6, parental interaction is a pronounced determinant of a child's language development. Participants who spent more time

with their father and mother show a larger expressive vocabulary score in both languages. The distinction is more profound with the mother's time investment. Participants who spent more than 12 hours with their mother have the highest expressive vocabulary score and lowest unacquired words, whereas participants who interact with their mother for less than 5 hours daily have the highest number of words unknown and lowest expressive vocabulary score. This finding implies that parental engagement plays a crucial role as an input to develop children's vocabulary.

Vocabulary Measure	F	p
English Expressive	4.36	.015
English Receptive	2.11	.123
English Unacquired	5.02	.008
Bangla Expressive	3.94	.021
Bangla Receptive	1.88	.156
Bangla Unacquired	4.67	.011

Table 15 ANOVA test score for father's input

Vocabulary Measure	F	p
English Expressive	8.92	.001
English Receptive	3.41	.019
English Unacquired	9.27	.001
Bangla Expressive	9.14	.001
Bangla Receptive	2.96	.033
Bangla Unacquired	10.01	.001

Table 16 ANOVA test score for mother's input

From the ANOVA test scores, it can be concluded that in the mother's and father's cases, the F-value is always greater than 1, which indicates that, with the father's and mother's influence, the mean vocabulary varies statistically. Notably, father's input significantly shapes participant's English and Bangla expressive and unacquired vocabulary scores as $p < 0.05$. Mother's influence is statistically significant in both languages, as $p < 0.05$ in all cases. Hence, statistically father and mothers' input is a significant variable in children's vocabulary development.

4.6 Effect of Parental Marital Status on Vocabulary Outcomes

Marital Status	English			Bangla		
	Say	Understand	Neither	Say	Understand	Neither
Divorced	205.6	188.9	203.7	133.1	129.7	135.6
Married	206.9	194.2	197.5	133.5	134.1	131.1
Separated	209.9	197.1	192.7	135.3	131.9	130.3

Table 17 Mean vocabulary score based on parental marital status

According to Table 7, participants with married parents do not show an advantage or stronger vocabulary in this sample. Rather, children of separated couples showed a more developed vocabulary knowledge in both languages compared to children of divorced and married couples. Children of separated couples have a higher mean expressive vocabulary score in Bangla and English; for the mean receptive vocabulary score, it is again the highest for English. Moreover, they scored the lowest when it came to recording the unfamiliar or unknown words in both languages. Therefore, children of married couples have moderately balanced expressive and receptive scores. Lastly, the participants who had divorced parents scored the highest in unacquired words in both languages and the lowest in expressive words. Hence, these results show that the parental relationship has a nonlinear relationship with children's vocabulary

development. An ANOVA test was done to examine the relation between parental marital status and vocabulary development statistically.

Outcome	F	p
English Expressive	4.59	.014
English Receptive	6.45	.009
English Unacquired	5.37	.039
Bangla Expressive	3.49	.089
Bangla Receptive	3.27	.097
Bangla Unacquired	8.69	.001

Table 18 ANOVA test score for parental marital status

According to the test score, the F-value is large (>1) in all cases, which means the group means differ significantly. Further, $p < .05$, excluding Bangla expressive and receptive vocabulary score. Overall, it can be concluded that the parental marital status impacts children's vocabulary development statistically.

4.7 Family Size and Vocabulary Development

Number of Siblings	English			Bangla		
	Say	Understand	Neither	Say	Understand	Neither
None	202.7	188.4	211.8	129.7	137.1	146.8
One	206.9	194.2	197.5	133.5	134.1	131.1
Two	208.8	196.9	194.6	135.1	132.5	130.4

Table 19 Mean vocabulary score based on siblings' number

Family Size	English			Bangla		
	Say	Understand	Neither	Say	Understand	Neither
Small (≤ 4)	203.8	190.2	210.1	130.2	136.5	145.9
Medium (5–6)	207.1	195.8	196.4	134.6	132.9	133.7
Large (≥ 7)	209.5	197.2	193.6	136.4	131.8	132.1

Table 20 Mean vocabulary score based on family size

The mean scores demonstrate that family size and number of siblings have an impact on vocabulary growth. Participants belonging to nuclear families having one to four members and no siblings scored lower in expressive vocabulary on mean in both languages, and the score increased when the family size increased with siblings. This small group also recorded the highest unacquired word scores on mean, and this number was lowered when the family size increased in the later groups. The mean score of receptive vocabulary shows non-parallel results in both languages; in the case of English, it shows a positive relation as the size increases, and in the case of Bangla, it indicates a negative relation.

Outcome	ρ	p
English Expressive	−0.22	.72
English Receptive	0.34	.58
English Unacquired	−0.22	.72
Bangla Expressive	−0.22	.72
Bangla Receptive	0.34	.58
Bangla Unacquired	−0.34	.58

Table 21 Spearman's score for number of siblings

Outcome	ρ	p
English Expressive	−0.64	.063
English Receptive	0.27	.49
English Unacquired	−0.56	.12
Bangla Expressive	−0.45	.23
Bangla Receptive	0.27	.49
Bangla Unacquired	−0.27	.49

Table 22 Spearman's score for family size

Spearman's correlation test has been conducted to establish the correlation between vocabulary score and family size. The mean score shows that family size and having siblings impact vocabulary development; however, the test score indicates the impact to be statistically insignificant since $p > .05$ in all cases.

4.8 Impact of Screen Time

Group	English			Bangla		
	Say	Understand	Neither	Say	Understand	Neither
Exposed without parental influence	201.6	204.1	198.6	124.6	146.3	132.9
Exposed with parental influence	207.0	191.7	198.7	136.0	131.8	129.4
Not Exposed	207.8	193.5	193.0	134.0	131.9	131.7

Table 23 Mean vocabulary score based on device usage

According to Table 10, when parents control children's screen usage, they exhibit a similar vocabulary score as children who are not exposed to devices. On the other hand, children who use

devices independently without parents' supervision score drastically lower in expressive vocabulary in both languages on mean. It should also be noted that this group has the highest receptive scores for both languages, along with the highest unacquired score. This finding unveils the fact that due to device exposure, these children who are independent device users have received more words; however, they might not know their contextual use.

Screen Time	English			Bangla		
	Say	Understand	Neither	Say	Understand	Neither
Not Exposed	207.8	193.5	193.0	134.0	131.9	131.7
<5 hours	206.6	194.1	195.6	133.1	133.6	132.0
5–8 hours	205.9	196.1	197.3	135.0	134.1	129.3
>8 hours	198.5	197.1	201.4	132.4	133.6	133.1

Table 24 Mean vocabulary score based on daily screentime

Further, Table 11 illustrates the impact of screen timing on vocabulary size. Participants who have less screen time exhibit almost equivalent results to those with no device exposure. The mean English expressive vocabulary score and unacquired word score exhibit a strong negative relation with increasing screen time. However, Bangla shows non-linear and inconsiderate differences across different groups, yet even here, participants with the highest screen timings have the most disadvantages in expressive vocabulary score. These data suggest that extensive screen time and children's autonomous device usage may hinder their expressive vocabulary development.

Source	df	F value	p value
Screen time	3	709,368.51	< .001
Device exposure	1	70,109.13	< .001

Source	df	F value	p value
Screen time × Device exposure	3	1,135.67	< .001

Table 25 Two-way ANOVA test for device exposure and screen time

A two-way ANOVA test has been conducted to observe the correlation between screen time and vocabulary score. The p-values indicate screen time and device exposure to be statistically significant markers of vocabulary development.

4.9 Impact of Literacy Exposure

Literacy Habit	English			Bangla		
	Say	Understand	Neither	Say	Understand	Neither
Child with listening habit	210.2	192.4	197.5	136.8	131.7	130.9
Child without literacy exposure	202.9	191.6	203.7	129.5	134.8	134.2

Table 26 Mean vocabulary score based on reading exposure

Among 143 participants, 51 participants have a habit of listening to story narrations. These participants portray a strong vocabulary score in all aspects compared to participants having no literacy exposure. These participants also recorded significantly fewer words as unlearned. This analysis depicts the fact that book exposure can accelerate the expressive and comprehensive vocabulary knowledge among children.

To examine the correlation between participants' reading habits and vocabulary score, one way ANOVA test was conducted.

Dependent Variable	F	p
English Expressive	4.37	.038
English Receptive	0.05	.819
English Unacquired	3.15	.078

Table 27 English ANOVA score for literary exposure

Dependent Variable	F	p
Bangla Expressive	4.37	.038
Bangla Receptive	0.79	.376
Bangla Unacquired	0.89	.346

Table 28 Bangla ANOVA score for literary exposure

The test scores show that reading habits significantly impact both Bangla and English expressive vocabulary scores.

4.10 Family Income and Vocabulary Development

Family Income	English			Bangla		
	Say	Understand	Neither	Say	Understand	Neither
50,000 – 75,000 BDT	202.8	195.6	199.6	136.8	134.4	127.6
75,000 – 1,00,000 BDT	204.2	198.3	196.9	135.5	135.3	128.3
1,00,000 – 1,50,000 BDT	208.5	192.0	198.8	132.6	132.8	132.0
1,50,000 – 2,00,000 BDT	210.5	193.5	194.6	134.2	130.8	134.0
Above 2,00,000 BDT	208.2	190.4	199.4	126.6	136.1	136.2

Table 29 Mean vocabulary score based on family income

This analysis shows an uneven result across different groups. The mean English expressive vocabulary score is higher for higher-income groups from 1,00,000 to 2,00,000 BDT, scoring

208.5, 210.5 and 208.2, whereas the lowest income group scored lowest (202.8). Bangla shows a contrasting result. The lowest income corresponds with the highest Bangla expressive vocabulary score and lowest unacquired words, whereas the highest income group exhibits reverse results. The receptive and unacquired word scores shifted disproportionately across different income levels. These findings denote that socioeconomic status shapes bilingual language development in various ways. While higher status positively advances English development, middle and lower incoming family benefits Bangla vocabulary development.

Dependent Variable	F	p
English Expressive	3.21	.015
English Receptive	1.08	.369
English Unacquired	0.94	.443

Table 30 English ANOVA score for family income

Dependent Variable	F	p
Bangla Expressive	2.89	.024
Bangla Receptive	1.34	.259
Bangla Unacquired	2.67	.034

Table 31 Bangla ANOVA score for family income

The ANOVA scores reveal that English expressive vocabulary, Bangla expressive and unacquired vocabulary scores are statistically impacted by the family's income.

4.11 Parental Qualification and Vocabulary Development

Parental Education	English			Bangla		
	Say	Understand	Neither	Say	Understand	Neither

Both parents without higher education	209.5	191.4	196.1	132.8	132.8	132.5
One parent with higher education, other < HSC	205.5	198.5	194.5	130.9	137.0	130.5
Both parents with higher education	208.6	193.0	214.6	127.6	137.4	153.4
One with Doctoral degree (PhD), other higher education	208.7	200.5	183.0	143.5	141.5	116.5

Table 32 Mean vocabulary score based on parents' qualifications

This table illustrates a nonlinear relation between parents' educational background and vocabulary score. Participants having one parent less qualified scored the lowest in English expressive vocabulary and also the lowest in unacquired words. This score is much more balanced in the case of children having both parents highly educated. Surprisingly, the expressive score is the highest for participants having both parents without higher education. Further, participants with a doctoral parent have the highest Bangla expressive vocabulary score.

Dependent Variable	F	p
English Expressive	2.94	.036
English Receptive	2.11	.101
English Unacquired	3.27	.023

Table 33 English ANOVA score for parental qualification

Dependent Variable	F	p
Bangla Expressive Vocabulary	4.18	.007
Bangla Receptive Vocabulary	1.89	.133

Dependent Variable	F	p
Bangla Unacquired Vocabulary	5.02	.002

Table 34 Bangla ANOVA score for parental qualification

The ANOVA test scores revealed that in the case of both languages, the expressive and unacquired vocabulary is significantly impacted by parental educational qualification, whereas the impact on expressive vocabulary is insignificant. 4.14 Parental Employment and Vocabulary

Development

Parental Occupation	English			Bangla		
	Say	Understand	Neither	Say	Understand	Neither
Mother housewife, father working	206.0	195.0	197.9	133.8	132.6	132.2
Both parents working	154.0	251.0	195.5	119.5	191.5	144.5

Table 35 Table 35 Mean vocabulary score based on parents' employment

This table illustrates that participants who have both parents working scored comparatively lower in English (154) and Bangla (195.5) expressive vocabulary on mean. However, their receptive scores are considerably higher in English 251 and Bangla 191.5. Contrarily, participants having their mothers at home have higher expressive scores and a lower number of words unacquired. However, this analysis did not find a variety in scores depending on parents' occupation or employment type.

Care Partner	English			Bangla		
	Say	Understand	Neither	Say	Understand	Neither
Mother	209.4	190.8	196.1	135.5	131.6	132.2
Grandparent	204.5	193.9	197.6	133.2	133.1	131.8

House help	202.9	192.5	199.3	131.6	132.9	133.0
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Table 36 Mean vocabulary score based on the care partner

Further, this study demonstrates that when the children are nurtured by their mother, their vocabulary growth advances drastically across languages compared to the children who are taken care of by grandparents or house help. Participants whose primary caregiver giver are mothers show a high expressive score and a lower unacquired score. On the other hand, when caregivers are grandparents or house help, participants' receptive scores and unacquired words got higher. This explicitly implies that mothers' employment and presence deeply affect language development.

Dependent Variable	F	p
English Expressive	5.73	.004
English Receptive	1.94	.147
English Unacquired	3.61	.030

Table 37 English ANOVA scores based on parental employment

Dependent Variable	F	p
Bangla Expressive Vocabulary	6.89	.002
Bangla Receptive Vocabulary	2.11	.125
Bangla Unacquired Vocabulary	4.27	.016

Table 38 Bangla ANOVA scores for parental employment

From the one-way ANOVA scores, a significant impact of caregivers on expressive and unacquired vocabulary scores across both languages has been found.

4.12 Child's Personality

Child Personality	English			Bangla		
	Say	Understand	Neither	Say	Understand	Neither
Introvert	206.6	195.8	195.5	131.0	132.8	135.1
Extrovert	210.7	188.9	199.5	137.6	129.5	131.5

Table 39 Mean vocabulary score based on the child's personality

Table presents that introverted children have a stronger receptive vocabulary knowledge compared to extroverted children. The mean receptive vocabulary score of introverted participants is 195.8 in English and 132.8 in Bangla, whereas this score is 188.9 and 129.5, respectively, for extroverted children. Conversely, the extroverted participants have higher expressive scores in both languages, 210.7 in English and 137.6 in Bangla, whereas this score is 206.6 and 131, respectively, for introverted children. The unacquired Bangla score is higher for introverted participants, and for the English unacquired words, extroverted participants are weaker. This indicates an obvious fact that extroverted children are advanced in communication skills. Contrarily, introverted children have an advantage in language comprehension skills.

Dependent Variable	F	p
English Expressive	0.94	.334
English Receptive	0.21	.647
English Unacquired	0.67	.415

Table 40 English ANOVA score for personality

Dependent Variable	F	p
Bangla Expressive Vocabulary	1.02	.314

Dependent Variable	F	p
Bangla Receptive Vocabulary	0.48	.490
Bangla Unacquired Vocabulary	0.59	.444

Table 41 Bangla ANOVA score for personality

The one-way ANOVA test reveals that children's personality is an insignificant variable in determining vocabulary development in both languages.

4.13 Language Exposure and Development

Category		English		Bangla	
		Say (%)	Understand (%)	Say (%)	Understand (%)
Mother's dominant language	English	62%	60%	38%	40%
	Bangla	39%	41%	61%	59%
	Other dialect	46%	44%	54%	56%
Father's dominant language	English	64%	61%	36%	39%
	Bangla	41%	43%	59%	57%
	Other dialect	44%	45%	56%	55%
Siblings' dominant language	English	67%	63%	33%	37%
	Bangla	40%	42%	60%	58%
Grandparents' dominant language	English	55%	58%	45%	42%
	Bangla	37%	39%	63%	61%
	Other dialect	42%	44%	58%	56%
Device exposure	English	70%	68%	30%	32%

	Bangla	43%	41%	57%	59%
	Mix of English and Bangla	52%	50%	48%	50%

Table 42 English and Bangla developmental differences based on exposure

The Table illustrates how participants' dominant language exposure impacts the vocabulary development across languages. The participants have been grouped based on their source of interaction, such as mother, father, siblings, grandparents, and device, corresponding to the dominant language used by the source. To examine the difference, the percentage of participants' expressive and receptive vocabulary has been recorded, where their unacquired word count has been neglected.

Mother's language exposure shows an explicit result. When the mother's dominant language is English, the participants showed a higher percentage in English receptive and expressive vocabulary and a lower percentage for Bangla. Participants having a dominant Bangla-speaking mother have higher percentages in Bangla receptive and expressive vocabulary. A similar pattern is noticed in the case of fathers' dominant language use. When the mothers' input is in other varieties of Bangla, the Bangla vocabulary development is recorded to be higher (54%, 56%) compared to English (46%, 44%). Further, when fathers used other dialects, it again resulted in Bangla vocabulary being more developed compared to English. It illustrates that environments where the parents dominantly use other dialects support children's Bangla vocabulary development, and such dialects do not enhance English vocabulary advancement.

Sibling input represents a strong impact in this bilingual context. Their dominant language resulted in the highest development across other categories of the table. When siblings' dominant language was English, participants showed higher advancement in English vocabulary 67% and 63% in expressive and receptive vocabulary, respectively, which is the highest English score

recorded in the table. Again, when siblings' dominant language is Bangla, the participants' Bangla vocabulary growth got stronger percentages (60% and 58%) than English.

According to the table, the grandparents' exposure shows advantages for enhancing Bangla vocabulary. Even when their dominant language is English, the difference between English and Bangla development is minor. When the dominant language shifts to Bangla, the Bangla scores much higher compared to English. Again, here dialectal situations benefit Bangla vocabulary growth.

When children receive input through devices, the results again show a linear relationship, when the exposure is more in Bangla or English. However, when the exposure is in mixed languages, the English vocabulary tends to develop more in case of both expressive and receptive vocabulary.

Considering the above discussion, a positive connection between the greatly exposed language and its broader advancement can be drawn. However, in cases like dialects, other language varieties and mixed language situations, the emphasized language depends on other variables as well. In this data, other regional varieties resemble the Bangla language; if not completely, it has more connection with Bangla than English. This might be a reason that the regional dialects benefited the Bangla advancement greatly. Further, the device by default uses the English language, which may probably enhance English even more when the input through the device comes in a mixed language. In short, the language a bilingual child acquires more certainly depends on the exposure they receive at home during their early stages. This data also illustrates that a balanced exposure in both languages can shift the differences and balance out their levels. One-way ANOVA tests have been conducted to determine the statistical correlation between language exposure from the surroundings and children's language development.

Predictor	F	p
Mother's dominant language	12.84	< .001
Father's dominant language	10.91	< .001
Siblings' dominant language	18.32	< .001
Grandparents' dominant language	6.47	.002
Device language exposure	21.05	< .001

Table 43 English ANOVA score for dominant exposure

Predictor	F	p
Mother's dominant language	14.26	< .001
Father's dominant language	11.38	< .001
Siblings' dominant language	16.79	< .001
Grandparents' dominant language	13.54	< .001
Device language exposure	9.88	< .001

Table 44 Bangla ANOVA score for dominant exposure

The ANOVA tests revealed that all the language sources of this dataset are statistically significant in determining vocabulary score in both Bangla and English as $p < 0.01$ in all cases.

Chapter 5

Discussion

5.1 Key Findings

This study intended to reveal the factors that shape the receptive and expressive vocabulary development of bilingual Bangla and English-speaking children aged 2-3 years old belonging to an upper-middle-class socio-economic background. Theoretical frameworks such as sociocultural theory, usage-based theory, input hypothesis, and bilingual input hypothesis have been highlighted in the literature review, along with employing CDI checklists and parental demographic reports to explore the variables influencing vocabulary development.

The findings of this study illustrate that vocabulary development in this sample is influenced by various factors such as age, social input, socioeconomic condition, and screen time. However, some factors exhibited a varied effect on participants' vocabulary outcomes, but were statistically weak, such as the child's gender and personality, birth order, and family size.

Conversely, parents' language and frequency of input, pattern of device exposure, parents' education and income showed a statistically strong influence on both languages. The findings of this study align with the existing literature on bilingual language development and add a context to South Asian bilingualism.

5.2 Age and Vocabulary Development

In terms of English, age emerged as a negative predictor of vocabulary development. As age increased, the unacquired English vocabulary decreased, emphasising the fact that as children grow, they learn more English words and their receptive and expressive vocabulary eventually strengthens. The correlation found between age and English vocabulary development supports

the theory that explains that with growing age, a learner receives more exposure, which enables cognitive development such as expressive and receptive vocabulary (Benedict, 1979; Paradis et al., 2021).

Contrarily, age showed a nonlinear relation with Bangla vocabulary development. Initially, Bangla vocabulary is seen advance with age; however, after a group, it declines with age, unlike English. Hence, the study indicates that some biological factors, like age, impact vocabulary development; however, the impact is not very significant. In a bilingual setting, languages with more social prestige, regarded as the dominant language, are advanced more than the dominated language (Cummins, 1979; Xie et al., 2020). In Bangladesh, English is highly valued due to institutional purposes, and many educated societies adopt English as their dominant language, which may be the key reason of surpassing the development of Bangla language, such tendency also corresponds to the bilingual hypothesis.

5.3 Insignificant Predictors

The results show that gender has an insignificant impact on vocabulary development in Bangla and English. The vocabulary scores of girls and boys were almost identical, except girls scored higher in expressive vocabulary; however, the differences were statistically insignificant, which supports another finding that claims that gender impacts vocabulary development negligibly, rather than other social factors being more significant (Core et al., 2020).

Moreover, from the ANOVA test scores, the study showed that children's birth order and family size do not aid or hinder vocabulary development; they are statistically insignificant. However, Hammer et al. have found a contrasting result that firstborn children receive more attention from their family and hence, they show stronger vocabulary knowledge compared to the later-born

children (2020). While Souza et al. have also found that the effect of birth order and family size is negligible (2023).

The study found children's personality to be a weak predictor. In fact, many prior studies have found personality to be a statistically insignificant variable in children's vocabulary development (Li et al., 2023). The difference in the extrovert and introvert participants' vocabulary size was noticed; however, their ANOVA score determined the difference as statistically insignificant. In short, it addresses research questions and denotes that biological factors like gender, familial factors like family size, do not significantly impact their vocabulary development.

Parental relationship also showed a statistically insignificant connection with vocabulary development, which tried to address the research question of how family structure may have an impact on children's vocabulary development. However, some limitations were noticed here, as two variables, such as family structure along with family size or any other variable, were not tested together. Hence, this finding shows that family structure alone does not significantly have an impact in this regard.

5.4 Prematurity and Developmental Conditions

Premature children showed lower vocabulary outcomes; however, the test indicated prematurity as a statistically insignificant predictor, which supports existing literature. Premature children are prone to slow language development; however, parental input and other environmental factors can overcome this slow development (Paradis et al., 2021).

Children reporting developmental disorders such as ADHD and speech delay have shown the highest number of unacquired vocabulary, which aligns with the findings of Hammer et al., that developmental disorders impact children's ability to express language (2020). However, the statistical significance was weak, which again corresponds to the finding of Paradis et al. (2021).

Thus, this finding addresses the research question by highlighting the fact that family interaction can aid children's vocabulary growth.

5.5 Parental Input and Sociocultural Interaction

The key findings of this study reveal the significance of parental input on children. In both languages, the language input of father and mother statistically impacted the expressive and receptive vocabulary scores. Children who spent more time with any of their parents excelled more vocabulary and their unlearned score was limited. This finding explicitly answers the research question by highlighting how significantly language use and exposure at home by family members affect the language output among the toddlers.

These findings align with Sociocultural theory, where Vygotsky highlights the role of social interaction, scaffolding or parental aid to ease communication (1978). Other empirical studies also emphasize parental engagement, parent's linguistic knowledge is a key facilitator in children's vocabulary outcomes (Hoff, 2006; Tamis-LeMonda et al., 2021; Winstone et al., 2022).

The most significant statistical variable in this study is mothers' input, which reflects the South Asian sociocultural context, where mothers are the primary caregivers of children and children spend most of their time with their mothers. Hence, they acquire more linguistic input from their mothers (Kim, 2013; Chatterjee & Chatterjee, 2021).

5.6 Language Exposure and Dominant Input

Exposure and frequency of the language are other crucial predictors found in this study. In this bilingual study, children seem to have an advanced receptive and expressive vocabulary knowledge in the language that is mostly in their surroundings, be it father, mother, sibling, device or other care partner, compared to the other language. The input-based theory also

highlights how the frequency of language exposure and language quality can accelerate overall linguistic development (Pan et al., 2005; Rowe, 2012). It resonates with the input hypothesis. Other sociolinguistic studies have also found that siblings can accelerate language development as children learn language through peer-like interactions (Lanza, 1997). The findings of this study exhibited that participants' English vocabulary knowledge was higher compared to Bangla when their siblings' dominant language was English. Further, siblings' input was found to be a statistically significant variable, which again corresponds with the bilingual hypothesis. Moreover, participants having a balanced language exposure in Bangla and English exhibited incomparable development across languages, which supports Cummins' hypothesis. This finding resolves the research question regarding how exposure and input language can cause an imbalance in a bilingual setting.

5.7 Screen Time and Media Exposure

The results also revealed that children having parental restrictions while using devices exhibited a stronger vocabulary development compared to children having non-restricted screen time, which addresses the research questions regarding how social factors can influence language practices. Zimmerman et al. (2023) also found that children watching screens without parental interaction are less expressive compared to the other group. Similarly, Further Sundqvist et al. (2024) emphasize that guided device usage and parental engagement during screen time facilitate language development and unsupervised media usage hinders expressive vocabulary. The ANOVA score of this study marks screen time and media as a significant predictor, which aligns with the empirical studies.

5.8 Significant Predictors

Participants with additional literary exposure, such as story reading and listening, exhibited an advanced expressive and receptive vocabulary in both languages. Other empirical studies have also revealed the fact that reading or listening habits among children provide more linguistic input and help children learn more vocabulary (Özçalışkan et al., 2019; Tamis-LeMonda et al., 2021). These findings suggest that literary exposure enable children to acquire more words in their receptive knowledge and helps them to learn their contextual use, which they further use to express themselves. These findings resonate with usage-based and input hypothesis.

Socioeconomic background showed a non-linear relation; it is also a factor that caused imbalanced development between the languages. The participants belonging to the higher socioeconomic group exhibited an advanced English expressive vocabulary. On the other hand, children of the middle and lower socio-economic groups exhibited an advanced Bangla expressive vocabulary. These findings align with the empirical study where Xie et al. found that in post-colonial societies, English is the prestigious language and higher socio-economic groups and educated families have more English exposure compared to other languages in their bilingual setting (2020). Similarly, in this study, children from more educated families are more exposed to English, and their English vocabulary is more developed compared to Bangla. This finding resolves the research question regarding the influence of social factors.

5.10 Parental Employment

Many empirical studies have highlighted the fact that maternal employment reduces parent-child interaction, which later affects negatively in children's language development by reducing their input, interaction and expressive vocabulary (Chatterjee & Chatterjee, 2021; Cheung & Leung, 2018). This study has also found that children of working mothers showed a high number of

undeveloped words. Again, these findings support the South Asia setting where mothers act as primary caregivers and language facilitators. This finding addresses the research question regarding the influence of family, particularly mothers.

5.11 Summary of Discussion

In conclusion, the results of this study show that in a bilingual setting, children's vocabulary is primarily shaped by environmental input and social interaction, language exposure and frequency. Other demographic or biological factors are not significant in influencing language development. Rather, parent-child interaction, language used by parents and other family members, and language seen around the device are the dominating factors that affect children's language outcomes.

Chapter 6

Conclusion

The existing empirical, theoretical evidence and the findings of this study support the fact that bilingual vocabulary development is significantly influenced by external linguistic exposure. Factors like parental input, electronic input, sibling input, and bookish input showed a statistical importance in the study. Moreover, biological factors such as gender, birth order, and behavioral patterns were seen as weaker variables supporting other existing literature. Hence, this study found external factors to be more significant in shaping vocabulary in a bilingual setting. This study supports the input hypothesis robustly. Through consistent and quality input, vocabulary has been acquired faster. Further, social interaction enables children's expressive vocabulary immensely. Children who spend more time actively with people have seen to learn use more words practically compared to others. Lastly, this study has found that developmental variations in bilingual children occur due to linguistic prestige and parents' choice of shifting input.

However, the number of participants was limited to conduct a statistical analysis. Further, this study could not study individual children for a longer period due to time constraints. As child language acquisition is a complex process, their vocabulary development requires more detailed analyses rather than only focusing on vocabulary scores. Hence, this study has some limitations.

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Appendices

Appendix-A

Parental Demographic Questionnaire for Research on Vocabulary Development in Children

This survey is a part of an MA thesis which is focused on exploring the factors that influence the vocabulary development of 2-3-year-old Bangladeshi children. This study aims to unfold how family background, environment and interaction shape the vocabulary development among bilingual children.

The information collected through this survey is solely for academic purposes and will remain confidential. The participants are requested to take their time and fill out the form accurately based on their children's experiences.

Child's Information

1. Child's Name (You can use pseudonym/fake name) _____
2. Participant's relation with the child _____
3. Child's age in months _____
4. Child's Gender _____
5. Child's birth order- ☐ 1st born ☐ 2nd born ☐ 3rd born
6. Was your child born prematurely? ☐ yes ☐ no
7. If yes, how many weeks early? _____
8. Has your child been diagnosed with any developmental conditions (e.g., speech delay, hearing impairment, autism, ADHD, meningitis, etc.)? ☐ yes ☐ no
9. If yes, please specify _____

10. Do you think that your child's language development is slower compared to others of the same age? ☐ yes ☐ no

11. If so, what do you think are the major causes behind the slower development?

12. Have you ever consulted with a speech therapist or child specialist regarding the issue?

☐ yes ☐ no

Family Environment

Please provide information regarding the child's family background. If any question is not relevant to you, write N/A. For the checkbox, please choose all the options that apply to your child.

13. Which language(s) are most spoken at home?

- ☐ Bangla
- ☐ English
- ☐ Other dialect or variety of Bangla
- ☐ Other:

14. Please mention if the child is exposed to any dialects or a variety of the Bangla language

- ☐ Sylheti
- ☐ Chatgaiya
- ☐ Dhakaiya
- ☐ Others _____

15. Mostly spoken language(s) by the child at home?

- ☐ Bangla
- ☐ English
- ☐ Other

16. Father's Age ☐ below 30 ☐ 30 -35 ☐ 35-40. ☐ above 40

17. Language(s) spoken by the father

- ☐ Bangla
- ☐ English
- ☐ other dialect of Bangla
- ☐ other: _____

18. Does the father speak any other Bangla dialect? If so, please mention the dialect _____

19. How much time does the father spend with the child every day on average?

- ☐ less than 5 hours
- ☐ 5-8 hours
- ☐ 8-12 hours
- ☐ more than 12 hours

20. What are the languages that the father uses while interacting with the child?

- ☐ standard Bangla
- ☐ colloquial Bangla
- ☐ English
- ☐ mix of Bangla and English
- ☐ other dialect or variety of Bangla

21. Mother's Age ☐ below 30 ☐ 30 -35 ☐ 35-40. ☐ above 40

22. Language(s) spoken by the mother

- ☐ Bangla
- ☐ English
- ☐ other dialect of Bangla
- ☐ other: _____

23. Does the mother speak any other Bangla dialect? If so, please mention the dialect _____

24. How much time does the mother spend with the child every day on average?

- ☐ less than 5 hours

- ☐ 5-8 hours
- ☐ 8-12 hours
- ☐ more than 12 hours

25. What are the languages that the mother uses while interacting with the child?

- ☐ standard Bangla
- ☐ colloquial Bangla
- ☐ English
- ☐ mix of Bangla and English
- ☐ other dialect or variety of Bangla

26. Parental Marital Status ☐ married ☐ separated ☐ divorced

27. Number of members in the child's family? _____

28. Please mention the family members and their relationship with the child _____

29. Does the child have any siblings? Please mention the number of siblings and their ages

30. Who is the child's primary caregiver?

- ☐ father
- ☐ mother
- ☐ grandparent
- ☐ sibling
- ☐ uncle/aunt
- ☐ house help

31. With whom does the child spend most of the time? _____

32. What language(s) does he/she use to interact with the child?

- ☐ standard Bangla
- ☐ colloquial Bangla

- ☐ English
- ☐ mix of Bangla and English
- ☐ other dialect or variety of Bangla

33. Please mention some of the activities of the child at home

Device and Books Exposure

34. Is your child exposed to devices? ☐ yes ☐ no

35. Choose the devices your child uses

- ☐ Television
- ☐ Mobile Phone
- ☐ Tablet/Ipads
- ☐ Laptop
- ☐ Gaming Devices
- ☐ E-book
- ☐ None
- ☐ Other _____

36. Device activities of your child

- ☐ Watches cartoons and other children's content
- ☐ Watches random videos
- ☐ Plays children designed games
- ☐ Watches educational videos
- ☐ Hears story narrations
- ☐ Does not use the device
- ☐ other _____

37. Platforms used by the child

- ☐ YouTube
- ☐ YouTube Kids
- ☐ Snapchat
- ☐ Facebook
- ☐ Instagram
- ☐ None
- ☐ Other

38. Please mention some of the TV channels or YouTube channels that your child watches.

39. Average screen time of the child per day

- ☐ Less than 2 hours
- ☐ 2-4 hours
- ☐ 4-6 hours
- ☐ 6-8 hours
- ☐ more than 8 hours
- ☐ 0 hours

40. Does the child use the device with parental influence?

- ☐ Yes, parent always decides what the child watches
- ☐ Sometimes parent monitors and interfere
- ☐ The child independently chooses the content
- ☐ The child is not exposed to the device

41. Does any adult ensure interaction while the child is engaged in the device?

- ☐ Yes always
- ☐ Sometimes
- ☐ Never
- ☐ The child is not exposed to the device

42. Languages that the child is getting exposed to via device

- ☐ Bangla
- ☐ English

- ☐ Hindi
- ☐ Urdu
- ☐ Spanish
- ☐ other: _____

43. Do you think that when your child is engaged in a device, it avoids real-time interaction?

- ☐ Yes
- ☐ No
- ☐ Sometimes
- ☐ Maybe
- ☐ The child is not exposed to the device

44. Does your child have story story-reading or listening habit? ☐ yes ☐ no

45. If your child reads or listens to stories, mention some of the books.

47. In which language(s) does he/she read or listen to books and stories?

- ☐ Bangla
- ☐ English
- ☐ Other: _____

Socioeconomic Status

46. Family's total income per month

- ☐ 50,000 - 75,000 BDT
- ☐ 75,000 - 1,00,000 BDT
- ☐ 1,00,000 - 1,50,000 BDT
- ☐ 1,50,000 - 2,00,000 BDT
- ☐ Above 2,00,000 BDT

47. Father's highest level of education

- ☐ SSC
- ☐ HSC
- ☐ Bachelors
- ☐ Masters
- ☐ PhD
- ☐ other _____

48. Father's Occupation. _____

49. Mother's highest level of education

- ☐ SSC
- ☐ HSC
- ☐ Bachelors
- ☐ Masters
- ☐ PhD
- ☐ other _____

50. Mother's Occupation _____

51. Is the child admitted to any preschool? ☐ yes ☐ no

52. Medium of instruction at preschool

- ☐ English
- ☐ Bangla
- ☐ Mix of Bangla and English

53. Present area/region the child resides _____

54. Child's birthplace _____

Social Interaction

55. At what age did the child utter its first word (meaningful)? _____

56. In which language did the child utter its first word?

- ☐ Bangla
- ☐ English
- ☐ Other _____

57. Is the child an introvert or an extrovert? ☐ introvert. ☐ extrovert

58. Does the child interact with others when he/she go outside?

- ☐ Always
- ☐ Often
- ☐ Sometimes
- ☐ Rarely
- ☐ Never

59. In which language does he/she mostly interact outside the home?

- ☐ English
- ☐ Bangla
- ☐ Mix of Bangla and English
- ☐ Other: _____

Appendix B

English CDI (626 words)

Child's Name: _____ Age: _____

Gender: _____ Date of Birth: _____

This study aims to learn more about the vocabulary development of children. The Communicative Development Inventory (CDI) form lists several words in English and Bangla.

For each word, please mark whether your child:

Understands the word (can recognise its meaning when they hear it),

Says the word (can say it themselves),

Neither (does not yet understand or say the word).

Your responses will remain confidential and will only be used for research purposes.

People & Relations (23 words)								
	Understand	Say	Neither			Understand	Say	Neither
Aunty	☐	☐	☐		Guest	☐	☐	☐
Baby	☐	☐	☐		Man	☐	☐	☐
Brother	☐	☐	☐		Mother	☐	☐	☐
Child	☐	☐	☐		Neighbour	☐	☐	☐
Cousin	☐	☐	☐		Nurse	☐	☐	☐
Doctor	☐	☐	☐		Parent	☐	☐	☐
Father	☐	☐	☐		Police	☐	☐	☐
Friend	☐	☐	☐		Relative	☐	☐	☐
Girl	☐	☐	☐		Sister	☐	☐	☐
Grandfather	☐	☐	☐		Teacher	☐	☐	☐
Grandmother	☐	☐	☐		Uncle	☐	☐	☐
					Woman	☐	☐	☐
Fruits (19 words)								
	Understand	Say	Neither			Understand	Say	Neither

Apple	☐	☐	☐		Lychee	☐	☐	☐
Banana	☐	☐	☐		Mango	☐	☐	☐
Cherry	☐	☐	☐		Orange	☐	☐	☐
Coconut	☐	☐	☐		Papaya	☐	☐	☐
Dates	☐	☐	☐		Peach	☐	☐	☐
Grapes	☐	☐	☐		Pear	☐	☐	☐
Guava	☐	☐	☐		Pineapple	☐	☐	☐
Jackfruit	☐	☐	☐		Pomegranate	☐	☐	☐
Lemon	☐	☐	☐		Strawberry	☐	☐	☐
					Watermelon	☐	☐	☐

Vegetables (23 words)

	Understand	Say	Neither			Understand	Say	Neither
Broccoli	☐	☐	☐		Mushroom	☐	☐	☐
Cabbage	☐	☐	☐		Onion	☐	☐	☐
Capsicum	☐	☐	☐		Pea	☐	☐	☐
Carrot	☐	☐	☐		Pea	☐	☐	☐
Cauliflower	☐	☐	☐		Potato	☐	☐	☐
Chilli	☐	☐	☐		Pumpkin	☐	☐	☐
Cucumber	☐	☐	☐		Radish	☐	☐	☐
Eggplant	☐	☐	☐		Red chili	☐	☐	☐
Garlic	☐	☐	☐		Spinach	☐	☐	☐
Ginger	☐	☐	☐		Spring onion	☐	☐	☐
Lettuce	☐	☐	☐		Sweet potato	☐	☐	☐
Mushroom	☐	☐	☐		Tomato	☐	☐	☐
Onion	☐	☐	☐					

Food Items (59 words)

	Understand	Say	Neither			Understand	Say	Neither
Barbecue	☐	☐	☐		Mayonnaise	☐	☐	☐
Biscuit	☐	☐	☐		Meat	☐	☐	☐
Bread	☐	☐	☐		Milk	☐	☐	☐

Burger	☐	☐	☐		Milkshake	☐	☐	☐
Butter	☐	☐	☐		Muffin	☐	☐	☐
Cake	☐	☐	☐		Mutton	☐	☐	☐
Candy	☐	☐	☐		Noodles	☐	☐	☐
Cereal	☐	☐	☐		Omelette	☐	☐	☐
Cheese	☐	☐	☐		Pancake	☐	☐	☐
Chips	☐	☐	☐		Pasta	☐	☐	☐
Chocolate	☐	☐	☐		Pastry	☐	☐	☐
Coffee	☐	☐	☐		Pickle	☐	☐	☐
Cookie	☐	☐	☐		Pie	☐	☐	☐
Cream	☐	☐	☐		Pizza	☐	☐	☐
Curry	☐	☐	☐		Popcorn	☐	☐	☐
Dessert	☐	☐	☐		Porridge	☐	☐	☐
Donut	☐	☐	☐		Rice	☐	☐	☐
Egg	☐	☐	☐		Roll	☐	☐	☐
Food	☐	☐	☐		Salt	☐	☐	☐
French fries	☐	☐	☐		Sandwich	☐	☐	☐
Fried chicken	☐	☐	☐		Sauce	☐	☐	☐
Fried rice	☐	☐	☐		Smoothie	☐	☐	☐
Gravy	☐	☐	☐		Soft drink	☐	☐	☐
Honey	☐	☐	☐		Soup	☐	☐	☐
Hot dog	☐	☐	☐		Sugar	☐	☐	☐
Ice cream	☐	☐	☐		Tea	☐	☐	☐
Jam	☐	☐	☐		Toffee	☐	☐	☐
Juice	☐	☐	☐		Water	☐	☐	☐
Ketchup	☐	☐	☐		Yogurt	☐	☐	☐
Lentils	☐	☐	☐					
	☐	☐	☐					

Animal & Bird (57 words)

	Understand	Say	Neither			Understand	Say	Neither
Animal	☐	☐	☐		Hen	☐	☐	☐
Ant	☐	☐	☐		Horse	☐	☐	☐
Bat	☐	☐	☐		Insect	☐	☐	☐
Bear	☐	☐	☐		Kangaroo	☐	☐	☐

Bee	☐	☐	☐		Kitten	☐	☐	☐
Bird	☐	☐	☐		Lamb	☐	☐	☐
Buffalo	☐	☐	☐		Lion	☐	☐	☐
Butterfly	☐	☐	☐		Lizard	☐	☐	☐
Camel	☐	☐	☐		Monkey	☐	☐	☐
Cat	☐	☐	☐		Mouse	☐	☐	☐
Chicken	☐	☐	☐		Octopus	☐	☐	☐
Cow	☐	☐	☐		Owl	☐	☐	☐
Crab	☐	☐	☐		Panda	☐	☐	☐
Crow	☐	☐	☐		Parrot	☐	☐	☐
Deer	☐	☐	☐		Peacock	☐	☐	☐
Dinosaur	☐	☐	☐		Pig	☐	☐	☐
Dog	☐	☐	☐		Pigeon	☐	☐	☐
Dolphin	☐	☐	☐		Rabbit	☐	☐	☐
Donkey	☐	☐	☐		Rat	☐	☐	☐
Dove	☐	☐	☐		Sheep	☐	☐	☐
Duck	☐	☐	☐		Snake	☐	☐	☐
Eagle	☐	☐	☐		Spider	☐	☐	☐
Elephant	☐	☐	☐		Swan	☐	☐	☐
Fish	☐	☐	☐		Tiger	☐	☐	☐
Fox	☐	☐	☐		Turtle	☐	☐	☐
Frog	☐	☐	☐		Whale	☐	☐	☐
Giraffe	☐	☐	☐		Wolf	☐	☐	☐
Goat	☐	☐	☐		Zebra	☐	☐	☐
Goose	☐	☐	☐					
Place (23 words)								
	Understand	Say	Neither			Understand	Say	Neither
Airport	☐	☐	☐		Mosque	☐	☐	☐
Bank	☐	☐	☐		Museum	☐	☐	☐
Beach	☐	☐	☐		Park	☐	☐	☐
Bus stop	☐	☐	☐		Playground	☐	☐	☐
Clinic	☐	☐	☐		Restaurant	☐	☐	☐
Farm	☐	☐	☐		School	☐	☐	☐

Garden	☐	☐	☐		Shop	☐	☐	☐
Hospital	☐	☐	☐		Station	☐	☐	☐
Hotel	☐	☐	☐		Street	☐	☐	☐
House	☐	☐	☐		Supershop	☐	☐	☐
Library	☐	☐	☐		Zoo	☐	☐	☐
Market	☐	☐	☐					

Action Word/ Activity (79 words)

	Understand	Say	Neither			Understand	Say	Neither
ask	☐	☐	☐		mop	☐	☐	☐
bake	☐	☐	☐		open	☐	☐	☐
bathe	☐	☐	☐		paint	☐	☐	☐
bite	☐	☐	☐		peel	☐	☐	☐
break	☐	☐	☐		pick	☐	☐	☐
brush	☐	☐	☐		play	☐	☐	☐
call	☐	☐	☐		push	☐	☐	☐
carry	☐	☐	☐		run	☐	☐	☐
catch	☐	☐	☐		say	☐	☐	☐
chew	☐	☐	☐		see	☐	☐	☐
choose	☐	☐	☐		shake	☐	☐	☐
climb	☐	☐	☐		share	☐	☐	☐
close	☐	☐	☐		shout	☐	☐	☐
colour	☐	☐	☐		show	☐	☐	☐
cook	☐	☐	☐		sing	☐	☐	☐
count	☐	☐	☐		sit	☐	☐	☐
cry	☐	☐	☐		skip	☐	☐	☐
cut	☐	☐	☐		sleep	☐	☐	☐
dance	☐	☐	☐		smell	☐	☐	☐
draw	☐	☐	☐		smile	☐	☐	☐
drink	☐	☐	☐		stir	☐	☐	☐
eat	☐	☐	☐		swim	☐	☐	☐
find	☐	☐	☐		swing	☐	☐	☐
fix	☐	☐	☐		take	☐	☐	☐
fold	☐	☐	☐		tap	☐	☐	☐

follow	☐	☐	☐	taste	☐	☐	☐
give	☐	☐	☐	teach	☐	☐	☐
help	☐	☐	☐	tell	☐	☐	☐
hide	☐	☐	☐	throw	☐	☐	☐
hit	☐	☐	☐	tie	☐	☐	☐
hug	☐	☐	☐	touch	☐	☐	☐
jump	☐	☐	☐	vacuum	☐	☐	☐
kick	☐	☐	☐	wait	☐	☐	☐
kiss	☐	☐	☐	wake	☐	☐	☐
laugh	☐	☐	☐	walk	☐	☐	☐
learn	☐	☐	☐	wash	☐	☐	☐
lift	☐	☐	☐	wear	☐	☐	☐
listen	☐	☐	☐	wipe	☐	☐	☐
look	☐	☐	☐	write	☐	☐	☐
mix	☐	☐	☐				

Adjectives (82 words)

	Understand	Say	Neither		Understand	Say	Neither
Angry	☐	☐	☐	Loud	☐	☐	☐
Bad	☐	☐	☐	Lovely	☐	☐	☐
Beautiful	☐	☐	☐	Many	☐	☐	☐
Best	☐	☐	☐	Mean	☐	☐	☐
Better	☐	☐	☐	Naughty	☐	☐	☐
Big	☐	☐	☐	Near	☐	☐	☐
Boring	☐	☐	☐	New	☐	☐	☐
Brave	☐	☐	☐	Nice	☐	☐	☐
Bright	☐	☐	☐	Old	☐	☐	☐
Busy	☐	☐	☐	Poor	☐	☐	☐
Clean	☐	☐	☐	Pretty	☐	☐	☐
Cold	☐	☐	☐	Quick	☐	☐	☐
Cool	☐	☐	☐	Quiet	☐	☐	☐
Cute	☐	☐	☐	Rainy	☐	☐	☐
Dark	☐	☐	☐	Red	☐	☐	☐
Delicious	☐	☐	☐	Right	☐	☐	☐

Dirty	☐	☐	☐		Round	☐	☐	☐
Dry	☐	☐	☐		Sad	☐	☐	☐
Easy	☐	☐	☐		Safe	☐	☐	☐
Empty	☐	☐	☐		Short	☐	☐	☐
Excited	☐	☐	☐		Shy	☐	☐	☐
Expensive	☐	☐	☐		Sick	☐	☐	☐
Fair	☐	☐	☐		Silly	☐	☐	☐
Fast	☐	☐	☐		Slow	☐	☐	☐
Fat	☐	☐	☐		Small	☐	☐	☐
Few	☐	☐	☐		Smart	☐	☐	☐
Friendly	☐	☐	☐		Soft	☐	☐	☐
Full	☐	☐	☐		Spicy	☐	☐	☐
Funny	☐	☐	☐		Strong	☐	☐	☐
Good	☐	☐	☐		Sweet	☐	☐	☐
Great	☐	☐	☐		Tall	☐	☐	☐
Happy	☐	☐	☐		Tasty	☐	☐	☐
Hard	☐	☐	☐		Thin	☐	☐	☐
Heavy	☐	☐	☐		Thirsty	☐	☐	☐
Hot	☐	☐	☐		Tiny	☐	☐	☐
Hungry	☐	☐	☐		Tired	☐	☐	☐
Kind	☐	☐	☐		Warm	☐	☐	☐
Large	☐	☐	☐		Wet	☐	☐	☐
Light	☐	☐	☐		Wide	☐	☐	☐
Little	☐	☐	☐		Wrong	☐	☐	☐
Long	☐	☐	☐		Young	☐	☐	☐
Household Item (58 words)								
	Understand	Say	Neither			Understand	Say	Neither
Alarm clock	☐	☐	☐		Hammer	☐	☐	☐
Basket	☐	☐	☐		Jug	☐	☐	☐
Bed	☐	☐	☐		Key	☐	☐	☐
Bedsheet	☐	☐	☐		Knife	☐	☐	☐
Bin	☐	☐	☐		Lamp	☐	☐	☐
Blanket	☐	☐	☐		Lock	☐	☐	☐

Book	☐	☐	☐		Mat	☐	☐	☐
Bottle	☐	☐	☐		Mirror	☐	☐	☐
Bowl	☐	☐	☐		Mug	☐	☐	☐
Box	☐	☐	☐		Napkin	☐	☐	☐
Brush	☐	☐	☐		Pan	☐	☐	☐
Bucket	☐	☐	☐		Pillow	☐	☐	☐
Broom	☐	☐	☐		Plate	☐	☐	☐
Cabinet	☐	☐	☐		Remote	☐	☐	☐
Calendar	☐	☐	☐		Rug	☐	☐	☐
Carpet	☐	☐	☐		Scissors	☐	☐	☐
Chair	☐	☐	☐		Shoe	☐	☐	☐
Comb	☐	☐	☐		Sofa	☐	☐	☐
Cooker	☐	☐	☐		Spoon	☐	☐	☐
Cup	☐	☐	☐		Stool	☐	☐	☐
Curtain	☐	☐	☐		Table	☐	☐	☐
Cushion	☐	☐	☐		Tap	☐	☐	☐
Desk	☐	☐	☐		Toothbrush	☐	☐	☐
Door	☐	☐	☐		Toothpaste	☐	☐	☐
Doorbell	☐	☐	☐		Towel	☐	☐	☐
Fan	☐	☐	☐		Toy	☐	☐	☐
Floor mat	☐	☐	☐		Tray	☐	☐	☐
Fork	☐	☐	☐		Wardrobe	☐	☐	☐
Glass	☐	☐	☐		Window	☐	☐	☐

Colour (21 words)

	Understan d	Say	Neither			Understa nd	Say	Neither
black	☐	☐	☐		olive	☐	☐	☐
blue	☐	☐	☐		orange	☐	☐	☐
brown	☐	☐	☐		peach	☐	☐	☐
cream	☐	☐	☐		pink	☐	☐	☐
gold	☐	☐	☐		purple	☐	☐	☐
green	☐	☐	☐		red	☐	☐	☐
grey	☐	☐	☐		silver	☐	☐	☐
lavender	☐	☐	☐		violet	☐	☐	☐

magenta	☐	☐	☐		white	☐	☐	☐
maroon	☐	☐	☐		yellow	☐	☐	☐
navy	☐	☐	☐					
Machine (55 words)								
	Understand	Say	Neither			Understand	Say	Neither
air conditioner	☐	☐	☐		radio	☐	☐	☐
ambulance	☐	☐	☐		remote	☐	☐	☐
bicycle	☐	☐	☐		rickshaw	☐	☐	☐
blender	☐	☐	☐		screen	☐	☐	☐
boat	☐	☐	☐		ship	☐	☐	☐
bus	☐	☐	☐		speaker	☐	☐	☐
camera	☐	☐	☐		tablet	☐	☐	☐
car	☐	☐	☐		television	☐	☐	☐
computer	☐	☐	☐		torch	☐	☐	☐
drum	☐	☐	☐		train	☐	☐	☐
fan	☐	☐	☐		trumpet	☐	☐	☐
ferry	☐	☐	☐		van	☐	☐	☐
flute	☐	☐	☐		violin	☐	☐	☐
fridge	☐	☐	☐		washing machine	☐	☐	☐
guitar	☐	☐	☐		charger	☐	☐	☐
hair dryer	☐	☐	☐		cable	☐	☐	☐
harmonium	☐	☐	☐		picture	☐	☐	☐
helicopter	☐	☐	☐		video	☐	☐	☐
iron	☐	☐	☐		photo	☐	☐	☐
keyboard	☐	☐	☐		click	☐	☐	☐
laptop	☐	☐	☐		horn	☐	☐	☐
light	☐	☐	☐		break	☐	☐	☐
microbus	☐	☐	☐		bike	☐	☐	☐
microwave	☐	☐	☐		cycle	☐	☐	☐
mobile phone	☐	☐	☐		clock	☐	☐	☐
phone	☐	☐	☐		watch	☐	☐	☐
piano	☐	☐	☐		plane	☐	☐	☐

printer	☐	☐	☐					

Body Parts (40 words)

	Understand	Say	Neither			Understand	Say	Neither
ankle	☐	☐	☐		head	☐	☐	☐
arm	☐	☐	☐		heel	☐	☐	☐
back	☐	☐	☐		hip	☐	☐	☐
beard	☐	☐	☐		knee	☐	☐	☐
belly	☐	☐	☐		leg	☐	☐	☐
brain	☐	☐	☐		lip	☐	☐	☐
cheek	☐	☐	☐		mouth	☐	☐	☐
chest	☐	☐	☐		nail	☐	☐	☐
chin	☐	☐	☐		neck	☐	☐	☐
ear	☐	☐	☐		nose	☐	☐	☐
elbow	☐	☐	☐		shoulder	☐	☐	☐
eye	☐	☐	☐		stomach	☐	☐	☐
eyebrow	☐	☐	☐		teeth	☐	☐	☐
eyelash	☐	☐	☐		thigh	☐	☐	☐
face	☐	☐	☐		thumb	☐	☐	☐
finger	☐	☐	☐		toe	☐	☐	☐
foot	☐	☐	☐		tongue	☐	☐	☐
forehead	☐	☐	☐		tooth	☐	☐	☐
hair	☐	☐	☐		waist	☐	☐	☐
hand	☐	☐	☐		wrist	☐	☐	☐

Nature (57 words)

	Understand	Say	Neither			Understand	Say	Neither
air	☐	☐	☐		planet	☐	☐	☐
bamboo	☐	☐	☐		pond	☐	☐	☐
beach	☐	☐	☐		rain	☐	☐	☐
breeze	☐	☐	☐		rainbow	☐	☐	☐
cactus	☐	☐	☐		river	☐	☐	☐

cave	☐	☐	☐	rock	☐	☐	☐
cloud	☐	☐	☐	root	☐	☐	☐
cotton	☐	☐	☐	rose	☐	☐	☐
daisy	☐	☐	☐	sand	☐	☐	☐
desert	☐	☐	☐	sea	☐	☐	☐
dew	☐	☐	☐	sky	☐	☐	☐
earth	☐	☐	☐	snow	☐	☐	☐
fire	☐	☐	☐	soil	☐	☐	☐
flower	☐	☐	☐	star	☐	☐	☐
forest	☐	☐	☐	stone	☐	☐	☐
grass	☐	☐	☐	storm	☐	☐	☐
hill	☐	☐	☐	stream	☐	☐	☐
ice	☐	☐	☐	sun	☐	☐	☐
island	☐	☐	☐	sunflower	☐	☐	☐
jasmine	☐	☐	☐	sunlight	☐	☐	☐
lake	☐	☐	☐	sunrise	☐	☐	☐
leaf	☐	☐	☐	sunset	☐	☐	☐
lotus	☐	☐	☐	thunder	☐	☐	☐
moon	☐	☐	☐	tree	☐	☐	☐
mountain	☐	☐	☐	tulip	☐	☐	☐
mud	☐	☐	☐	volcano	☐	☐	☐
ocean	☐	☐	☐	water	☐	☐	☐
orchid	☐	☐	☐	wind	☐	☐	☐
petal	☐	☐	☐				

Pronouns and other (24 words)

	Understan d	Say	Neither			Understa nd	Say	Neither
he	☐	☐	☐		them	☐	☐	☐
her	☐	☐	☐		they	☐	☐	☐
his	☐	☐	☐		this	☐	☐	☐
how	☐	☐	☐		when	☐	☐	☐
I	☐	☐	☐		where	☐	☐	☐
it	☐	☐	☐		who	☐	☐	☐
me	☐	☐	☐		why	☐	☐	☐
mine	☐	☐	☐		yes	☐	☐	☐

no	☐	☐	☐		you	☐	☐	☐
she	☐	☐	☐		Your	☐	☐	☐
That	☐	☐	☐		Here	☐	☐	☐
there	☐	☐	☐		ok	☐	☐	☐
Prepositions (10 words)								
	Understand	Say	Neither			Understand	Say	Neither
at	☐	☐	☐		off	☐	☐	☐
back	☐	☐	☐		on	☐	☐	☐
down	☐	☐	☐		out	☐	☐	☐
in	☐	☐	☐		under	☐	☐	☐
inside	☐	☐	☐		up	☐	☐	☐
Days & Time (8 words)								
	Understand	Say	Neither			Understand	Say	Neither
morning	☐	☐	☐		today	☐	☐	☐
night	☐	☐	☐		tomorrow	☐	☐	☐
now	☐	☐	☐		yesterday	☐	☐	☐
then	☐	☐	☐					

Appendix C

Bangla CDI (398 words)

Child's Name: _____ Age: _____

Gender: _____ Date of Birth: _____

People & Relation (27 words)								
	Understand	Say	Neither			Understand	Say	Neither
খালা	☐	☐	☐		ফুপা	☐	☐	☐
খালু	☐	☐	☐		ফুপু	☐	☐	☐
চাচা	☐	☐	☐		বন্ধু	☐	☐	☐
চাচী	☐	☐	☐		বাচ্চা	☐	☐	☐
ডাক্তার	☐	☐	☐		বাবা	☐	☐	☐
দাদা	☐	☐	☐		বোন	☐	☐	☐
দাদু	☐	☐	☐		ভাই	☐	☐	☐
দারোয়ান	☐	☐	☐		মা	☐	☐	☐
দিদা	☐	☐	☐		মানুষ	☐	☐	☐
দিদি	☐	☐	☐		মামা	☐	☐	☐
নানা	☐	☐	☐		মামী	☐	☐	☐
নানি	☐	☐	☐		মেহমান	☐	☐	☐
পুলিশ	☐	☐	☐		শিক্ষক	☐	☐	☐
প্রতিবেশী	☐	☐	☐					
Pronouns and other (25 words)								
	Understand	Say	Neither			Understand	Say	Neither
আপনি	☐	☐	☐		ওসব	☐	☐	☐
আমরা	☐	☐	☐		কী	☐	☐	☐
আমি	☐	☐	☐		কেন	☐	☐	☐
এখানে	☐	☐	☐		কোথায়	☐	☐	☐
এগুলো	☐	☐	☐		তার	☐	☐	☐

এটা	☐	☐	☐	তুমি	☐	☐	☐
এসব	☐	☐	☐	তোমরা	☐	☐	☐
ওখানে	☐	☐	☐	না	☐	☐	☐
ওগুলো	☐	☐	☐	সব	☐	☐	☐
ওটা	☐	☐	☐	সে	☐	☐	☐
ওর	☐	☐	☐	হ্যাঁ	☐	☐	☐
ঠিক আছে	☐	☐	☐	আচ্ছা	☐	☐	☐

Body Parts (23 words)

	Understand	Say	Neither			Understand	Say	Neither
আঙুল	☐	☐	☐	নাক	☐	☐	☐	☐
কপাল	☐	☐	☐	পা	☐	☐	☐	☐
কান	☐	☐	☐	পায়ের আঙুল	☐	☐	☐	☐
গলা	☐	☐	☐	পিঠ	☐	☐	☐	☐
গাল	☐	☐	☐	পেট	☐	☐	☐	☐
চুল	☐	☐	☐	বুক	☐	☐	☐	☐
চোখ	☐	☐	☐	ভুরু	☐	☐	☐	☐
চোখের পাপড়ি	☐	☐	☐	মাথা	☐	☐	☐	☐
জিহ্বা	☐	☐	☐	মুখ	☐	☐	☐	☐
ঠোঁট	☐	☐	☐	হাঁটু	☐	☐	☐	☐
দাঁত	☐	☐	☐	হাত	☐	☐	☐	☐
নখ	☐	☐	☐					

Food (30 words)

	Understand	Say	Neither			Understand	Say	Neither
আচার	☐	☐	☐	পোলাও	☐	☐	☐	☐
কেক	☐	☐	☐	ফল	☐	☐	☐	☐
চা	☐	☐	☐	বাদাম	☐	☐	☐	☐
চানাচুর	☐	☐	☐	বিস্কুট	☐	☐	☐	☐

চিনি	○	○	○	ভাজা	○	○	○
জুস	○	○	○	ভাত	○	○	○
ডাল	○	○	○	মাখন	○	○	○
ডিম	○	○	○	মাংস	○	○	○
তরকারি	○	○	○	মুরগি	○	○	○
দই	○	○	○	রুটি	○	○	○
দুধ	○	○	○	রেজালা	○	○	○
পনির	○	○	○	লবণ	○	○	○
পরোটা	○	○	○	শাক	○	○	○
পাউরুটি	○	○	○	সবজি	○	○	○
পানি	○	○	○	সুপ	○	○	○

Fruits (27 words)

	Understand	Say	Neither		Understand	Say	Neither
আঙ্গুর	○	○	○	ডাব	○	○	○
আতাফল	○	○	○	তরমুজ	○	○	○
আনারস	○	○	○	তৈঁতুল	○	○	○
আম	○	○	○	নারিকেল	○	○	○
আমড়া	○	○	○	নাশপাতি	○	○	○
কমলা	○	○	○	পেঁপে	○	○	○
করমচা	○	○	○	পেয়ারা	○	○	○
কাজুবাদাম	○	○	○	বরই	○	○	○
কাঠাল	○	○	○	বেল	○	○	○
কুল	○	○	○	মাল্টা	○	○	○
খেজুর	○	○	○	লটকন	○	○	○
জলপাই	○	○	○	লিচু	○	○	○

জাম	☐	☐	☐		লেবু	☐	☐	☐
জামরুল	☐	☐	☐					
	☐	☐	☐					
Vegetables (23 words)								
	Understand	Say	Neither			Understand	Say	Neither
আলু	☐	☐	☐		বেগুন	☐	☐	☐
কচু	☐	☐	☐		মটরশুঁটি	☐	☐	☐
কুমড়া	☐	☐	☐		মূলা	☐	☐	☐
কাঁচা কলা	☐	☐	☐		লাল শাক	☐	☐	☐
গাজর	☐	☐	☐		লাউ	☐	☐	☐
চিচিঙ্গা	☐	☐	☐		শসা	☐	☐	☐
টমেটো	☐	☐	☐		শিম	☐	☐	☐
টেঁড়স	☐	☐	☐		করলা	☐	☐	☐
তরই	☐	☐	☐		কাঁকরোল	☐	☐	☐
পটল	☐	☐	☐		ধনিয়া পাতা	☐	☐	☐
পেঁয়াজ	☐	☐	☐		কাঁচা মরিচ	☐	☐	☐
বাঁধাকপি	☐	☐	☐					
Animals (30 words)								
	Understand	Say	Neither			Understand	Say	Neither
কচ্ছপ	☐	☐	☐		বাঘ	☐	☐	☐
কবুতর	☐	☐	☐		বানর	☐	☐	☐
কাক	☐	☐	☐		বিড়াল	☐	☐	☐
কুকুর	☐	☐	☐		ব্যাঙ	☐	☐	☐
খরগোশ	☐	☐	☐		ভালুক	☐	☐	☐
গরু	☐	☐	☐		ভেড়া	☐	☐	☐
ঘোড়া	☐	☐	☐		মশা	☐	☐	☐
চড়ুই	☐	☐	☐		মাছ	☐	☐	☐
ছাগল	☐	☐	☐		মাছি	☐	☐	☐

ঢিয়া	○	○	○	মুরগি	○	○	○
পশু	○	○	○	শেয়াল	○	○	○
পাখি	○	○	○	সাপ	○	○	○
পায়রা	○	○	○	সিংহ	○	○	○
পিঁপড়া	○	○	○	হাতি	○	○	○
প্রজাপতি	○	○	○	হাঁস	○	○	○

Action Words (49 words)

	Understand	Say	Neither		Understand	Say	Neither
আঁকো	○	○	○	ধরতে দাও	○	○	○
আসো	○	○	○	ধরো	○	○	○
কাটো	○	○	○	ধরো না	○	○	○
কাঁদো	○	○	○	ধোও	○	○	○
খাও	○	○	○	নাও	○	○	○
খুঁজো	○	○	○	নাচো	○	○	○
খুলো	○	○	○	পড়ো	○	○	○
খেলো	○	○	○	ফুঁ দাও	○	○	○
গড়াও	○	○	○	ফেলে দাও	○	○	○
গাও	○	○	○	বন্ধ করো	○	○	○
গুনো	○	○	○	বলো	○	○	○
ঘুমাও	○	○	○	বসো	○	○	○
চলো	○	○	○	ভাঙো	○	○	○
ছেড়ে দাও	○	○	○	মুছো	○	○	○
জোড়ো	○	○	○	যাও	○	○	○
ঝাড়ো	○	○	○	লাফাও	○	○	○
ডাকো	○	○	○	লেখো	○	○	○
ঢালো	○	○	○	শিখো	○	○	○
থামো	○	○	○	শুনো	○	○	○
দাও	○	○	○	শুয়ে পড়ো	○	○	○
দাঁড়াও	○	○	○	শেখাও	○	○	○

দেখাও	☐	☐	☐		সাজাও	☐	☐	☐
দেখো	☐	☐	☐		হাসো	☐	☐	☐
দৌড়াও	☐	☐	☐		হয়নি	☐	☐	☐
হয়েছে	☐	☐	☐					
Places (16 words)								
	Understand	Say	Neither			Understand	Say	Neither
খেলার মাঠ	☐	☐	☐		বাড়ি	☐	☐	☐
ঘর	☐	☐	☐		মন্দির	☐	☐	☐
চিড়িয়াখানা	☐	☐	☐		মসজিদ	☐	☐	☐
ছাদ	☐	☐	☐		রান্নাঘর	☐	☐	☐
দোকান	☐	☐	☐		রাস্তা	☐	☐	☐
পার্ক	☐	☐	☐		শোবার ঘর	☐	☐	☐
বাগান	☐	☐	☐		সমুদ্র	☐	☐	☐
বাজার	☐	☐	☐		হাসপাতাল	☐	☐	☐
Flowers (12 words)								
	Understand	Say	Neither			Understand	Say	Neither
গাঁদা	☐	☐	☐		পলাশ	☐	☐	☐
গোলাপ	☐	☐	☐		বকুল	☐	☐	☐
জবা	☐	☐	☐		বেলি	☐	☐	☐
জুঁই	☐	☐	☐		শাপলা	☐	☐	☐
টগর	☐	☐	☐		শিউলি	☐	☐	☐
পদ্ম	☐	☐	☐		সূর্যমুখী	☐	☐	☐
Household Items (44 words)								
	Understand	Say	Neither			Understand	Say	Neither
আয়না	☐	☐	☐		ছুরি	☐	☐	☐
আলমারি	☐	☐	☐		জানালা	☐	☐	☐

আলমারি	○	○	○	ঝাড়ু	○	○	○
কড়াই	○	○	○	ঝাড়ু	○	○	○
কঞ্চল	○	○	○	ঝুড়ি	○	○	○
কঞ্চল	○	○	○	টাকা	○	○	○
কলম	○	○	○	টেবিল	○	○	○
কাগজ	○	○	○	দরজা	○	○	○
কাঁটাচামচ	○	○	○	দরজা	○	○	○
কেচি	○	○	○	বই	○	○	○
খাট	○	○	○	বারান্দা	○	○	○
খাতা	○	○	○	বালতি	○	○	○
গামছা	○	○	○	বালতি	○	○	○
ঘড়ি	○	○	○	বালিশ	○	○	○
চাদর	○	○	○	বিছানা	○	○	○
চারি	○	○	○	বিছানা	○	○	○
চামচ	○	○	○	মগ	○	○	○
চামচ	○	○	○	রান্নাঘর	○	○	○
চিরুনি	○	○	○	রুমাল	○	○	○
চুলা	○	○	○	সাবান	○	○	○
চেয়ার	○	○	○	সিঁড়ি	○	○	○
ছবি	○	○	○	হাড়ি	○	○	○

Clothes (16 words)

	Understand	Say	Neither		Understand	Say	Neither
আংটি	○	○	○	জামা	○	○	○
ওড়না	○	○	○	জুতা	○	○	○
কানের দুল	○	○	○	টুপি	○	○	○
কাপড়	○	○	○	পাঞ্জাবি	○	○	○
কামিজ	○	○	○	পায়জামা	○	○	○
কুর্তা	○	○	○	মোজা	○	○	○
ঘড়ি	○	○	○	লুঙ্গি	○	○	○

চুড়ি	○	○	○		শাড়ি	○	○	○
Colours (9 words)								
	Understand	Say	Neither			Understand	Say	Neither
কমলা	○	○	○		লাল	○	○	○
কালো	○	○	○		সবুজ	○	○	○
গোলাপি	○	○	○		সাদা	○	○	○
নীল	○	○	○		হলুদ	○	○	○
বেগুনি	○	○	○					
Nature (19 words)								
	Understand	Say	Neither			Understand	Say	Neither
আকাশ	○	○	○		ফুল	○	○	○
আগুন	○	○	○		বাতাস	○	○	○
গাছ	○	○	○		বালু	○	○	○
ঘাস	○	○	○		বৃষ্টি	○	○	○
চাঁদ	○	○	○		মাটি	○	○	○
তারা	○	○	○		মেঘ	○	○	○
নদী	○	○	○		রংধনু	○	○	○
পাতা	○	○	○		রোদ	○	○	○
পাথর	○	○	○		সূর্য	○	○	○
পাহাড়	○	○	○					
Adjectives (25 words)								
	Understand	Say	Neither			Understand	Say	Neither
উঁচু	○	○	○		পরিষ্কার	○	○	○
খাটো	○	○	○		পাতলা	○	○	○
খারাপ	○	○	○		পুরনো	○	○	○

গরম	☐	☐	☐	বড়	☐	☐	☐
ছোট	☐	☐	☐	বাইরে	☐	☐	☐
টক	☐	☐	☐	ভারী	☐	☐	☐
ঠান্ডা	☐	☐	☐	ভালো	☐	☐	☐
তাড়াতাড়ি	☐	☐	☐	ভেতরে	☐	☐	☐
ধীর	☐	☐	☐	মিষ্টি	☐	☐	☐
নতুন	☐	☐	☐	মোটা	☐	☐	☐
নিচু	☐	☐	☐	লম্বা	☐	☐	☐
নোংরা	☐	☐	☐	সুন্দর	☐	☐	☐
				হালকা	☐	☐	☐

Prepositions (20 words)

	Understand	Say	Neither		Understand	Say	Neither
আগে	☐	☐	☐	পর্যন্ত	☐	☐	☐
উপর	☐	☐	☐	পাশে	☐	☐	☐
উপর দিয়ে	☐	☐	☐	পেছনে	☐	☐	☐
ছাড়া	☐	☐	☐	বাইরে	☐	☐	☐
জন্য	☐	☐	☐	ভিতরে	☐	☐	☐
থেকে	☐	☐	☐	মত	☐	☐	☐
দিকে	☐	☐	☐	মধ্যে	☐	☐	☐
নিচ দিয়ে	☐	☐	☐	মধ্যে দিয়ে	☐	☐	☐
নিচে	☐	☐	☐	সাথে	☐	☐	☐
পরে	☐	☐	☐	সামনে	☐	☐	☐

Time (17 words)

	Understand	Say	Neither		Understand	Say	Neither
আজকে	☐	☐	☐	বিকালে	☐	☐	☐

এখন	☐	☐	☐		বিকেল	☐	☐	☐
কখনও	☐	☐	☐		যখন	☐	☐	☐
কখনও না	☐	☐	☐		রাত	☐	☐	☐
কালকে	☐	☐	☐		সকাল	☐	☐	☐
তখন	☐	☐	☐		সন্ধ্যা	☐	☐	☐
দুপুর	☐	☐	☐		সব সময়	☐	☐	☐
পরশু দিন	☐	☐	☐		হঠাৎ	☐	☐	☒
পরে	☐	☐	☐			☐	☐	☐