FACTORS INFLUENCING THE GROWTH OF MULTIPLE INTELLIGENCES IN CHILDREN AGED 0 TO 5 YEARS: A FOCUSED STUDY IN NORTHEASTERN INDIA

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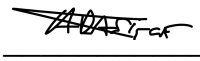

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DEDICATION

This dissertation is lovingly dedicated to my spiritual master, Bhagawan Sri Sathya Sai Baba. His teachings have illuminated my path with wisdom, compassion, and purpose and significantly shaped my academic journey. His divine guidance inspires me to strive for excellence while humbly serving humanity.

To my parents, whose unwavering support, sacrifices, and values have shaped the person I am today. To my beloved wife, Divisha, for her steadfast love, patience, and belief in me, even during the most challenging times. Your strength and companionship have been my anchor and inspiration.

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I also thank Prof. David Annan, my mentor in this DBA program, for his invaluable guidance, insight, and encouragement throughout this academic journey. His expertise and support have been instrumental in shaping this dissertation.

With deepest gratitude and love,

ABSTRACT

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2025

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This paper explores the development of multiple intelligences (MI) in early childhood, focusing on children aged 0 to 5 years in the Northeastern region of India. This study investigates the factors influencing the growth of multiple intelligences in children utilizing a mixed-methods approach to provide a comprehensive understanding of this developmental stage. The research combines quantitative data collected through standardized assessments of children's intelligences and demographic surveys with qualitative insights gathered from interviews and focus group discussions with parents, educators, and child development specialists.

The findings reveal that various socio-cultural, environmental, and educational factors significantly impact the development of multiple intelligences in early childhood. Key influences identified include parental involvement and educational practices, access to resources and learning materials, cultural values emphasizing certain intelligences, and the role of community support systems. The study highlights the importance of a nurturing environment that fosters diverse learning experiences, which are crucial for holistic development.

Additionally, the research underscores the need for tailored educational strategies that recognize and cultivate different intelligences among children to promote their overall

growth. By addressing the unique challenges and opportunities present in the northeastern region of India, this study aims to inform policymakers, educators, and parents about effective practices that can enhance the developmental outcomes for young children, thereby contributing to the broader discourse on early childhood education and development in diverse cultural contexts.

Keywords: Multiple Intelligences, Early Childhood Development, Cultural Influences, Socio-Economic Factors, Brain Development, Mixed Methods, Northeastern India, Child Education, Regional Differences, Intelligence Theory.

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LIST OF ABBREVIATIONS

N. E	.....	North-Eastern
MI	.....	Multiple Intelligences
IQ	.....	Intelligent Quotient
SPSS	.....	Statistical Package for the Social Sciences
ANOVA	.....	Analysis of Variance
IRBs	.....	Institutional Review Boards

CHAPTER – I

INTRODUCTION

1.1 Introduction

The aim of learning should be oriented towards its implication in real life with a problem-solving objective. The connecting link to channel the learning process to solve the real-life problem transcends critical thinking and the ability to evaluate information effectively (Bornstein and Gardner, 2023).

For a long time, it has been construed that critical thinking and problem-solving skills are based on the intelligence capacity of the person. To be precise, a more intelligent person can think critically more effectively and solve problems while applying their learning. The traditional concept of intelligence is construed as inborn and fixed intelligence. This understanding has been constantly criticised and evolved over the years to be transformed into the more holistic idea of multiple intelligence.

The concept of multiple intelligence states that human abilities and talents are diverse and synchronise with the learning concepts in the human's developmental stages. The multiple intelligence theory recognises various intelligence types, including verbal intelligence, logical and mathematical intelligence, spatial intelligence, musical intelligence, physical and motor intelligence, interpersonal intelligence, intrapersonal intelligence, naturalistic intelligence, and existential intelligence. Further, neuroscientific research has established that the human brain's early development stage is crucial in developing critical thinking; hence, early intervention by parents, society, and educators could help accommodate the diverse multiple intelligence dimensions and learning styles from early childhood.

It's clear from the above discussion that the early development of multiple intelligences is significantly influenced by cultural, social, and environmental factors, which act as external stimuli. Considering all these factors, the research has meticulously analysed the factors that influence the development of multiple intelligences in early childhood from 0 to 5 years for the Northeastern region. This research is significant as it provides a comprehensive understanding of the complex interplay of cultural, social, and environmental factors on the development of multiple intelligences in early childhood.

Given the variation in external stimuli due to regional differences, conducting research specific to the Northeast will provide valuable insights into the development of multiple intelligence in children aged 0 to 5 and the influence of culture, society, and environment on them. Regarding the concept of multiple intelligence, various theoretical perspectives, namely behaviourism, structuralism, and cognitive science, have been developed to understand the development of human intelligence in early childhood. Though the traditional theories have challenged the conventional understanding of traditional intelligence theory, they have been more of and consist of scattered overviews to counter its unidimensional approach.

However, Howard Gardner's cognitive theory is accepted from a theoretical perspective because it has unified the multiple approaches of the MI throaty to represent the various factors that influence the development of multiple intelligences in early childhood. For instance, in their book “Three Aspects of Intelligence” Gardner, Blumenfeld-Jones (2013) highlighted the cultural, creative, and analytical aspects of the MI. Further elaborating on these aspects, we can see that they converge to the multiple intelligence theory and its factors. Later, evolving their earlier concept,

Gardner developed the MI as a multidimensional approach to human critical thinking and cognitive abilities. The below diagram has depicted its dimensions as follows:

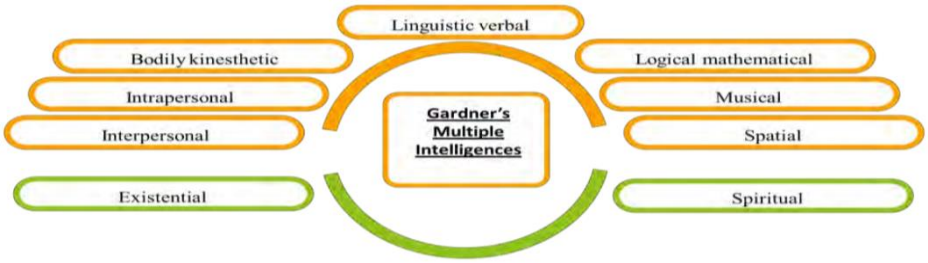

Figure 1.1: Gardner's Multiple Theory of Intelligence

According to Dori, Ruetsche, and Schubiger (2018), many intelligences suggests that intelligence is not fixed but a prospective faculty in numerous intellectual forms appropriate for particular cultures, settings, or communities. Gardner recognised the nine distinct intelligences of language, music, mathematics-logical, visual-spatial, bodily-kinaesthetic, intrapersonal, interpersonal, naturalist, and existentialist (Schwendicke, Samek & Krois, 2020). These intelligences provide fresh directions for children's early life development since they operate independently, much like independent systems.

Further, children's development programs, which are region- and cultural-based and MI-oriented, are found to be more efficient in creative, innovative, and critical-thinking approaches to human resources. For pre-primary schools, implementing such curricula encourages teachers to integrate diverse intelligence into their teaching strategies and assessment methods (El-Sabagh, 2021). An example of this approach is observed in the Takrim Cognitive School, an experimental setting in Tehran, which employs a multiple-intelligence-based curriculum for its students (González-Treviño et al., 2020).

During this formative stage, cognitive development is learning foundational abilities that enable comprehension and knowledge of the external environment (Setiawan, 2020). Young infants actively lay the groundwork for understanding Through various cognitive processes, including intentionality, perception, interpretation, categorisation, memory retrieval, concept generation, inference, strategy formulation, and imagination (Hassan et al., 2019).

Children's cognitive development occurs between the ages of one and five, when perception becomes their primary source of inspiration for their brain processes (Shahzada et al., 2021). They display a sense of entitlement, only seeing the world from their point of view and unable to take into account the opinions of others. They are not yet equipped to reason logically, abstractly, or persuasively. Instead, play and activity are essential to their learning settings, as kids learn best from explicit instructions and tangible experiences. Culture dramatically influences these experiences (Huang et al., 2019).

Cultural influences instil unique languages, traditions, art forms, and social conventions into children's learning environments (Yang, Zhuang and Pan, 2021). These cultural aspects deeply influence how children perceive and interact with the world around them and affect their multiple intelligence development. Socioeconomic factors are also crucial in determining the resources, opportunities, and access available to children. In addition, socio-environmental context plays a pivotal role (Spector & Ma, 2019). Community and family structures in various settings shape children's social interactions, which is essential for developing interpersonal and interpersonal intelligence (Huang and Rust, 2020). The natural environment, widespread in some

areas, fosters naturalistic intelligence by promoting understanding and awareness of the environment and its biodiversity.

It is critical to recognise and incorporate these cultural, socioeconomic, and environmental factors into early childhood education. Educators and policymakers play a crucial role in adjusting educational practices to respect diverse artistic traditions, provide equitable access to resources, and foster inclusive environments. Their efforts promote the development of multiple intelligences and nurture the potential that exists in all children during their critical formative years.

Many factors exist that can influence children development, and it could be construed that the development of MI, especially in the early childhood stage of 0-5 years, is a multidimensional process. However, these dimensions have been influenced by both internal and external factors. Internal factors, such as biological and genetic, have been discussed in the medical field. The research has considered external factors, namely environment, socioeconomic condition, and culture, as the main factors influencing the development of MI in early childhood.

Hence, before understanding the environment, socioeconomic condition and culture trio factors and their impact on Multiple intelligence, the table below provides an insight into the dimensions and characteristics of MI:

Type of Intelligence	**Characteristics of Intelligence**
Linguistic/Verbal	1. Ability to use language effectively 2. Sensitivity to word and phrase order 3. Verbal comprehension and expression

Logical/Mathematical	1. Proficiency in identifying patterns 2. Strong problem-solving skills 3. Ability to grasp relationships between concepts
Musical	1. Recognition and appreciation of sounds 2. Sensitivity to pitch, melody, and rhythm 3. Awareness of sound variations and intensity
Spatial	1. Proficient understanding and absorption of visual information 2. Visual solid memory 3. Sensitivity to images and spatial relationships
Bodily-Kinaesthetic	1. High coordination skills 2. Proficiency in using tools and physical objects 3. Substantial body movement control and awareness
Interpersonal	1. Understanding and empathy towards others 2. Proficiency in building social relationships 3. Conflict resolution skills
Intrapersonal	1. High self-awareness and self-motivation 2. Understanding of personal emotions and motivations 3. The ability for introspection and reflection
Spiritual/Environmental	1. Understanding of the surrounding world 2. Contemplation and appreciation of nature and spirituality 3. Awareness of environmental issues

Existential	1. Pondering questions about life, Happiness, and reality 2. Reflecting on personal existence and purpose 3. Questioning the meaning of identity and relation.

Table 1.1 **The Factors of Multiple Intelligence**

The above discussion emphasised that elements apart from conventional schooling, various other factors, such as combining Indigenous customs, diversity in language, innovative expressions, and community living practices, should be considered when considering facilitating the growth of MI in children in the northeast area. These factors offer valuable insights into how early childhood education and experiences impact children's multifaceted cognitive growth in Northeastern India's study region.

1.2 Research Problem

Theoretical and empirical studies have flourished in the area of multiple intelligences and educational implications for transforming the prevailing education system into an individual-centric one. An overview of these studies points out the differences and the uniqueness existing between every manifestation of intelligence and the limitations of testing intelligence in an oral or written format (Eek-Karlsson & Emilson, 2023). This uniqueness in the cognitive and emotional mechanisms prevailing in every learner is particularly overlooked in the context of the targeted region of the present study, namely, Northeastern India.

In general, conventional approaches to preschool education view children as a homogeneous group who can be taught in the same manner. There is no consideration of the differences in cognitive and emotional potentialities of children because of their different cultural backgrounds, socialization, and feeding patterns beginning from the

prenatal period. While the majority of the multiple intelligence's literature is based either on Western or urban children, the influence of the aforementioned factors on the foundations of cognitive and emotional structures of the children during the period of 0–5 years has important theoretical implications and practical applications in the new millennium (Ateş & Şahin, 2021).

The present study assumes that the growth of different intelligences becomes manifest in the ambit of the cognitive, emotional, and motor milestones in children. However, in the prevailing literature, it appears that the different facets of growth of the intelligences and the barriers intervening at various developmental levels to growth have not been well integrated into a viable educational framework in need of such a context.

Again, it is apparent that the development of a framework integrating an all-encompassing view is a highly complex task and needs a number of ingredients to come together, particularly in this land of enormous diversity in terms of culture, food habits, gender role differentiation, and language. It is, therefore, necessary to document the problems of research that would serve as the base to draw together such a comprehensive and yet cohesive framework of education (Aguayo et al., 2021).

At an educational level, most teachers are generally used to focusing on a single student in a classroom setting. However, in-depth psychological studies have revealed that the most effective way to enhance the learning of children aged 0 to 5 years, based on multiple intelligences, is to be fully aware and to foster the child's multiple intelligences, either native or acquired. The present study has attempted to highlight and test the growth of children's multiple intelligences, especially MIs.

According to MI theory, there are six to eight MIs: bodily-kinesthetic, musical, spatial, linguistic, logical-mathematical, and intra- and interpersonal. The other two MIs are naturalist and existential, which have been added. The naturalist has the ability to differentiate species, whereas the existentialist has the capacity to think critically. An important aspect of MI theory is that it challenges traditionally held psychological views (Barua et al., 2022).

Traditionally, people across societies around the globe have believed that intelligence is a single trait that can be formulated by an IQ score. However, after the proposition of MI, people also accepted the fact that there are different types of people who have different intelligences. These different intelligences may be called MIs. It can also be hypothesized that if MIs are identified and developed, it can lead to the growth of the general intelligence of the individual. Thus, it can be concluded from a psychological point of view that children generally, and children specifically, have more than one MI. These MIs can be developed if the external environment is conducive (Thambu et al., 2021).

Linguistic Intelligence

The cultural dialect and linguistic evolution of the place primarily influence the linguistic expression of a region. Regional customs impact the acquisition of language and interpretation of expression. Furthermore, the traditional storytelling of local communities also affects the thoughts and expressions of young children. Hence, there is a need to acknowledge the importance of regional linguistics, storytelling, and regional tales, and they should encourage by family and schools to incorporate the same in the conversation and curriculum to provide an alternative perspective to the fixed

education curriculum design, which is heavily influenced by western parameter (Hassan et al., 2019).

Logical/Mathematical Intelligence

Huang et al., (2019) indicated that the local culture, tradition, and tales indulge indigenous mathematical practices essential in developing logical/mathematical intelligence in young children. Every region has customised problem-solving patterns and the ability to interpret the situation. The NE part of India also has its unique perception of the problem. These unique perceptions bring a kind of alternative view and broaden the horizon of problem-solving skills, one of the significant aspects of multiple intelligence (Huang and Rust, 2020).

Musical Intelligence

Lavin et al., (2021) mentioned that music, in its way, is a unique aspect of MI, as it develops sound awareness and understanding of rhythm. Various regions' songs have different sound and rhythm projections. Hence, exposure to local music and rhythmic elements used in local festivals and ceremonies fosters children's awareness and understanding of sound and contributes significantly to the development of musical intelligence.

Spatial intelligence

Spatial intelligence consists of engagement with local art forms and visual narratives. The young children's growing mind leans more towards visual narratives than texts. In the case of N.E., it has a rich spatial culture at the place where tales are narrated in theatres and local fairs. However, these are the diminishing art of the region that required preserving in the first place. Integrating this cultural aspect is imperative for the development of MI through family, school and society. Young children should

be encouraged and made sure to be confronted with these spatial cultures to improve their visualisation thinking (Metin Sitti, 2021).

Physical/Kinaesthetic Intelligence

The physical kinaesthetic intelligence of a region is depicted in its physically oriented activities. In the case of N.E., Participation in traditional dance, martial arts, and physical activities deeply affects bodily-motor-sensory intelligence. Emphasising kinaesthetic learning through integrating Indigenous play and cultural activities contributes significantly to developing coordination skills and controlling body movements in children, especially at a growing age (Migueles et al., 2020).

Interpersonal Intelligence

Community-based learning and peer cooperation are fundamental aspects of forming interpersonal intelligence in early childhood.

In the case of N.E., the region has a community culture, which has depicted a shift in recent times with growing urbanisation. However, specific community lifestyles and principles influence growing children's living and thinking patterns. Furthermore, encouraging communal living and participation in group activities in early childhood settings directly affects children's ability to understand, empathise, and resolve conflicts.

Interpersonal Intelligence

The capacity to comprehend and engage with people in a meaningful way is known as interpersonal intelligence. A person with strong interpersonal skills, according to Gardner's theory, is able to think critically about and make sense of other people's feelings, motives, and intentions. Culture has a significant impact on the development of interpersonal skills. In the N.E. region, Community and group well-

being are highly valued. Hence, people frequently acquire excellent interpersonal skills that are linked to harmony within the group and cooperation. Therefore, promoting self-reflection through reflective activities and mindfulness practices significantly impacts the development of interpersonal intelligence.

Spiritual/Environmental Intelligence

Spiritual intelligence is construed as the ability to understand life's deeper meaning, purpose and values. It involves the sense of interconnectedness with oneself, society and the broader universe. Every culture understands the value of life, and N.E. also brings its perspective. Hence, the regional cultural perspective on spiritual and environmental intelligence brings ethics, morality and purpose-driven behaviour.

Further, emphasising the connection to nature and incorporating Indigenous ecological knowledge contributes significantly to developing spiritual and environmental intelligence in early childhood. Teaching about nature and environmental issues prevalent in the region fosters an understanding and appreciation of the world around them in young children (Lavin et al., 2021).

Existential Intelligence

The existential theme of life has been described differently in different cultures. It has a proven impact on the perception of the brain, which influences the development of cognitive ability and critical thinking. Incorporating local philosophies and customs can guide children's contemplation of existence and identity in their formative years. Thus, in the case of the N.E. region, by embracing the region's diverse cultural aspects and unique traditions, educators and caregivers can foster an environment conducive to nurturing and utilising diverse intelligence in the early years.

Hence, it could be construed that the various aspects of the culture have influenced the multiple dimensions of MI. From the above table, an analysis has been made on how the external trio of environmental, socioeconomic, and cultural aspects influences the dimensions of MI. The same has been discussed in the coming sections. The child's cognitive development dramatically influences the development of the child's mental ability in early childhood and early childhood. This research aims to fill these gaps by providing a comprehensive analysis of how Influencing the Growth of Multiple Intelligences in Children Aged 0 to 5 Years, a focused Study in Northeastern India in India, examining both qualitative and quantitative dimensions, and offering insights into the unique challenges and opportunities faced by these external factors in multiple intelligence.

1.3 Purpose of Research

The purpose of this study is to understand and provide significant insights into the development of multiple intelligences of children aged 0 to 5 years in Northeastern India, in terms of social, cultural, and biological aspects. Some of the specific objectives that will guide the study are:

- To identify the various factors affecting the growth of different types of intelligences in children aged 0 to 5 years in Northeastern states of India.
- To explore how children in the age group of 0-5 years actively develop multiple types of intelligences.
- To offer an inception of empirical investigation in the field of multiple intentional framing of intelligence development among Indian children, especially from the underprivileged section hailing from the Northeastern context.

- To understand a paradigm that helps to nurture and give weight to the development of children and their evaluation so far reported in the literature.

Moreover, to propose a special paradigm of inclusive evaluation, involving part of the individual abilities of these children. On the other hand, regarding the evaluation of the knowledge and skills formally organized into curriculum items of the kindergartens, these measures do not tell us anything more than what we already know.

To propose a method of didactic work that leads us to assignments that engage children in their being, without imposing tasks and constructs defined by the teacher. The research is expected to result in educational policy advocacy that values children's multiple intelligences to construct an individual educational experience rather than the assembly line of the same.

Additionally, the study can form the background for policy-level action that can advocate for improving the pedagogical approaches among the private tutoring centres that shape the alternative educational spaces in the Northeastern part of India, especially Shillong.

The findings will also propose an amendment to institutions like childcare and alternative residential care facilities regarding working towards fostering multiple intelligences for young children, developing individual childcare plans, and evaluating the caregivers' response to learning children. Furthermore, the study suggests an intervention to mainstream society in general and professionals in the educational field to shape a child-friendly community following ecological systems, specifically at the micro and meso levels for better learning outcomes.

1.4 Significance of the Research

Multiple intelligences, a concept of intelligence that differentiates human cognition into different modalities such as visual, logical, naturalistic, verbal, existential, interpersonal, musical, bodily kinesthetics, and intrapersonal. Multiple intelligences are not only limited to cognitive growth but also influence social, cultural, and physical development in terms of creative, adaptive, leadership, and personality development.

As the multiple intelligence theory is a progressive feature of cognitive growth that advocates the present trend of time, these need to be fostered at a very early age of life to gradually develop a meaningful and successful professional journey. It is already established in scientific studies that fostering the concept during the vulnerable age of life could make it more innate. Not only society, but educational institutions also stress particularly the brain development stage to prepare students for the intervention of the curriculum and society.

In Stevenson's conception, 'qualities you can develop if you are in the intention can be repressed but not indefinitely distorted.' Childhood is the appropriate time to learn 'success.' (Su et al., 2023). By strongly altering educational practice, a change in the work of teaching could move toward the multiple intelligences of children; preparing the children and preparing adults to respect and understand them so that all children can achieve the best development for their ultimate good and avoid pointlessly lazy investments in society.

By shedding light on the growth of multiple intelligences in children, institutes, and especially people who have the responsibility of fostering children can change their attitude to learn to respect and understand that the growth of multiple intelligences

comes from within and that the educational process is designed to help rather than hinder a development that is as unique as they are. A better understanding of multiple intelligences is the uniqueness of every individual, thus fostering a different approach to the meaning and quality of life itself (Timmons et al., 2021).

This research bears significance because of its potential to make academic and social contributions. Findings of the research may serve as a reference source for future studies in neuroscience, neo-behaviourism, and the thoughts on the topic.

In a broader context, the recognition of multiple intelligences helps educators and society at large to make schools and society more inclusive, where every individual would be given the chance to develop to their full potential. The use of the educational framework in schools can positively affect inclusive educational policies, which call for educational facilities that will provide many opportunities to meet the different interests and needs of each individual. It may give a chance to orient and renew the didactic and educational process, which falls under the process of valuing the total development of the individual's potential.

Educators and parents can empower themselves by becoming aware of the presence of one or more intelligences inside their children and discovering the potential for the way to grow that belongs to them, facilitating their path of development in cognitive, emotional, relational, and social aspects, which allow them to grow while respecting and enhancing their potential.

This study is also significant as the field of Multiple Intelligences cannot be generalized in the Indian scenario. The Northeast of India is socially and culturally very different from other parts, particularly in regions where English is spoken and is not the medium of transactions. The findings of the study may be a catalyst for promoting

change and innovation in early childhood education policies and practices in international, regional, or school-level institutions. Following the findings of the study, society may privilege every individual's multiple intelligence approach rather than a single concept approach towards intelligence in theory and practice, both achieving and creating or improving systems geared towards enhancing certain inter- and intrapersonal abilities of girl children and young girls.

It may heighten the importance of being aware that children do not have the same intelligence and may suggest that a monolithic educational approach based on skills mandatory for future work in the name of global competitiveness and human resource development may be less effective, also in the case of terrorist groups. The findings of this study will also be of use in studies on multiple intelligences, both national and international, and will add to the growing literature on early childhood education and child development in the context of social, emotional, and creative intelligence, across diverse fields. Further, there are very few studies undertaken in the context of Northeast India regarding early childhood development.

1.5 Research Questions and Research Hypothesis

In this research, the investigator is investigating how multiple intelligences grow in children aged 0 to 5 years, including the causes and channels involved in it. The study aims to explore whether environmental or hereditary factors influence and encourage multiple intelligences in children aged 0 to 5 years. Hence, different research questions have been formulated to guide the study.

- What factors affect the growth of different types of intelligences in children aged 0 to 5 years in Northeastern states of India.

- What are the socio-cultural, economic, and environmental factors affecting the growth of multiple intelligences in children aged 0 to 5 years in Northeastern India?
- How do children in this age group actively develop different types of intelligences through their interactions and experiences?
- In what ways do underprivileged children in Northeastern India exhibit distinct patterns of intelligence development compared to their more privileged peers?
- How can understanding these factors contribute to effective strategies for nurturing multiple intelligences in early childhood education?

A statistical hypothesis of the research is formulated to examine the relationship between the two variables for testing. Hypothesis: The environment, upbringing, and education of the child aged 0-5 years will largely cause and encourage interpersonal and intrapersonal intelligence, as the creation and growth of this intelligence are greatly influenced by environmental and hereditary factors.

The environment, nurturing process, and education that a child receives at home or in society help mostly in the expression and growth of these two types of intelligence in children. However, there may not be a 100% cause-and-effect relationship between these two variables. The aim of the study is to test the hypothesis.

Hypothesis 1: There are significant socio-cultural, economic, and environmental factors that influence the growth of different types of intelligences in children aged 0 to 5 years in the Northeastern states of India.

Hypothesis 2: Children aged 0 to 5 years in the Northeastern states of India actively develop multiple types of intelligences through engagement in diverse play activities, parental involvement, and exposure to educational resources.

Hypothesis 3: Underprivileged children in the Northeastern context exhibit unique patterns of intelligence development that differ from their more privileged counterparts, influenced by access to resources and educational opportunities.

Hypothesis 4: Implementing targeted interventions that focus on nurturing multiple intelligences can lead to improved developmental outcomes for children aged 0 to 5 years, particularly in underprivileged communities in Northeastern India.

Hypothesis 5: A comprehensive understanding of the current literature on intelligence development will reveal gaps and opportunities for enhancing the evaluation methods used to assess the growth of multiple intelligences in young children.

1.6 Summary

Chapter One introduces the concept of multiple intelligences as proposed by Howard Gardner, emphasizing its relevance in early childhood development. It highlights the critical developmental stage of children aged 0 to 5 years, a period characterized by rapid cognitive, emotional, and social growth.

The chapter sets the context for the study by focusing on the unique socio-cultural and environmental factors present in the Northeastern states of India, which may influence the development of various types of intelligences in young children.

The research problem is framed around the need to understand how different factors affect the growth of multiple intelligences in early childhood. Despite the acknowledgment of multiple intelligences in educational frameworks, there is limited empirical research specific to the Northeastern region of India. This gap presents

challenges in recognizing and nurturing diverse intelligences among children, particularly those from underprivileged backgrounds.

The study aims to identify these influencing factors and their implications for child development. The significance of the study is highlighted as it aims to contribute to the field of early childhood education by providing insights into the development of multiple intelligences in a culturally rich but under-researched context.

By focusing on children from 0 to 5 years, the study seeks to inform educators, policymakers, and parents about effective practices that can enhance children's developmental outcomes. Additionally, it aims to raise awareness about the unique challenges faced by underprivileged children in Northeastern India, advocating for targeted interventions that support their growth and learning. Ultimately, this research aspires to add to the existing literature on multiple intelligences and inform future educational frameworks that are inclusive and culturally sensitive.

A diverse environment plays a pivotal role in stimulating various aspects of intelligence. Exposure to multiple experiences, including engaging activities, exploration, sensory stimulation, and interaction with caregivers and peers, promotes the development of various intelligences.

Positive and cooperative interactions with caregivers significantly impact children's cognitive development. Conversation, responsive communication, and encouragement of exploration and play foster verbal, interpersonal, and intrapersonal intelligence.

Play-based learning helps foster multiple intelligences. Activities that encourage imagination, problem-solving, creativity, and physical activity promote the

development of multiple intelligences, including spatial, bodily and motor, and logical and mathematical abilities.

Recognising and accommodating children's diverse learning styles and preferences is critical. One child may excel in verbal skills, while another may excel in spatial reasoning or musical aptitude. These individualised learning experiences support the growth of multiple intelligences.

This chapter lays a solid foundation for understanding the complexities surrounding the development of multiple intelligences in young children, setting the stage for the subsequent chapters that will delve deeper into methodology, findings, and discussions. The next chapter explore the theoretical framework on multiple intelligence of children between the age of 0-5 years.

CHAPTER – II

LITERATURE REVIEW

2.1 Introduction

The conceptual and theoretical framework provides a vertical backbone in shaping the writings so that any readers may understand the study based on educational and psychological aspects. The study consists of different theories, but the main idea of all these theories revolves around one aspect, which is to understand the growth and development of children and focus on the different types of growth led in this incredible journey.

With the findings of the study, the researchers try to see various principles and theories as a theoretical foundation for how the supports of the research help contribute to both testing and practical operations of people who can be understood. Therefore, the concept of the study is a review or testing of the theories and principles, such as the Good Enough Model, (Winnicott, 1971), neurotheology, experience-dependent primary processes, and a proposed application for children aged 0 to 5 (Newberg, & Waldman, 2006).

The theory of multiple intelligences can now be referred to as a classical theory in the study of developmental psychology. It engages multiple specialists from academic disciplines and ordinary people, reigniting passionate interest and suggesting that intelligence is not a single entity but rather a set of distinct modalities of intellectual functioning that can be rationally determined.

The present study is an attempt to shed light on an important aspect of early childhood, which is theoretically based and in line with empirical grounds and theoretical studies. The concept of multiple intelligences was first put forward and

received by scholars across the globe. The results of these studies suggest that nurturing MIs is pragmatically viable and requires specific instructions of educational strategies comprising the domains of MIs.

The development process of any study depends mainly on the research in the area, practical application and theoretical and practical innovations. The work has considered various research studies made in this context to understand the factors influencing the development of multiple intelligences in early childhood. It has been narrowed down to region-specific impact to understand the influence of these factors on the development of multiple intelligence in children aged zero to five years in the Northeast region, a significant area of study that provides unique insights into early childhood development. The study draws on Gardner's, "Frames of Mind" (1983), and other conceptual frameworks to elicit multiple intelligence of children within the age of 0-5 years development processes.

2.2 Theory of Multiple Intelligences

In his theory of multiple intelligences, Gardner (1983) postulates that there is not a single intelligence or one specific learning ability but that human beings have eight relatively independent intelligences. Gardner's theory expands rather than replaces the traditional concept of intelligence and is based on evidence that reveals that people possess a range of talents and different profiles of multiple intelligences.

The eight intelligences of Gardner's theory are: logical-mathematical, verbal-linguistic, visual-spatial, musical-rhythmic and melodic, bodily-kinesthetic, interpersonal, intrapersonal, and naturalistic. These eight multiple intelligences work together, although sometimes in competition, to represent the diversity of human thinking and information processing. Children acquire knowledge through various

intelligent activities such as play and imitation, among other things. These activities are viewed as part of the teaching process and are not separate but interconnected with one another.

The fact that children have multiple intelligences must be taken into account. It is essential that our interpretations of learning consider the findings provided by Gardner. This ensures that we focus on what students can actually learn and provide the correct help they need. Teachers must employ different teaching strategies in their classrooms, including activities that develop different intelligences, and create ways for children to develop them (Egeland, 2022; Ramesh et al., 2023).

According to Gardner, intelligence is not a monolithic structure; rather, it manifests in eight different types of intelligences. Gardner suggests that people possess all of these different intelligences but in varying proportions. The intelligences are also not hierarchical in that one is more important than the others.

In infancy, these intelligences manifest themselves mostly, but not exclusively, in nonverbal form. By the early childhood years, however, nearly all of these types have become evident, and in some societies, they begin to assume a more “culturally literate” form. Different children show different strengths or areas of ease in learning and demonstrating what they know.

Therefore, suggestions for personalized learning or assistance for children with educational issues often concern multiple intelligences. For many educators, this approach can be very satisfying because it seeks to develop those aspects of learning that have been undervalued in the past—assessing and evaluating in particular areas of learning. Working with children requires an understanding of how these intelligences manifest themselves in the various stages of early childhood. The educational

implications of the concept of multiple intelligences are both obvious and profound. In a region such as Northeastern India, cultural factors also need to be considered. Gardner likes to point out that it is more rewarding to work on one's strengths rather than on one's weaknesses; educators there need to know which ones to develop or nurture if we are to make any impact in early childhood.

However, teachers and practitioners in the educational field have critically examined this theory in relation to classroom practices of personalized learning and special education. Most practical approaches take a stance between criticism and support, with concerns over the notion of eight specific forms of intelligence and teacher workloads in the preparation of lesson content. The theory has a significant impact on development of multiple intelligence in children.

Personalized Learning: Understanding that children have different types of intelligences encourages educators and caregivers to create personalized learning experiences that cater to each child's strengths. For instance, a child with strong musical intelligence might benefit from learning through songs and rhythms.

Holistic Development: The MI theory promotes a more holistic approach to education that values various forms of intelligence, including linguistic, logical-mathematical, spatial, musical, bodily-kinesthetic, interpersonal, intrapersonal, and naturalistic. This ensures that all areas of a child's development are nurtured.

Encouragement of Diverse Skills: By recognizing multiple intelligences, caregivers can encourage children to explore a variety of activities, fostering creativity and problem-solving skills. This exploration can lead to greater self-confidence and motivation in learning.

Emotional and Social Growth: The theory emphasizes interpersonal and intrapersonal intelligences, which are crucial for emotional and social development. Activities that promote collaboration and self-reflection can help young children develop empathy and self-awareness.

Inclusive Education: MI theory supports inclusive educational practices that recognize and celebrate diversity in learning styles. This is particularly important for children with different learning needs or backgrounds, ensuring that all children have equal opportunities to succeed.

Gardner's MI theory provides a framework for researchers to explore the various dimensions of intelligence and how they manifest in early childhood. This can lead to more comprehensive studies on child development and learning.

Development of Assessment Tools: The theory can inform the creation of assessment tools that evaluate children's strengths across multiple intelligences rather than relying solely on traditional academic measures. This can lead to more accurate representations of a child's abilities.

Intervention Strategies: Research practitioners can use MI theory to develop targeted intervention strategies for children who may struggle in traditional learning environments. Understanding individual intelligences can help tailor educational approaches that enhance learning outcomes.

Policy Implications: Findings from research based on MI theory can influence educational policies and practices, advocating for curricula that incorporate diverse teaching methods and learning experiences that reflect children's varied intelligences.

Professional Development: Educators and practitioners can benefit from training programs based on MI theory, which can enhance their understanding of child development and improve their teaching strategies to accommodate different learning styles.

In summary, Gardner's Theory of Multiple Intelligences significantly impacts both the development of young children and the practices of research practitioners by promoting a more inclusive, personalized, and holistic approach to education. This theory encourages recognizing and nurturing the diverse talents and abilities of children, ultimately leading to better educational outcomes and personal growth.

2.2.1 Development Stages in Early Childhood

The early childhood phase is marked by rapid brain development that lays down the foundation for the development of different types of intelligences. This phase is marked by intellectual, cognitive, social, emotional, and motor development. These domains are interconnected, as are the intelligences.

Cognitive development involves the acquisition of knowledge, learning, logical and mathematical thinking, and problem-solving abilities. Physical development involves growth in body size, skeleton, and musculature. Social-emotional development happens through relationships, emotions, and the development of personalities, behavior, feelings, learning values, and morals. Early childhood is a time to be creative and curious, to try things out, and develop a passion for learning (Chawla, 2024).

The trend suggests that as children get older, their early experiences increasingly contribute to structuring the developmental trajectories in these various domains and interconnections across them. The association between age and the

percentage of experiencing developmental milestones with the emergence of intelligences justifies the theory. It indicates that cognitive, physical, and social-emotional representations of intelligences emerge through tested developmental milestones. It will be beneficial for teachers and caregivers while nurturing children with extra potential, as specific intelligences are of their more likely interests and needs.

This finding also highlights the importance of early childhood care and development for the age group of 0 to 5, which is required for harnessing and promoting these intelligences. Furthermore, it is noted that the cultural milieu has some influence on the speedy development of these intelligences. Observations indicate that both the development of musical-rhythmic intelligence and value system tiers 1 and 2 emerge later and are age-adjusted in comparison to proposed ages for the emergence of the same (Rochat, 2024),

2.2.2 Development of Multiple Intelligences in Early Childhood

Gardner's multiple intelligence theory has undergone a phase of analysis, criticism, and evolution based on its scarcity of evidence to support it. However, recent research has not only revamped the theory but also paved the way for a fresh discussion on multiple intelligences and the factors that influence their development, especially in early childhood. This recent research has revitalised the theory, providing new insights and perspectives.

According to Sunan et al., (2017), Early childhood constitutes a crucial phase in human life, laying the groundwork for subsequent physical, intellectual, social, and personality development. The influence of parental upbringing and early experiences significantly shapes a child's future. During this formative period, children absorb knowledge rapidly through sensory stimulation via play (such as building blocks, role-

playing, etc.) and interactions with caregivers and their environment. This stimulation plays a pivotal role in the extensive growth of neural connections in their brains. Proper guidance during these early years is fundamental, enabling children to develop positive attitudes and logical thinking skills. Failure to receive adequate guidance during this critical period may impede their learning abilities or hinder their overall learning capacity.

There has been a global acceptance of the importance of early childhood intelligence development, which has been mentioned in their Child development program and education policies in recent years. New Zealand has demonstrated a growing interest in nurturing children, as the Department of Local Administration indicated in 2006. Thailand, in line with its B.E. 2542 National Education Act, emphasises the importance of early childhood education by stipulating the organisation of early education facilities in specialised settings such as care childcare centres, child development centres, and centres tailored for religious or disabled children. The overarching objective is to ensure comprehensive development for all children before they embark on formal education. Central to this goal are tailored activities catering to each child's unique potential, fostering individualised development through child-centred learning approaches.

Due to these considerations, the focus within educational spheres has shifted from merely fostering intellectual growth among students to cultivating a more comprehensive and diverse range of intelligences. A prominent concept in student development is Howard Gardner's Multiple Intelligences Theory, designed to enhance students' capabilities across various dimensions by recognising their distinct potentials.

Gardner, a psychologist and educator, developed this theory based on his conviction that intelligence is a blend of biological predisposition and environmental factors, shaping an individual's reservoir of ideas. According to Gardner, individuals possess multiple facets of intelligence, which may manifest explicitly or in latent forms.

Moreover, fostering individual potentials tailored to each person can enhance several intellectual facets. The overarching objective is to ensure comprehensive development for all children before they embark on formal education. Central to this goal are tailored activities catering to each child's unique potential, fostering individualised development through child-centred learning approaches, and highlighting the importance of individualised learning in early childhood education.

2.2.3 Multiple Intelligence Development

According to Andima et al., (2021), cognitive development is fundamental for children to understand their surroundings, solve problems and think critically. Children go through processes of intentionality, perception, interpretation, classification, and concept creation in early childhood to better understand the situation. The intelligence concept theory has mainly emphasised the cognitive development of the human mind for more efficient critical thinking. The MI theory also considers cognitive development one of the significant aspects of intelligence.

Perception, memory, attention, language learning, and problem-solving abilities indicate essential cognitive functions that develop and evolve along each stage of cognitive development. According to Gardner, these processes are the foundation for creating and displaying multiple intelligences.

Furthermore, the theories of multiple intelligences and cognitive development acknowledge that cognitive abilities change along a developmental course over time.

Different cognitive capacities are associated with each stage of cognitive growth from infancy to maturity, as described by theories of cognitive development like those put forth by Piaget (1952) and Vygotsky (1978). Similarly, Gardner's theory postulates that people may display and develop many intelligences during different phases of their lives, depending on a range of circumstances, including biological maturation, upbringing, and educational chances.

Andima et al., (2021) stated that the dimensions of MI correspond to the many cognitive capacities and developmental paths outlined in theories of mental development, reflecting various methods of information processing and problem-solving. Teachers may provide inclusive, individualised learning environments that promote holistic intellectual growth and academic performance by identifying and fostering multiple intelligences.

Blumenfeld-Jones (2013) further emphasised the development of Multiple intelligences as the means for children's cognitive ability development. However, certain characteristics of cognitive development are present in children aged 3 to 6 years. The researcher has summarised the mental development of the children in the following aspects namely:

- The child's thinking is mainly influenced by its perception of the environment.
- The child exhibits self-centred thinking, making their viewpoints from their perspectives.
- They lack essential logical thinking, which develops based on their surroundings.

- Learning impacts critical thinking and requires direct, concrete experiences, play, activities, and essential environments.

From the above analysis of cognitive development, it could be construed that the dimension of multiple intelligence is aligned with mental development. The development of multiple intelligences in early childhood is intricately related to the type and style of parenting exhibited by caregivers; El-Sabagh (2021) highlighted a significant positive relationship between the quality of parenting and children's overall development, suggesting that the way parents interact with their children profoundly affects their cognitive development.

The study also indicates that parents' interaction with their children has a profound impact on their children's mental development. In addition, Huang et al. (2019) emphasise the importance of valuing the uniqueness of each child as the essence of multiple intelligences. This idea is also supported by Huang and Rust (2020), who emphasise the importance of recognising and meeting the unique needs of each child; as Lavin et al. (2021) point out, parents play a pivotal role in this process. He argues that the task of parents is to identify and nurture each child's unique abilities to ensure optimal development.

The influence of external factors such as surroundings, environment, socioeconomic status, and culture further shapes a child's multiple intelligence development. Hassan et al. (2019) suggest that a child's development begins within the family system and that intrafamily dynamics and experiences significantly influence cognitive growth. In addition, the broader social-environmental context also plays an important role.

Huang et al., (2019) stated that children who grow up in enriched environments with diverse stimulation and exploration opportunities tend to exhibit more robust cognitive development. Socioeconomic factors also play an essential role, and children from disadvantaged backgrounds often face barriers to accessing resources and experiences that promote cognitive growth.

According to Lavin et al., (2021), cultural influences are equally important, as cultural practices and norms shape the types of experiences and opportunities available to children. Cultural diversity enriches children's experiences and perspectives and contributes to developing multiple intelligences. Thus, the variety of experiences and guidance parents provide in the context of their surroundings, socioeconomic status, and culture comprehensively influence the development of multiple intelligences in children. Understanding these influences is critical to effectively support children's cognitive growth and maximise their potential across diverse intelligence domains.

Multiple intelligences have been developed by the child in early childhood, preparing clear paths in the cognitive as well as emotional development of any person. Although there are traditional concepts about early childhood, it is proven by critical studies that early childhood, which covers all ages from birth to 5 years, is one of the critical times in shaping personality, learning behaviours, and learning abilities.

Children's basic skills and abilities evolve, and maturity in many areas is acquired. Recognition is accepted with different qualities that each child can acquire. The basic differences between individuals are formulated in the intelligences mentioned, and this study covers the acquisition and development of multiple intelligence areas of children between the ages of 0 and 5 years.

At all stages of cognitive development, children's natural approach can be expressed in terms of early education philosophy. Cognitive development briefly refers to the acquisition and integration of knowledge and ability. It can be associated with the various changes that occur in the intellectual, mental, and emotional structures of children in the acquisition, evaluation, and change of new knowledge, behaviors, attitudes, values, and skills. Emotional development is the advance in emotional life shaped by the natural dynamics of every human being that covers the whole life. It is framed to add concepts like emotions, emotional life, and positive or negative emotions to the many expressions of it.

2.2.4 Cognitive Development

Skinner (1953) defines children's cognitive development as an evolving change in a child's general ability to learn, to perceive, to have imaginative play, to remember, and to problem-solve that is distinct from the formation of specific content knowledge.

Piaget (1952) defines it as a refinement in mental functioning over a lifetime, one that occurs for people worldwide. In this definition, people have a natural capacity to learn from basic sensorimotor experiences of infancy through increasingly complex interactions with and thoughts about the world. These definitions highlight the fourth aspect of cognitive development: capacity for learning.

In the theoretical framework of multiple intelligences, where a child's intellectual competence needs to be nurtured in an environment that is conducive to the unfolding of the child's potential, development in this area may be a critical prerequisite for the development of other intelligences.

Children acquire cognitive development from repeated sensorimotor experiences with the environment that surrounds them. The child passes several

cognitive stages like sensorimotor, preoperational, concrete operational, and formal operational. During the sensorimotor stage, the toddler learns through trial and error, sensory experience, and the development of object permanence.

Hence, in the process of making meaning of the environment, logical-mathematical, spatial, naturalist, and anthropic intelligences are also connected to the cognitive growth and abilities of the children. Children's learning is influenced not only by heredity and family but also by educational settings and the intent of the adults and by classmates. That is the environment where the child is placed after birth, and where he or she discovers paths for venturing into various kinds of intelligence. The more the environment becomes conducive by providing opportunities for the child's natural development, the more the intelligences are fostered.

Hence, it is important for the adults to recognize their potential and to create an environment of learning that is fun, inviting, imaginative, and challenging, where they can be curious and use critical thinking.

2.2.5 Emotional Development

Emotions are very important in shaping the multiple intelligences in children. The emotional development of children should be seen as of equal significance to the development and maturation of their thinking and reasoning, social, and physical abilities accompanying them.

Children’s emotional skills to display empathy, maintain interest in a particular activity, pay attention, understand self and others, and self-regulation with emotions are also very pronounced in their ongoing interactions with others whom they are trying to understand and learn from.

The interplay between emotional and cognitive development denotes a movement towards thinking from an affective mode. Likewise, feeling is also important in the developmental aspects of thinking and understanding. In this way, the development of thinking and emotions is intricately associated. Individuals who are capable of self-regulation develop empathy, possess higher knowledge of emotions and one's strengths and limitations, and are better in problem-solving.

Research indicates that children growing up in environments where low warmth and responsive relationships exist are more likely to possess minimal social competence. Love and emotional support play a very significant role in ensuring that children display consistent, positive, and friendly behaviors and approach activities with enthusiasm and joy.

A close, personal relationship, where there is affection, warmth, and concern for the other, promotes the development of the child's inner growth. The relationships the child develops with their parents, caregivers, peers, and teachers set the foundation for their personality traits such as self-esteem, resilience, empathy, sense of responsibility, and fairness and justice.

The demonstrative ways in which the parent, caregiver, and educator respond to the child's needs, capabilities, and limitations affect the personal and academic growth of the child. Children living in the midst of violence, oppressive conditions, deprivation, and discrimination seldom flourish to be complete in all spheres of life.

Hence, the preschool years should focus, with all intensity and inclusiveness, on promoting the growth and development of the five multiples and the ability to develop a warm, affectionate relationship. The early enactment of love and respect is

ultimately what counts in education. This criterion of education obtains an authentic dimension only through the concept of multiple intelligences.

2.3 Theoretical Perspective (Folk Psychology)

Native intelligence theories, also known as folk psychology, Hirsch, (1982) pre-Darwinian psychology, and Lamarckian evolution theories, are based on pre-Enlightenment views of the human mind, personality, and intelligence that precede contemporary biological, psychological, and social science concepts.

These folk theories regard intelligence as a single, abundant trait, and their concepts focus on identifying general intelligence and operationalizing intelligence quotients to compare individual differences. Conceptions include the belief that intelligence is inherent within individuals at birth or in early childhood, constant over time, genetically predetermined, and strongly influences learning and success in school and life. Intelligence originates in a spiritual or supernatural intelligence entity or in some unidentified form of nature instead of a complex, evolved brain (Sternberg, 2021).

Uncommon intelligence beliefs, in contrast to native intelligence mindsets, are not articulated as formal theories; knowledge has been developed from research to identify intelligence development, diversity, and psychological health, primarily of individuals who had not been evaluated using intelligence tests. Researchers have been adding extensive reports on children with unique gifts and advanced development to scholarly literature in multiple disciplines to substantiate and enrich our knowledge about intelligence and human capacity (Nuraida et al., 2022).

Parent surveys have located these children as well as identified, described, and occasionally tested their unique and advanced abilities in virtually every conceivable field of human experience: art, business, creativity, dance, empathy, entrepreneurship,

science, leadership, Lego construction, management, magical design, mechanical engineering, memorization, spatial skills, music, organizational skills, photography, psychic reading, problem solving, psychic powers, reading, salesmanship, screenwriting, sculpture, sound engineering, sports, storytelling, and writing (Lunga et al., 2022).

Research is showing the importance of early education for the holistic development of a child. Task-based learning, without the traditional examination-based assessment that has numerous disadvantages in the teaching-learning process of young children today, plays a vital role in continuous development in children. In light of these facts, this connection promotes the theory of multiple intelligences (Rodiah et al., 2024).

2.4 Factors Influencing Multiple Intelligence Growth in Early childhood

It is important to identify the factors that are associated with the growth of naturally distributed human intelligence in multiple patterns in early childhood. One of the primary factors contributing to the development of artificially modified natural processes is involvement and the influence of the child's environment. Consistent with this broad environmental influence, parental involvement through encouragement or nurturance provides for the normal distribution and the supported growth of it. The parental role has to be further highlighted or investigated for its role in boosting the growth of multiple intelligences during early years. Additionally, schooling as an environment is very influential in the lives of these young children, and this protracted educational environment results in greater growth via appropriate academic and co-curricular activities or other influences.

Educators with good theoretical perspectives provide constructive experiences that are conducive to the broader intelligence influences of the child, especially the different profiles of how intelligence is distributed. Schools and educators infused with the vision of diverse intelligence influences of children.

In a cultural context, the profile of intelligences may also reflect the culturally aspired, absorbed, or cultivated profile of skills, competencies, or mental points which are perceived as value-defining for these growing individuals. If, for the region under study, a particular locally desired and culturally valued community expectation is identified regarding the efficacy of such criteria, the relevant information may be used to channel and focus the need and help in promoting such values.

In a nutshell, diversity is omnipresent in human society, and it needs a wider approach to encompass all elements of the life world to achieve success in enhancing either (a) the awareness in the individual or (b) the overall developmental thrust in the personality of the individual. Therefore, the collaboration between home and school according to expectations is required, acknowledging that similar syntheses are desirable between life, learning, and efforts among the people associated with and known in this study area. In modern society, where human capital is a cherished resource, sustained progress of any sort may require and hinge upon the spread of higher performance of deeper empowering capabilities in the most efficient and effective manner. As such, the neural-cognitive issue is complemented by the economic issue of breaking through the critical amount of baseline skill level, especially in an underprivileged last-mile society such as the one under concern, to provide maximum gains with minimum mechanistic investments.

Furthermore, we also argue that since such data are currently unavailable, abiding by the widely promoted null intelligence growth models in the face of educational indigenous psychological imperatives may not be the most equitable spirit for society on any account.

Ramos-Sánchez et al., (2021) stated that there has been various research on the factors influencing multiple intelligence development. Many of these factors have been considered genetic, nutritional, and biological factors contributing to the development of multiple intelligences.

However, Rasheed and Wahid (2021) have considered mainly physiological factors that impact the development of Multiple intelligences. The main reason for doing so is that the research aims to provide insight into the development of the pre-primary school curriculum and understand the activities that influence the development of multiple intelligences. As the research has considered the Northeast region specifically thence, the geographical and cultural factors have also been considered to create a theoretical framework that could be applied in the pre-primary schools of these regions accordingly.

On reviewing the papers on intelligence development over the years, one of the apparent common themes that has emerged has been the concept of "Learning through Experience". The idea reflects the concept of Dewey's "Learning by Doing'', which asserts that direct experiences, such as observation and problem-solving, enhance children's learning. Active engagement in activities fosters aesthetic judgment, forming a foundation for intellectual growth in children. In the context of observation, it could be construed that the outer environment, parents, school, and friends are the main factors impacting children's development of multiple intelligences.

Further, Dori, Ruetsche, and Schubiger (2018), indicated that children's cognitive development is very much impacted by the physical environment of their upbringing. In an experiment by the researchers, they used standardised tests and observation methodology to measure spatial intelligence among children aged 4 to 6 years. The children selected for participation were distinctively from urban and rural settings. The study evaluated children's spatial intelligence using standardised tests before and after a six-month intervention that added outdoor play sessions to one group's curriculum while keeping the other group's curriculum the same inside.

The findings demonstrated that children's spatial intelligence significantly improved when they played outside, with the advantages being more pronounced in rural locations with more access to natural surroundings. Gains were even seen in urban youngsters, though to a lesser degree, demonstrating the beneficial effects of outdoor play on the development of spatial intelligence.

Environmental factors impacting cognitive development

Children's cognitive development is greatly influenced by their environment, especially in the early years of life. Rasheed and Wahid's (2021) studies emphasise the importance of early experiences and the calibre of environmental cues in forming cognitive capacities. Early childhood cognitive development is greatly aided by rich learning settings, defined by engaging and adaptable interactions. These good experiences—such as supportive carers and educational opportunities—are linked to improved cognitive abilities in later life.

On the other hand, it has been demonstrated that unfavourable early experiences negatively impact cognitive development. Schwendicke, Samek, and Krois (2020) have conducted extensive research to establish the long-term effects on cognitive

functioning of unfavourable events, such as abuse, neglect, or dysfunction in the home. These adverse events can damage cognitive capacities and disturb brain development, resulting in learning difficulties or cognitive deficiencies in those impacted.

Moreover, according to Shahzada et al. (2021), there is evidence of the impact of cultural differences and educational approaches on cognitive capacities—the variety of environmental circumstances and their impact on mental development. Spector and Ma, 2019) stated that cultural practices, educational strategies, and societal standards greatly influence Children's cognitive experiences. For example, differences in learning methodologies, teaching methods, or educational systems in various cultural contexts may affect how particular cognitive talents are developed.

Hence, Comprehending the complex impacts of the surroundings on cognitive growth highlights the need to furnish youngsters with stimulating, caring, and encouraging situations. Early childhood cognitive development is greatly aided by positive environmental impacts, defined by abundant learning opportunities, attentive caring, and culturally meaningful experiences. On the other hand, unfavourable environmental circumstances can impede cognitive development, emphasising the vital role that supportive settings play in fostering children's healthy mental development.

Socioeconomic, cultural, and familial influences on intelligence

Teeuw et al., (2019) stated that a child's cognitive development is mainly predisposed by family dynamics, cultural background, and socioeconomic position (SES). Studies abound, and Trim and Lee (2018) are just one of several that steadily establish the relationship between enhanced cognitive results and better SES. Furthermore, as a study by Winarti, Yuanita, and Nur (2019) validates, cultural background influences cognitive development through various norms, practices, and

beliefs. Furthermore, as research by Wulansari et al., (2022) has shown, familial elements—such as parenting practices and living measures—are critical in development or impede a child's cognitive development.

Early childhood education and cognitive stimulation

Formative development enhancement is based on the domains of cognitive stimulation and early childhood education. Andima et al., (2021) emphasised the essential effects of structured learning environments and cognitive stimulation on a child's cognitive development. Children's cognitive abilities are significantly enhanced When they participate in age-appropriate educational activities and interactive learning experiences.

Furthermore, studies consistently demonstrate that early childhood education programmes support academic readiness and long-term cognitive advantages. Although the benefits of early education are widely acknowledged, opinions differ about the most effective teaching techniques and their influence on long-term cognitive development.

The Impact of Nutrition on Cognitive Development

In recent years, nutrition has evolved as one of the determinants of cognitive development. Several studies have been conducted on the impact of nutrition, cognitive development, and MI, specifically on designing meal and pre-primary school meal plans. Blumenfeld-Jones's (2013) study has highlighted the widespread impact of undernutrition on children's growth and cognitive abilities, particularly in rural areas.

Dori, Ruetsche and Schubiger (2018) stated that there is consensus among researchers that there is a profound correlation between nutritional status and cognitive function in early childhood. However, challenges remain in implementing

comprehensive strategies to effectively address nutritional deficiencies, especially in economically disadvantaged areas. Disagreements have arisen regarding the prioritisation of dietary interventions and their integration with broader socioeconomic initiatives aimed at improving the overall well-being of children.

Importance of Social and Emotional Development in Optimizing Intelligence

El-Sabagh (2021) has stated that there is a complex link between social and emotional well-being and cognitive growth in early childhood. A secure emotional environment is essential and delivers the foundation for the child's holistic development. The researcher has various viewpoints but agrees that multiple social factors enhance and influence emotions and skills.

Hence, there is a need to develop the socio-emotional aspect of the children in the context of cognitive and MI development. Researchers believe these multi-channel developments begin from family, society, and the population. Some researchers have emphasised the need for broader community effort, while others have emphasised the family.

However, conflicting views exist on the most effective ways to promote social-emotional development. Some researchers emphasise the position of early intervention and a supportive home environment. In contrast, others emphasise the need for a broad range of community-based efforts to enhance children's emotional resilience.

2.6 Empirical Theory of Multiple Intelligences

Howard Gardner's theory of multiple intelligences (MI) has contributed significantly to the field by proposing a more diverse and multifaceted understanding of human cognitive abilities. Published in 1983, Gardner's theory has sparked much debate and research on the nature of intelligence and its application to various fields. It

has been considered the foundation for developing various MI theories in the coming years.

Studies by Huang and Rust (2020) have explored how Gardner's MI theory is a foundational framework for understanding and cultivating individuals' diverse talents and abilities. For example, educators are finding applications of MI theory in designing more inclusive and effective teaching methods.

By acknowledging and incorporating different intelligences into lesson plans, educators can accommodate different learning styles and foster a more inclusive and personalised educational experience for students.

In addition, MI theory has influenced fields outside of education, such as psychology, neuroscience, and organisational development; Lavin et al. (2021) build on Gardner's theory by investigating brain functions associated with different intelligences and exploring the neural correlates and psychological processes underlying verbal, spatial, or interpersonal abilities.

The work of González-Treviño et al., (2020) also highlights the relevance of MI theory in the identification and development of talent. Recognising and nurturing diverse intelligence can better direct individuals to occupations and activities aligned with their strengths and interests. This approach has implications for career counselling, human resource management, and personal development strategies.

However, the scientific community has always been critical of Gardner's MI theory. One major criticism is that the development of MI theory lacks sufficient empirical evidence. Further, Huang and Rust (2020) highlight the overlap between different types of abilities and question the empirical evidence supporting the proposed individualised nature of intelligence. The researchers further argue that the perception

of multiple intelligences lacks strong empirical validation and standardised assessment methods.

2.7 Summary

Despite advances in understanding intelligence through various theoretical frameworks, such as “Howard Gardner's multiple intelligence (MI) theory”, a research gap remains regarding the development of comprehensive intelligence theories specifically for the early stages of child development. Existing theories contribute significantly to our understanding of intelligence but often focus on specific aspects or types of intelligence and do not provide a comprehensive framework that addresses the diverse cognitive abilities critical to children's optimal development during the preparatory years. As a result, research has highlighted the following gaps.

There is a lack of awareness and understanding of intelligence theories specifically designed for early childhood development, a critical research gap in northeastern India. Given the need for a comprehensive intelligence theory that considers this region's unique requirements, knowledge of theories that skilfully address these special needs is scarce.

Inadequate Understanding of Regional Influencing Factors is another vital research gap related to an inadequate understanding of multifaceted factors, including cultural, social, economic, and environmental influences, which significantly affect children's intelligence development in the foundation years in northeast India. The inadequate understanding of these influential factors poses a challenge in effectively optimising early childhood development.

scarcity of evidence-based strategies that address different contexts. In addition, a notable research gap is the scarcity of evidence-based strategies and interventions

specifically tailored to address the unique contexts and challenges prevalent in northeast India. While the importance of strengthening early development is recognised, practical, context-specific, and skilfully implemented strategies are lacking.

2.8 Conclusions

The chapter explored the theoretical perspectives on multiple intelligence advocating work by Howard Gardner's Theory of Multiple Intelligences (MI) that has fundamentally transformed our understanding of intelligence, moving beyond the traditional view that intelligence is a single, quantifiable entity typically measured by IQ tests. Instead, Gardner proposes that individuals possess a range of intelligences, each representing different ways of processing information and interacting with the world. This theory has significant implications for education, psychology, and our broader understanding of human potential.

Gardner identifies at least eight distinct intelligences—linguistic, logical-mathematical, spatial, musical, bodily-kinesthetic, interpersonal, intrapersonal, and naturalistic. This framework acknowledges that individuals have unique combinations of these intelligences, leading to varied strengths and capabilities. The recognition of multiple intelligences allows for a more inclusive understanding of human abilities, accommodating diverse learning styles and preferences.

The MI theory challenges traditional educational practices that often prioritize linguistic and logical-mathematical intelligences. It advocates for differentiated instruction that caters to the various intelligences present in a classroom. Educators are encouraged to design curricula that foster all types of intelligences, thereby promoting

a more holistic approach to learning. This can lead to greater engagement, motivation, and success among students who may struggle in conventional learning environments.

By recognizing multiple intelligences, educators and caregivers can create personalized learning experiences that align with each child's strengths. This individualized approach not only enhances learning outcomes but also builds self-esteem and confidence in children as they engage in activities that resonate with their innate abilities.

Gardner's theory also emphasizes the cultural context of intelligence. Different cultures may value different intelligences based on their social norms and practices. This perspective encourages educators to be culturally responsive and to recognize the diverse backgrounds of their students when fostering intelligence development.

While the MI theory has been widely influential, it is not without its critiques. Some scholars argue that the intelligences identified by Gardner may overlap or that the theory lacks empirical validation through standardized measures. Additionally, the practical implementation of MI in educational settings can be challenging due to constraints such as curriculum standards and resource availability.

In conclusion, Gardner's Theory of Multiple Intelligences offers a comprehensive framework for understanding the complexity of human intelligence. By recognizing and valuing diverse forms of intelligence, the theory promotes a more inclusive approach to education and personal development. While challenges remain in its application and empirical support, the impact of MI on educational practices and our understanding of human capabilities is profound and continues to inspire further research and exploration in the fields of psychology and education.To summarise, the development of MI in early childhood is mainly influenced by three external factors:

environment, socioeconomic aspects and culture. However, there has been no established theory to conceptualise the impact of external factors on the development of MI.

Therefore, there is a need to develop a comprehensive framework to understand the implications of these region-specific factors on the development of MI in children and how these factors could be structured or perceived so that a holistic multiple intelligence of a child could be achieved. The next chapter three posits the research methodology and research design, and how data will be collected to examine the factors that influence multiple intelligence of children between the age of 0-5 years in India.

CHAPTER – III

RESEARCH METHODOLOGY

3.1 Overview of the Research Problem

In this chapter, the research methodology and strict standards used to examine the factors influencing the development of various intelligences in children from northeastern India, ranging from 0 to 5 years old, are described. Detailed in this chapter are the study questions, populations, sampling procedures, data-gathering instruments, and analytic frameworks that were used to investigate the complex interplay between demographic, socioeconomic, and cultural factors in the formative years of children.

Using quantitative and qualitative data, the study paints a thorough picture of how children's intelligence develops during those formative years. It's a mixed-methods approach. The chapter highlights the research's inherent limitations and ethical considerations, keeping the investigation open and rigorous. The unique cultural and geographical setting of northeastern India is the focus of this approach, which aims to shed light on the factors that shape early intelligence development.

The significant emphasis that will be laid in the proposal is the measurement and analysis of the rapid or slow growth of these forms of intelligence, that is, Multiple Intelligences, in young children. This involves measuring all the nine constructs of intelligence mentioned above using indicators for each intelligence.

The indicators for measuring Multiple Intelligences in young children will be finalized after gathering preliminary data and classifying and defining statements of these intelligences. Although the indicators for measuring young children's Multiple Intelligences have been listed, indicators for some constructs are not verified and

finalized, as it is proposed to finalize them only after the collection of primary data for the same.

The quantitative state of the data would provide an institutional authority where more accurate results can be computed. The qualitative state of the data's strategy or design would allow for gaining deep insights that could be very helpful in reinforcing the evolution of the relationships and strategies between the school and the community, thus focusing on the community development aspect, which is an ongoing process. Both methods applied to the research objective will be advantageous for fulfilling respective tasks (Liang et al., 2023).

Using both methods will help in triangulating the data. It would provide diversity in studying the different forms of intelligence, including Multiple Intelligences, thus preparing a detailed methodology capable of channelling the specifics of each one of them in the developmental processes of young children. The mixed methodology would facilitate studying certain specific criteria of children's evaluation, either cognitive or non-cognitive evaluation.

This will provide a complete developmental perspective regarding the application of evaluation criteria and thus training their procedural approach. It was observed that for the study of intelligence and its various forms, particularly developmental intelligence from 0 to 5 years, a diversified research methodology will help in considering the multi-layered, multi-faceted, and multi-lateral clarity of data, data collection, and research information from urban and rural areas (Zhai et al., 2021; Osterhaus & Koerber, 2021)

3.2 Operationalization of Research Constructs

The theoretical framework provides a vertical backbone in shaping the writings so that any readers may understand the study based on educational and psychological aspects. The study consists of different theories, but the main idea of all these theories revolves around one aspect, which is to understand the growth and development of children and focus on the different types of growth led in this incredible journey.

With the findings of the study, the researchers try to see various principles and theories as a theoretical foundation for how the supports of the research help contribute to both testing and practical operations of people who can be understood.

The theory of multiple intelligences can now be referred to as a classical theory in the study of developmental psychology. It engages multiple specialists from academic disciplines and ordinary people, reigniting passionate interest and suggesting that intelligence is not a single entity but rather a set of distinct modalities of intellectual functioning that can be rationally determined.

The present study is an attempt to shed light on an important aspect of early childhood, which is theoretically based and in line with empirical grounds and theoretical studies. The concept of multiple intelligences was first put forward and received by scholars across the globe. The results of these studies suggest that nurturing MIs is pragmatically viable and requires specific instructions of educational strategies comprising the domains of MIs. The method of data collection used for the construct of multiple intelligences is as follows: case study, interview and open question, questionnaire, cognitive ability test, and observation (Priya, 2021).

Some of the strategies used for assessing multiple intelligences refer to naturalistic contexts and practices. It would provide a vast scope to work with the results of the tests and also the ability to compare different levels of intelligence. There are some educators who believe that we should use a natural assessment to observe child

learning in all domains in order to understand differences in learning styles and to differentiate instruction in the classroom. In short, it can be said that MI considers the other dimensions of intelligence to result in variations of intelligence (Rasheed & Wahid, 2021).

3.3 Research Purpose and Questions

The study aims to explore whether environmental or hereditary factors influence and encourage multiple intelligences in children aged 0 to 5 years. Hence, different research questions have been formulated to guide the study.

- What factors affect the growth of different types of intelligences in children aged 0 to 5 years in Northeastern states of India.
- What are the socio-cultural, economic, and environmental factors affecting the growth of multiple intelligences in children aged 0 to 5 years in Northeastern India?
- How do children in this age group actively develop different types of intelligences through their interactions and experiences?
- In what ways do underprivileged children in Northeastern India exhibit distinct patterns of intelligence development compared to their more privileged peers?
- How can understanding these factors contribute to effective strategies for nurturing multiple intelligences in early childhood education?

A statistical hypothesis of the research is formulated to examine the relationship between the two variables for testing. Hypothesis: The environment, upbringing, and education of the child aged 0-5 years will largely cause and encourage interpersonal

and intrapersonal intelligence, as the creation and growth of this intelligence are greatly influenced by environmental and hereditary factors.

The environment, nurturing process, and education that a child receives at home or in society help mostly in the expression and growth of these two types of intelligence in children. However, there may not be a 100% cause-and-effect relationship between these two variables. The aim of the study is to test the hypothesis.

Hypothesis 1: There are significant socio-cultural, economic, and environmental factors that influence the growth of different types of intelligences in children aged 0 to 5 years in the Northeastern states of India.

Hypothesis 2: Children aged 0 to 5 years in the Northeastern states of India actively develop multiple types of intelligences through engagement in diverse play activities, parental involvement, and exposure to educational resources.

Hypothesis 3: Underprivileged children in the Northeastern context exhibit unique patterns of intelligence development that differ from their more privileged counterparts, influenced by access to resources and educational opportunities.

Hypothesis 4: Implementing targeted interventions that focus on nurturing multiple intelligences can lead to improved developmental outcomes for children aged 0 to 5 years, particularly in underprivileged communities in Northeastern India.

Hypothesis 5: A comprehensive understanding of the current literature on intelligence development will reveal gaps and opportunities for enhancing the evaluation methods used to assess the growth of multiple intelligences in young children.

3.4 Research Design

The study utilised a mixed-methods strategy to comprehensively investigate the factors influencing the development of several intelligences in early newborns. This method enabled a comprehensive knowledge of the issue by integrating quantitative and qualitative data.

The quantitative component focused on collecting and analysing measurable data related to intelligence scores and demographic variables. At the same time, the qualitative aspect examined the in-depth perspectives of parents, carers, and early childhood educators on child development and the formation of intelligence.

A systematic questionnaire was employed for the quantitative aspect, with established IQ evaluation tools specifically designed for children aged 0 to 5 years. The evaluations included several dimensions of intelligence, such as “linguistic, logical-mathematical, spatial, interpersonal, intrapersonal, musical, and bodily-kinaesthetic intelligence”. The questionnaire collected extensive demographic and familial background data, encompassing the child's age, gender, socio-economic status, parental education, and home cultural practices, in conjunction with the intelligence assessments. This systematic approach produced a comprehensive dataset to clarify the impact of these influences on the early development of various intelligences in children from northeastern India (Novotny et al., 2021).

Participants in the focus groups and semi-structured interviews included parents, caregivers, and educators of young children. These strategies were used to elucidate the participants' real-life perspectives and experiences with the maturation of children's multiple intelligences.

Data will be collected from the target participants in different socio-economic, demographic, and cultural settings. Criteria for participants and wording for data collection tools and data analysis will be established. A sample will be taken from tribal and non-tribal children aged between 0 to 5 years in three settings. The population in the present study will cover children within both lower and middle age groups, focusing on their verbal expression of daily activities. The personality culture within people from developing regions is possibly mature in different environments and provides a basis for future research consultation to compare and learn (Dutta, 2022).

Participants are required to fulfil the requirement of a parent or guardian who must take their child to the daycare setup. The researcher will observe participants' nonverbal and verbal interacting behaviours for informal interaction and fun game-based activities.

Relevant instruments and techniques for data analysis can be carefully designed through interviews, psychological tests, observations, journals, case studies, document reviews, snowball sampling, oral traditions, focus groups, histories, narratives, correlational inquiries, and notes/memoranda (Martín-Raugh et al., 2023).

Topics covered in the interviews and focus groups included parenting styles, techniques for children's growth, the effects of society and culture on parents, and the difficulties of making the most of children's formative years. The qualitative data augmented the statistical findings by offering contextual depth and insights into the unique cultural and social landscapes of North-eastern India.

3.4.1 Quantitative vs. Qualitative Approaches

The questionnaire, interview schedule, and observation schedule consist of specific methodologies that may enable qualitative or quantitative data collection. In

general, quantitative research is assumed to result in the deduction of the research outcomes from the statistically processed data.

Quantitative data collection methodologies can include standardized test formats, surveys, and controlled experiments in which extraneous variables have been tightly manipulated. The greatest strength of this approach is that it generates data that can be measured numerically. It may then be possible to interpret the outcome mathematically, which makes its interpretation objective.

However, one obvious limitation is that the data received is cold and impersonal, and it often excludes the richness of context and indicates a lack of depth of understanding. The qualitative data are descriptive data that cannot be measured in terms of quantity, frequency, amount, or intensity.

In this study, the use of qualitative data will be employed to understand specific contexts, situations, and cultures with rich details without the analysis of numerical, measurable, or quantifiable public information. In other words, since the contemplation of subjective knowledge is at issue, the philosophy of education must rely on qualitative research methods. Qualitative methods are used to obtain new insights into educational phenomena by offering in-depth or in situ descriptions of the findings (Hatch, 2023; Levitt, 2021).

In contrast to the way in which quantitative and qualitative research are separate research axes, for this study, a multi-method paradigms perspective is approached, which argues that any research design should include several complementary forms of research in its design. By mixing or blending a range of specifically validated methodologies, and when combined with arbitration, issues of research validity can be moderated. In order to gather the type of rich and contextual data required for a study

of the influence of cultural elements on the development of intelligence, it seems advantageous to use a combination of both quantitative and qualitative methodologies.

Data sources may be measured indirectly when it is possible and when a questionnaire, for example, is ill-suited to the task; issues may need to be explored through the use of first-hand investigation procedures. In general terms, the purpose of the qualitative approach is to produce data that will help not only to answer the research question "How are children's intelligences influenced?" but also to answer it fully, so that implications for educational practice may be drawn. The issue of how one may combine the two seems to be a useful concern (Berkeley, 2022).

This approach to multi-method paradigms may require a triangulation of data sources, as well as a triangulation of methods to validate the findings. When utilized, qualitative data are embedded across the research, as may be exemplified. For instance, if the research team used a survey to ascertain the presence of an element of the national culture at the school level prior to making an analysis of statistical data on intelligence versus national domain performance, one would observe that qualitative methods have been manifested. When not clear, the connection should be made from the work. (McDowell, 2022).

3.5 Population and Sample

The study population comprised children aged 0 to 5 years in the Northeastern region of India, along with their parents, carers, and early childhood educators. The study sought to obtain a broad representation from various socio-economic, cultural, and geographic origins to ensure a thorough knowledge of the factors influencing the development of multiple intelligences in early children. Considering North-eastern

India's geographical diversity and cultural distinctiveness, the study encompassed participants from urban and rural locales throughout the region's states.

Sampling Formula

To control the sample size, the following sampling formula was used:

$$n = \frac{Z^2 \cdot p \cdot (1-p)}{e^2}$$

Where:

n = required sample size

Z = Z-score (1.96 for a 95% confidence level)

p = estimated proportion of children expected to exhibit multiple intelligences (assumed to be 50% or 0.5, to maximise variability)

e = margin of error (5%, or 0.05)

Using the formula:

$$n = \frac{1.96^2 \cdot 0.5 \cdot (1-0.5)}{0.05^2} = \frac{3.8416 \cdot 0.25}{0.0025} = 384.16$$

To address non-response or incomplete data, the sample size was augmented to 500 individuals, guaranteeing adequate representation for the study.

Inclusion Criteria

The study encompassed children aged 0 to 5 years, as this age range signifies the initial developmental phase during which various intelligences commence formation. This pivotal phase of cognitive and emotional maturation was deemed optimal for evaluating the diverse dimensions of intelligence, including “linguistic, logical-mathematical, spatial, interpersonal, intrapersonal, musical, and bodily-

kinaesthetic intelligence". The study intended to capture the nascent stages of intelligence development by concentrating on children within this age group.

Participants were chosen from various states in North-eastern India, guaranteeing broad representation from both rural and urban environments. The geographic diversity was crucial for the study, as it facilitated the examination of how different surroundings may affect the development of several intelligences in early children.

The study aims to offer a thorough investigation of the factors influencing intelligence development in the region by incorporating children from diverse cultural and socio-economic backgrounds. Parental consent was a crucial inclusion criterion, guaranteeing that only children whose parents or guardians granted informed consent participated in the study. This ethical issue was essential in protecting the rights and privacy of the children affected.

Furthermore, early childhood educators and carers directly engaged in the children's development were incorporated into the qualitative aspect of the study. Their ideas were crucial for comprehending the influence of educational and caregiving methods on the development of young children's multiple intelligences.

Exclusion Criteria

Participants beyond the age range of 0 to 5 years were excluded from the study, as the research concentrated especially on the early developmental years when multiple intelligences commence to appear. The age restriction guaranteed the study's pertinence to the objectives, which focused on comprehending cognitive development during the formative years. Participants who submitted incomplete questionnaires or failed to

attend scheduled interviews or focus group discussions were omitted from the final analysis.

This exclusion criterion was implemented to preserve the integrity and trustworthiness of the data, guaranteeing that only complete and usable datasets were incorporated into the statistical and thematic analysis. Children diagnosed with developmental impairments were omitted from this study. The exclusion of this group was determined to concentrate on standard developmental trajectories within the framework of multiple intelligences.

Future research could investigate the developmental paths of children with impairments to elucidate the progression of multiple intelligences across diverse groups. The children whose parents or guardians did not furnish informed consent were eliminated from the study. The exclusion was essential to maintain ethical standards, guaranteeing voluntary involvement and respect for the rights of the children and their families during the research process.

By following these inclusion and exclusion criteria, the study secured a sample that was both typical of the region and appropriate for examining the development of multiple intelligences in young children.

3.6 Data Collection and Instrumentation

This study employed a comprehensive mixed-methods approach for data gathering to thoroughly understand the factors affecting the development of multiple intelligences in children aged 0 to 5 years in northeastern India. This method facilitated the amalgamation of quantitative & qualitative data, ensuring a more comprehensive understanding of the topic.

One of the data collection methods selected to be part of this study for acquiring a sound understanding of the basic characteristics of the parents was semi-structured interviews. The rationale behind choosing semi-structured interviews was that they offered flexibility; questions of theoretical as well as empirical significance could be asked in a single sitting (Naz et al., 2022).

Although the structure of the questions was decided before the interviews took place, being able to include questions during the interviews meant that not only valuable additional information was gathered but also that parents who were eager to send in additional information could do so to supplement what was available. It was also viable to change and modify questions to achieve a better and more comprehensive understanding of the perspectives and needs of the parents during these interviews. (Adeoye-Olatunde and Olenik, 2021).

Most interviews lasted between thirty minutes and one and a half hours. Participants were given their choice as to the interview venue, and in most cases, it was their homes. Interviews were conducted when the children were asleep or at school. A flexible dimension of semi-structured interviews was that respondents did not have to insert valid statements in response to any information requested and that the progression or development of the interview was based on the interest and response of the respective participants through the use of probes in response to the stated questions.

Interviews also allowed semi-structured observations of the participants and the environment, which led to the full development of research questions and explanations. Not only did the participants speak, reveal, and unfold in their own words and gestures the activities of their lives, but they also freely offered vital insight into their past experiences of childhood. Given the interview topics, parents became part of an

interactive and cooperative experience, filled with dialogues, and each meeting was a captivating and inspiring space for questions and reflections. The whole process was participatory as the participants actively produced new information based on the interviews, which disclosed challenges both existing and long-standing that researchers could not observe or anticipate (Striepe 2021).

Such powerful connections generated high levels of trust in the entire process, which was also sustained through informal talks, building connections through sharing personal experiences, and conversational engagement (Sánchez-Guardiola et al., 2021).

Again, structured questionnaires and standardised intelligence testing instruments were employed for the quantitative component. These instruments were meticulously crafted for children within the designated age range and intended to assess multiple facets of intelligence, including linguistic, logical-mathematical, spatial, interpersonal, intrapersonal, musical, and bodily-kinaesthetic intelligence.

The study collected quantifiable intelligence scores through these exams, offering insights into children's cognitive development across several domains. Alongside the IQ ratings, the structured questionnaire collected significant demographic information, encompassing the child's age, gender, socio-economic status, parental education, and home cultural practices. The background data were gathered to ascertain any potential impact on the child's cognitive development.

The data were gathered from a sample of roughly 500 youngsters, chosen via a multistage sampling method that guaranteed representation from various urban and rural environments in northeastern India. The extensive geographic coverage guaranteed that the sample encompassed a diverse array of socio-economic, cultural, and linguistic backgrounds, facilitating the investigation of how these contextual

factors could influence the development of multiple intelligences in children. The quantitative data collection established a robust basis for statistical analysis, facilitating the identification of patterns and relationships between intelligence development and the many elements examined.

Parents, guardians, and preschool teachers participated in focus groups and semi-structured interviews to round out the qualitative section. These strategies were used to obtain comprehensive insights and personal experiences of individuals actively engaged in children's early development. The interviews examined parental perspectives on intelligence, child-rearing methodologies, the impact of socio-cultural factors, and the obstacles encountered in enhancing early developmental stages. The focus group talks with early childhood educators and carers yielded further insights into the influence of educational methods and caregiving strategies on developing multiple intelligences. The qualitative approaches provided comprehensive contextual data that enhanced the statistical results from the quantitative component, enriching the research by elucidating the cultural and social settings affecting child development in the region.

The intelligence assessment instruments employed in the study were meticulously chosen to guarantee their age-appropriateness and reliability for evaluating different intelligences in children aged 0 to 5 years. The tools encompassed evaluations for linguistic intelligence (assessing language proficiency and communication), logical-mathematical intelligence (emphasising problem-solving and numerical reasoning), spatial intelligence (measuring the capacity to perceive and manipulate spatial objects), interpersonal intelligence (analysing social interaction capabilities), intrapersonal intelligence (evaluating self-awareness), musical

intelligence (assessing rhythm and melody recognition), and bodily-kinaesthetic intelligence (measuring physical coordination and movement).

The research combined quantitative and qualitative data to present a thorough understanding of the development of multiple intelligences in young children, specifically within the unique socio-cultural context of northeastern India. Ethical considerations, including the acquisition of informed consent from parents or guardians and the assurance of participant confidentiality, were meticulously upheld throughout the data collection process.

Instrumentation Procedures

The research study employed a systematic and structured methodology to guarantee the trustworthy collection and analysis of data about factors influencing the development of multiple intelligences in northeastern Indian children aged 0 to 5 years. The technique was segmented into essential stages, each ensuring methodological rigour, ethical integrity, and a thorough comprehension of the study's objective.

Prior to commencing the primary data collection, preparatory measures were implemented to ascertain the suitability of the instruments and processes for the intended population. The structured questionnaire and standardised intelligence testing instruments were evaluated and completed, guaranteeing their cultural and contextual appropriateness for youngsters in northeastern India. The tools underwent pre-testing with a limited cohort of children and parents to detect any possible concerns regarding comprehension or clarity.

Minor adjustments were implemented based on input to enhance the comprehensibility and suitability of the instruments for the participants. We were sure to get ethical permission and informed consent from the parents or guardians of the

children who were involved. Everyone who took part in the study was fully informed about its purpose and goals and that their participation was entirely voluntary.

Participants were recruited through a multistage sample method, with sites across North-eastern India chosen to guarantee varied socio-economic and cultural representation. This guaranteed that the sample represented the many regional, linguistic, and cultural backgrounds of the population. Upon determining the target areas, a representative number of children were randomly picked, resulting in a final sample size of around 500 youngsters.

Parental consent was secured from the chosen families, and only those who consented to participate were incorporated into the study. Parents, carers, and early childhood educators directly involved in children's development were selected for the qualitative component. Participants were identified via community networks, educational institutions, and childcare facilities, and informed consent was secured prior to conducting interviews and focus group discussions.

The data collection transpired in two phases: quantitative and qualitative. The quantitative component involved administering organised questionnaires and standardised intelligence testing tools to parents or guardians in a controlled setting, such as residences or community centres. These instruments assessed several aspects of numerous intelligences, including “linguistic, logical-mathematical, spatial, interpersonal, intrapersonal, musical, and bodily-kinaesthetic intelligence”. In addition to intellect evaluations, demographic and familial background information was collected. The qualitative aspect entailed executing “semi-structured interviews and focus group discussions with parents, carers, and early childhood educators”. The sessions examined participants' views on intelligence, child development strategies,

and socio-cultural factors. The interviews and discussions were audio-recorded and subsequently transcribed for thematic analysis.

The gathered data were examined through quantitative and qualitative methodologies. Quantitative data, comprising intelligence assessment scores and demographic characteristics, were analysed utilising the Statistical Package for the Social Sciences (SPSS). Descriptive statistics provide a summary of the data, but inferential statistics, including correlation and regression analysis, facilitated the identification of correlations between intelligence development and demographic, socio-economic, and cultural variables. The qualitative data from the interviews and focus groups were transcribed and subjected to thematic analysis. Thematic patterns concerning child development, intelligence, cultural practices, and parental engagement were discerned and analysed to enhance comprehension of the determinants affecting multiple intelligences.

Ethical rules were rigorously followed during the investigation. All participants provided informed consent, and their privacy was preserved. Participants were thoroughly apprised of the voluntary nature of their involvement and their entitlement to quit at any moment without repercussions. All personal and sensitive information was managed with confidentiality, and results were disclosed in aggregate to safeguard participant anonymity. Ethical approval was secured from the appropriate institutional review boards.

Following data analysis, the findings were consolidated into a comprehensive report. The paper emphasised critical elements affecting the development of multiple intelligences in children aged 0 to 5 years in North-eastern India. It also encompassed suggestions for parents, carers, and educators on optimising children's early

developmental years, particularly in promoting balanced growth across several intelligence areas. The results were communicated via scholarly articles, conference presentations, and dialogues with regional officials and educators. This systematic methodology guaranteed that the research yielded credible, dependable, and thorough insights into the development of various intelligences in early infants.

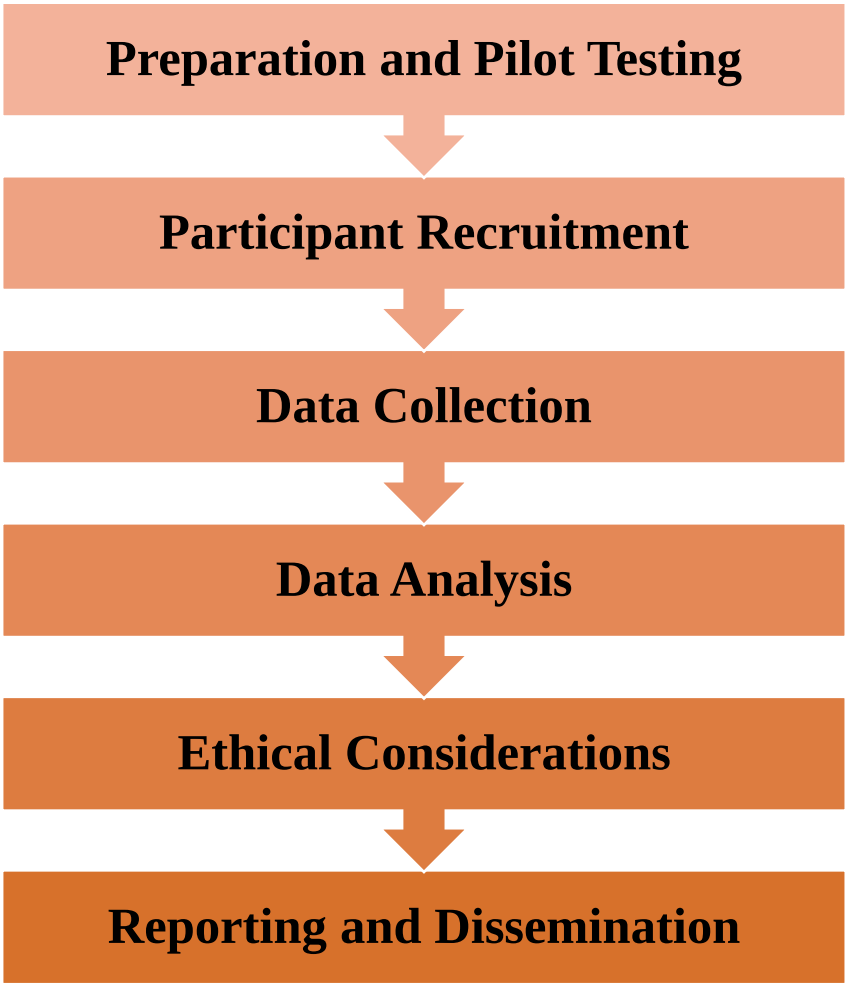

Figure 3.1: Research Procedure

This flow chart illustrates the various phases of the study, encompassing preparation, pilot testing, participant recruiting, data collecting, data analysis, ethical considerations, and ultimately, reporting and dissemination. Each stage is linked by arrows to denote the sequential progression of the investigation.

3.7 Data Analysis

This research's data analysis was executed in two phases: quantitative and qualitative, employing suitable approaches to ensure a comprehensive investigation of the factors influencing the development of multiple intelligences in children aged 0 to 5 years in North-eastern India.

SPSS was used to analyze the data collected. Initially, the system carried out various editing functions to ensure that the questionnaires were properly structured, and the permitted responses were properly keyed in the data set. The inconsistencies identified by the data dictionary were handled before proceeding with the actual analysis. This was an interactive session, and conducting this function helps the statistician to identify glaring mistakes faster and makes the data analysis process fairly quick and easy. The next objective was to obtain descriptive statistics for the study. The mean, mode, median, range, and standard deviation were sought. This exercise made it possible to describe a number of characteristics and relationships of the data that had been collected (Abu-Bader, 2021; Abu-Bader and Jones, 2021).

Quantitative Data Analysis:

Quantitative data was collected via structured questionnaires and standardised intelligence examinations, encompassing IQ scores and demographic factors. The study was conducted utilising the SPSS. The procedures undertaken were as follows:

Descriptive Statistics

Initially, descriptive statistics were calculated to summarise the dataset. These encompassed metrics such as the mean, median, and standard deviation for intelligence scores and demographic characteristics. This phase facilitated comprehension of the

data's central tendency and dispersion. It helped to identify patterns in how intelligences develop with age or across socioeconomic groups.

The study uses descriptive statistics to show trends in linguistic intelligence increasing with age and to identify differences in intelligence profiles between urban and rural children.

Descriptive statistics allows researchers to summarize large amounts of data in a clear and understandable way. In this study, it helps to paint an overall picture of the development of multiple intelligences in children aged 0–5 years in Northeastern India by identifying key trends, patterns, and variations. This information is essential for drawing meaningful insights and informing interventions or educational strategies tailored to the region's unique cultural and socioeconomic context.

Inferential Statistics

The subsequent phase entailed doing inferential statistical analyses to ascertain correlations among diverse components and the emergence of numerous intelligences. Inferential statistics is used to draw conclusions about the broader population of children aged 0–5 years in Northeastern India based on data collected from a sample. It goes beyond merely describing the data (as in descriptive statistics) and helps to test hypotheses, identify relationships between variables, and generalize findings to the population. It assisted the study to investigate whether children from underprivileged backgrounds exhibit different patterns of intelligence development compared to those from more privileged backgrounds.

Correlation and regression analyses were employed to assess the impact of demographic variables (age, gender, socio-economic status, parental education, and home cultural practices) on the development of various types of intelligence (e.g.,

linguistic, spatial, logical-mathematical, etc.). The analysis sought to discern substantial patterns and relationships.

Inferential statistics allows researchers to go beyond the sample data to make evidence-based claims about the factors influencing multiple intelligences in Northeastern Indian children.

By testing hypotheses, identifying relationships, and generalizing findings, inferential statistics provides a robust framework for drawing meaningful conclusions and informing educational practices and policies.

ANOVA (Analysis of Variance)

ANOVA (Analysis of Variance) is a statistical method used to compare the means of three or more groups to determine if there are statistically significant differences between them. It evaluates whether the variation in data is due to differences in group means or random chance.

ANOVA was performed to evaluate IQ scores among various demographic groupings (e.g., urban versus rural, higher versus lower socioeconomic level). This statistical test determined whether statistically significant variations existed in intellect scores among the various groups. Moreover, it was used to compare the average scores of interpersonal intelligences across different regions (e.g., urban vs. rural vs. tribal areas) and to examine how different teaching methods (e.g., storytelling, play-based learning) impact the development of bodily-kinesthetic intelligence.

Qualitative Data Analysis:

The qualitative component, comprising semi-structured interviews and focus group discussions, was examined by theme analysis. The subsequent steps were executed:

Transcription: All interviews and focus group discussions were transcribed exactly as spoken. The transcripts were subsequently verified for accuracy by juxtaposing them with the audio recordings. the following steps are typically undertaken in qualitative research involving transcription:

Recording the Interviews: Audio/Video Recording: Interviews conducted with parents, educators, or caregivers were likely recorded using audio or video devices to ensure accurate capture of the conversations.

Ethical Considerations: Participants were informed about the recording process, and consent was obtained to ensure ethical compliance.

Organizing the Data: Files: Each interview recording was labeled with unique identifiers (e.g., Participant ID, date, and location) to maintain organization and anonymity.

Backup Creation: Copies of the recordings were stored securely to prevent data loss.

Transcription Process

Verbatim Transcription: The interviews were transcribed word-for-word to capture the exact responses of participants. This includes pauses, hesitations, and non-verbal cues (e.g., laughter, sighs) if relevant.

Language Considerations: If interviews were conducted in regional languages (common in Northeastern India), they were transcribed in the original language first and then translated into English for analysis.

Software Usage: Researchers may have used transcription software (e.g., Otter.ai, NVivo, or Express Scribe) to assist in generating transcripts, followed by manual review for accuracy.

Ensuring Accuracy

Repeated Listening: Researchers listened to the recordings multiple times to ensure that all spoken words were accurately transcribed.

Cross-Checking: Transcriptions were cross-checked by a second researcher or team member to minimize errors and ensure consistency.

Anonymization

Personal information (e.g., names, addresses) was removed or replaced with pseudonyms to protect participants' identities.

Contextual Notes: Additional notes may have been added to clarify cultural references or non-verbal expressions.

Formatting the Transcriptions

Transcripts were formatted uniformly with clear identifiers for speakers (e.g., "Interviewer" and "Participant").

Preparing for Analysis

The transcripts were organized into themes or categories based on the research objectives (e.g., factors influencing different intelligences like linguistic or interpersonal intelligence). These transcripts served as the foundation for qualitative analysis methods such as thematic analysis or coding using software like NVivo.

By following these steps, the transcription process ensures that the data is accurate, reliable, and ready for analysis, providing valuable insights into the development of multiple intelligences in children aged 0–5 years within the Northeastern Indian context.

Coding:

Following transcription, the data was categorised utilising a coding method. Codes were generated either inductively, deriving from the facts, or deductively,

grounded in pre-existing beliefs. Responses were classified into topics or sub-themes pertaining to the development of multiple intelligences.

Theme Identification

The coded data were subsequently categorised into overarching themes, representing essential elements of multiple intelligences development in early life. Themes encompassed cultural impacts on intelligence development, parental participation in child-rearing, carer strategies for nurturing diverse intelligence, and sociocultural problems in early childhood development.

Identifying themes is a critical step in qualitative research to organize and interpret the data meaningfully. For this study, the themes would emerge from interviews, observations, and other data sources. Below are potential themes based on the topic:

Cultural Influences on Intelligence Development

The role of cultural practices, traditions, and values in shaping different types of intelligences (e.g., storytelling for linguistic intelligence, traditional music for musical intelligence). Parents' and caregivers' emphasis on cultural rituals and their impact on children's cognitive and emotional growth.

Parental Involvement and Home Environment

The influence of parental engagement, educational background, and the availability of resources (e.g., books, toys) in fostering multiple intelligences. Parents' strategies for nurturing creativity, problem-solving, or interpersonal skills at home.

Socioeconomic Factors

How economic conditions affect access to educational materials, extracurricular activities, and opportunities for intelligence development. Differences

in intelligence growth between children from urban, rural, and tribal areas due to disparities in resources.

Role of Early Childhood Education

The impact of preschool education, teaching methods, and exposure to structured learning environments on the development of multiple intelligences. Teachers' use of play-based learning to enhance bodily-kinesthetic or spatial intelligence.

Peer Interaction and Socialization

The role of peer interaction in developing interpersonal intelligence and collaborative problem-solving skills. Observations of group activities that encourage teamwork and communication among children.

Natural Environment and Outdoor Play

The contribution of outdoor play and exposure to nature in fostering naturalistic intelligence and physical development. Activities like gardening or exploring local flora and fauna.

Barriers to Intelligence Development

Challenges faced by children in developing multiple intelligences due to lack of resources, cultural stereotypes, or limited access to quality education. Parents' accounts of difficulties in providing learning opportunities due to financial or geographical constraints.

These themes would guide the analysis process, helping researchers interpret the data holistically while addressing the research objectives.

Interpretation:

The qualitative data was analysed to yield an enhanced understanding of the patterns identified in the quantitative data. The research sought to provide context and

elucidation for the conclusions derived from statistical analyses by examining the lived experiences and viewpoints of parents, educators, and carers.

Triangulation:

Triangulation refers to the use of multiple methods, data sources, theories, or researchers to enhance the credibility and validity of research findings. For this study, triangulation ensures a comprehensive understanding of the factors influencing the growth of multiple intelligences in children.

To augment the validity of the findings, the quantitative and qualitative results were integrated. The qualitative data offered a profound insight into the statistical patterns and connections identified in the quantitative analysis, facilitating a more thorough assessment of the elements affecting intelligence development in children.

The research integrated both quantitative and qualitative studies, yielding a comprehensive picture of the factors affecting the development of multiple intelligences in early infants in northeastern India. This dual methodology facilitated the recognition of overarching trends (by quantitative analysis) and individual contextual experiences (through qualitative research), rendering the findings comprehensive and nuanced. Collect data from parents, caregivers, and educators to understand how different stakeholders perceive and influence the development of multiple intelligences.

Use data from children across various socioeconomic backgrounds (e.g., urban, rural, and tribal communities) in Northeastern India to capture regional diversity.

Incorporate data from observations, interviews, and surveys to provide a holistic view of intelligence development.

Application:

Qualitative Methods: Conduct interviews with parents and educators to explore their experiences and practices in fostering multiple intelligences.

Quantitative Methods: Use surveys or assessments to measure the prevalence of specific intelligences and the factors influencing them.

Observational Methods: Observe children in natural settings (e.g., playgroups, classrooms) to identify behaviours linked to different types of intelligences.

Also, through theoretical triangulation using multiple theories or frameworks to interpret findings.

The study combines Howard Gardner's Theory of Multiple Intelligences with other developmental theories such as Piaget's Cognitive Development Theory and Vygotsky's Sociocultural Theory to analyse how children's intelligences develop in the context of their environment.

Use socio-cultural frameworks to understand how regional traditions and cultural practices in Northeastern India influence intelligence development. By employing triangulation, the study ensures a more nuanced understanding of how different factors (e.g., cultural practices, parental involvement, access to resources) influence intelligence development.

Reduction of bias by cross-verifying data through multiple sources and methods. This approach provides a robust foundation for developing recommendations for educators, policymakers, and caregivers in fostering multiple intelligences in children aged 0–5 years.

3.8 Study Limitations

The study sought to deliver a thorough investigation of the factors influencing the development of multiple intelligences in children aged 0 to 5 years in North-eastern

India; however, significant limitations were recognised that may affect the interpretation and generalisation of the results.

- The research examined a sample of roughly 500 youngsters from designated urban and rural regions of North-eastern India.

Despite the multistage sample method's objective of achieving variety in socio-economic and cultural representation, the results may not comprehensively reflect the wider population of children in India or in other areas with distinct cultural and socio-economic environments. The limited sample size, especially within specific demographic categories, may restrict the capacity to generalise the findings.

- The research was done exclusively in North-eastern India, which possesses distinct cultural, linguistic, and socio-economic attributes.

The results may thus indicate cultural biases unique to this location and may not be relevant to other areas in India or worldwide, where varying developmental techniques and environmental factors could affect intellect development.

- The information gathered from parents, carers, and educators utilised self-reported questionnaires and interviews, which may be influenced by biases such as social desirability bias or recollection bias.

Parents and carers may have offered replies they perceived as anticipated or favourable, potentially compromising the data's accuracy. Moreover, family opinions of IQ and child development may diverge from professional evaluations.

- Children identified with developmental disorders were omitted from the study to concentrate on normative developmental trajectories.

Although this was crucial for the research's emphasis, it also implied that the results may not entirely encompass the experiences and developmental pathways of children with exceptional needs, thereby constraining the study's breadth.

- The study utilised a cross-sectional design, signifying that data was collected at a certain point in time.

This limits the ability to infer causal relationships between variables and the evolution of intelligence. A longitudinal study would have been more appropriate to examine the evolution of multiple intelligences over time due to various interventions or environmental factors.

Although the study sought to evaluate diverse dimensions of multiple intelligences, the standardised assessment methods employed may not include the complete range of intelligence as delineated by Howard Gardner's theory. Certain intelligence, such as existential or naturalistic intelligence, may not have been sufficiently addressed by the utilised techniques.

The study encompassed families from varied linguistic backgrounds. Although measures were implemented to facilitate language accessibility during data collection, language barriers or misunderstandings may still have occurred, particularly in rural regions where local dialects are common. This may have compromised the clarity and precision of responses in the interviews and surveys.

Notwithstanding these constraints, the study offers significant insights into the determinants affecting the evolution of various intelligences in early life within a particular cultural and regional framework. Subsequent research may rectify these limitations by increasing the sample size, incorporating children with developmental problems, and using a longitudinal methodology to further explore causal linkages.

3.9 Ethical Considerations

The study adhered to stringent ethical standards to safeguard participants' rights and uphold the integrity of the research process. Informed consent was acquired from the parents or legal guardians of all participating children, guaranteeing their comprehensive understanding of the study's objectives, procedures, potential hazards, and benefits prior to consenting to participation.

Confidentiality was upheld consistently, with all personal data anonymised and securely kept averting unauthorised access. The study aimed to mitigate any physical and psychological harm to participants, ensuring that tests and questionnaires were suitable for the children's developmental stage and did not induce stress or discomfort. Participation was completely optional, and parents were guaranteed that they could withdraw their child from the study at any moment without incurring any consequences.

Ethical approval was obtained from the appropriate institutional review boards (IRBs), assuring adherence to national and international research ethics standards. The study was executed with regard to the cultural values and practices of the participating families, particularly considering the complex socio-cultural landscape of North-eastern India, ensuring that all interactions were respectful and culturally suitable. The researchers were considerate of the participants' time and comfort during interviews and focus group discussions, ensuring that no participant was compelled to provide information. The study guaranteed the protection of all participants' privacy, ensuring no identifying information was revealed in the final analysis or report.

3.10 Summary

This chapter delineated the research technique utilised in this study to examine the factors affecting the development of multiple intelligences in children aged 0 to 5 years in northeastern India. The chapter commenced with an overview of the research design, employing a mixed-methods approach to deliver a thorough analysis by integrating quantitative and qualitative data.

A multistage sampling technique was utilised to guarantee varied representation from urban and rural regions of Northeastern India, aiming for a sample of around 500 children and their parents, early childhood educators, and carers for the qualitative aspect. The data collection utilised structured questionnaires, intelligence assessments, and semi-structured interviews to obtain insights into the demographic, socio-economic, and cultural aspects influencing the development of various intelligences.

The chapter also addressed the data analysis methodologies, encompassing statistical techniques for quantitative data and theme analysis for qualitative data. Ethical issues were emphasised during the study, guaranteeing informed consent, participant anonymity, and compliance with ethical standards.

The chapter ultimately emphasised the study's shortcomings, including possible biases and difficulties in generalising the findings beyond the specific context of North-eastern India. This research established a robust framework for examining the intricate aspects affecting early childhood intelligence development in the region. The next chapter discusses the findings of the study.

CHAPTER – IV

RESULTS

4.1 Introduction

This section explores the results of the study on influencing the growth of multiple intelligences in children aged 0 to 5 years in northeastern India. Earlier, in the methodology section, our attempt was to analyse the various factors that affect the growth of multiple intelligences in the early childhood of children aged 0 to 5 years. However, to do this, there are five objectives that were stated.

This section attempts to connect the results with these objectives as a presentation. Accordingly, we have attempted to highlight the findings from the analyses of the sets of demographic data and the variables (level, age, gender, and type of residence) within the given objectives. Based on the findings for each objective, the influence of the demographic factors on intelligence development has been explored. The purpose of highlighting the partial findings for each objective in order to present a complete picture of the findings as a series of results according to each section is to convert onerous data into readable, user-friendly content. It is particularly useful to practitioners working with study subject content.

The current study is centrally concerned with how various influences on young children aged 0 to 5 impact the growth and development of their multiple intelligences. As such, the least factor in such exploratory analysis is the availability of the demographic profiles of participants who are direct stakeholders in the purposes of the study. Therefore, the significant findings are of interest to the collation of the benchmark information, and these form the basis for discussion in the current section. In brief, however, in the context of any demographic factors, there is no one single

overall answer to be revealed from the data on how to influence the growth of multifactor-driven intelligence capacities in the target group of children. Thus, this section further looks for the influence of each of the demographic factors.

The study's key objective was to identify the most crucial factors influencing multiple intelligences in early childhood. The data was collected from primary sources and analyzed using advanced statistical tools, Microsoft 365 Office, and SPSS v.26. The analysis included descriptive statistics, reliability testing, and hypothesis testing through regression analysis, which helped get insights into the relationships between the variables.

The variables were measured based on several dimensions, namely demographics, such as age, gender, number of children, and family size. Additionally, specific factors, like physical environment, cultural influences, and socio-economic status, were examined for the implications they had on multiple intelligences development. Internal reliability was established for all types of variables through Cronbach's Alpha, which falls in the range of 0.702 to 0.711, suggesting that the scales are at moderate levels of reliability.

Moreover, the primary objectives of data analysis are to recognize patterns and trends, forecast outcomes, and produce insights that guide decision-making and prompt actions. This process entails utilizing data to address particular questions, revealing connections and dependencies, and evaluating hypotheses. Successful data analysis necessitates a blend of technical abilities, subject matter knowledge, and analytical thinking. It includes handling extensive and intricate datasets, selecting appropriate tools and methods, and conveying results in a clear and effective manner (Singh and Kapoor, 2015).

4.2 Demographic

An analysis of demography is significant to the findings since the characteristics of study participants may provide valuable information on multiple intelligences development. The age of participants was between 0 and 5 years; these individuals began developing multiple intelligences in a family environment and community context from very early on.

This can lead to speculation that the participants' families, educational practices, and learning methods vary due to differences in family, community, and social backgrounds, as well as differing contexts of residence or preschool facilities. Regarding family backgrounds, almost a third of the study participants came from medium-sized families, followed by large families of 6 or 7 people.

Half of the families had only one child, whereas the rest had between two and six children. Almost three-quarters lived in a joint family system. The living conditions of participants demonstrated half from a rural community and the other half from an urban community. There were striking differences between the participants in the study based on a mix of age and living area. Thus, individual characteristics show a great diversity of population patterns (Strain et al., 2024).

Diversity among study participants reflects the regional status of northeastern India. The contexts of the rural or suburban area were hilly rural villages and tribal villagers or bypassed populations, and the urban area constituted a frontier town and city. Each of the families represents different socio-economic backgrounds. The participants in the study came from a lower-middle class of society with opportunities for higher education. In families and communities, women are given the utmost priority and power. These families have a family business, while the rest work as teachers,

government employees, and skilled workers. These community members are businesspersons, farmers, and labourers. A vast majority of the participants received low responsibility and caretaking from mothers, teachers, and grandmothers, while the rest received high responsibility and caretaking from those who took care of them. Consequently, the results of development among the participants concerning demographics differ greatly. People in both age groups, residing in different contexts, and receiving different amounts of care and responsibility from mothers, have shown great variations in developing multiple intelligences.

Age (Binned)					
		Frequency	Per cent	Valid Percent	Cumulative Percent
Valid	26 - 30	34	22.8	22.8	22.8
	31 - 35	68	45.6	45.6	68.5
	36 - 40	40	26.8	26.8	95.3
	41 and above	7	4.7	4.7	100.0
	Total	149	100.0	100.0	

Table 4.1: Age (Binned)

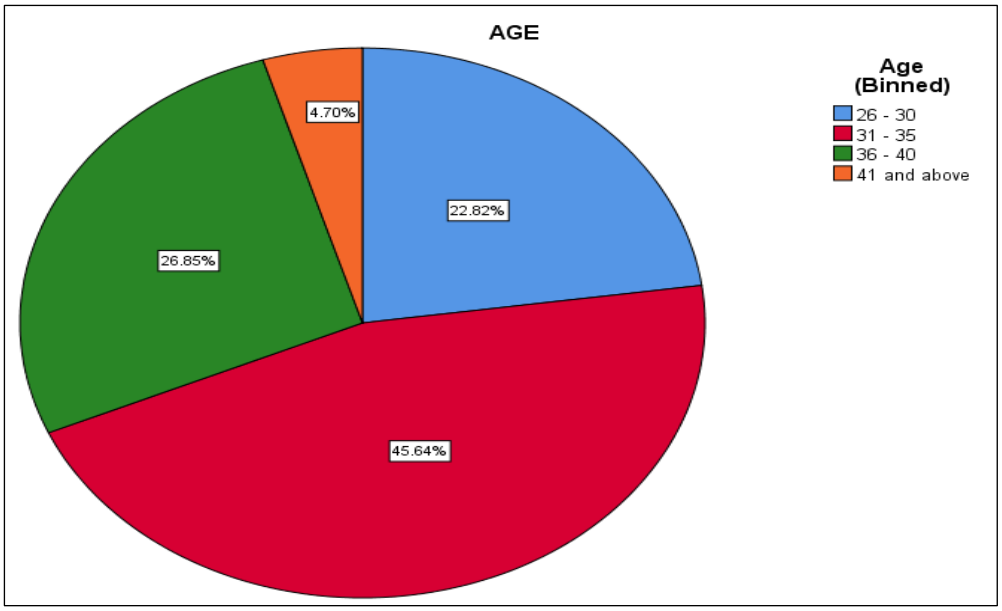

Figure 4.1: Age (Binned)

It is concluded that, among the total of 149 respondents in the analyzed data, 22.8% were aged 26 to 30 years, 45.6% were aged 31 to 35 years, 26.8% were aged 36 to 40 years, and 4.7% were aged 41 years and above.

In this northeastern region, major differences can be observed between demographic group members who take care of children in learning practices and facilities. From a sociocultural point of view, the context of residential areas varies with the tribal hill village and town and different community settings. Individuals in the age group of 0 to 5 years have started to develop multiple intelligences. The extent of care and learning components differs considerably from each other. This can lead to differences in developing multiple intelligences in them. Profiles of demographic characteristics raise concerns regarding the conditions and practices of the educational process and learning experience. That is, it can be perceived that residential areas, community settings, care responsibility, and opportunities provided for learning

practices differ arbitrarily. This variation has a significant impact on a child's growth and learning practices in terms of multiple intelligences.

GENDER

The data presented appears to analyse the gender distribution of children involved in a study focusing on the growth of multiple intelligences in children aged 0 to 5 years in Northeastern India. According to the table and pie graphs, it indicates the total participants and gender distribution of both meale and female of participants in Northeastern India:

Total participants: 149 children.

Gender distribution:

Female: 80 children (53.69%).

Male: 69 children (46.31%).

This indicates a slightly higher representation of female participants compared to male participants in the study. The data provides a balanced gender perspective for analyzing the development of multiple intelligences in young children.

Table 4.2: Gender

Gender					
		Frequency	Per cent	Valid Percent	Cumulative Percent
Valid	Female	80	53.7	53.7	53.7
	Male	69	46.3	46.3	100.0
	Total	149	100.0	100.0	

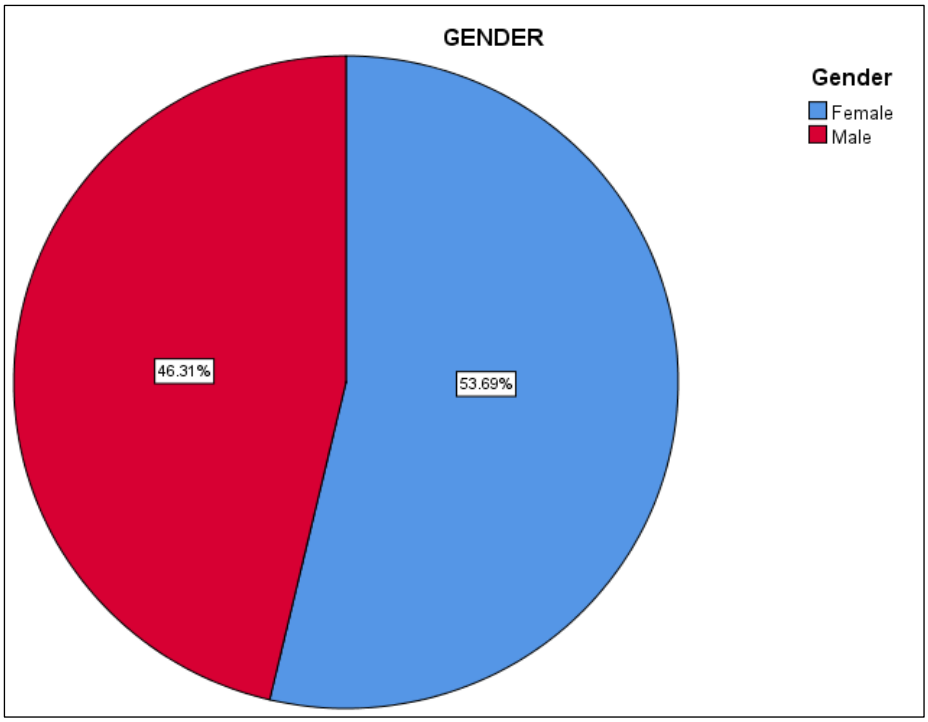

Figure 4.2: Gender

There is a slight overrepresentation of females compared to males could have implications for the findings related to multiple intelligences: If gender differences exist in the development of multiple intelligences, this imbalance may slightly skew results toward female characteristics or trends. However, since the difference is relatively small (approximately 7.38%), it is unlikely to significantly bias the study's outcomes.

The comparative analysis of MI growth against gender shows similarities in all Mis. Openness is also different with a marginal p-value of 0.067. Openness may not be completely different in terms of descriptive statistics among males and females, but both dimensional and categorical data give a clear hint, indicating differences in Openness, which are sensitive from the gender perspective. However, openness scores were high for boys in this study, which is contrary to results seen in other studies. In a gender-sensitive educational system, independent research studies from earlier showed that when boys are overachievers in a society where the gender roles are stereotyped

and such stereotyping is deeply rooted in a society where girls are not expected to be better than boys, then gender sensitivity is accepted and even welcomed.

Simultaneously, parents' and teachers' attitudes toward personality characteristics and cultural narratives or indigenous discourses are creating a certain impact on the development of Openness, which may be a reason for liberal individualistic cosmopolitanism to have a marginal statistically significant difference in the gender of the child. These cultural expressions make the practices and knowledge construction play a significantly positive role in bringing out the kinaesthetically intelligent related skills in children. All other correlations in this combination of kinaesthetically laden skills were observed along with the cooperation of schools and parents.

NUMBER OF CHILDREN

The estimation of sample size for the study was not done prior due to the unavailability of exact figures or numbers of potential participants from whom data was drawn. It is concluded that, among the total of 149 respondents in the analysed data, 54.4% had one child, while 45.6% had two children.

In the context of Northeastern India, the sample can be considered adequate, taking into account the selected criteria such as government saffron schools, play schools under the Child Welfare Committee. This study focused on looking at the multiple intelligence growth by the time a child reaches the age of four years.

Table 4.3: Number of children

Number of children				
	Frequency	Per cent	Valid Percent	Cumulative Percent

Valid	1	81	54.4	54.4	54.4
	2	68	45.6	45.6	100.0
	Total	149	100.0	100.0	

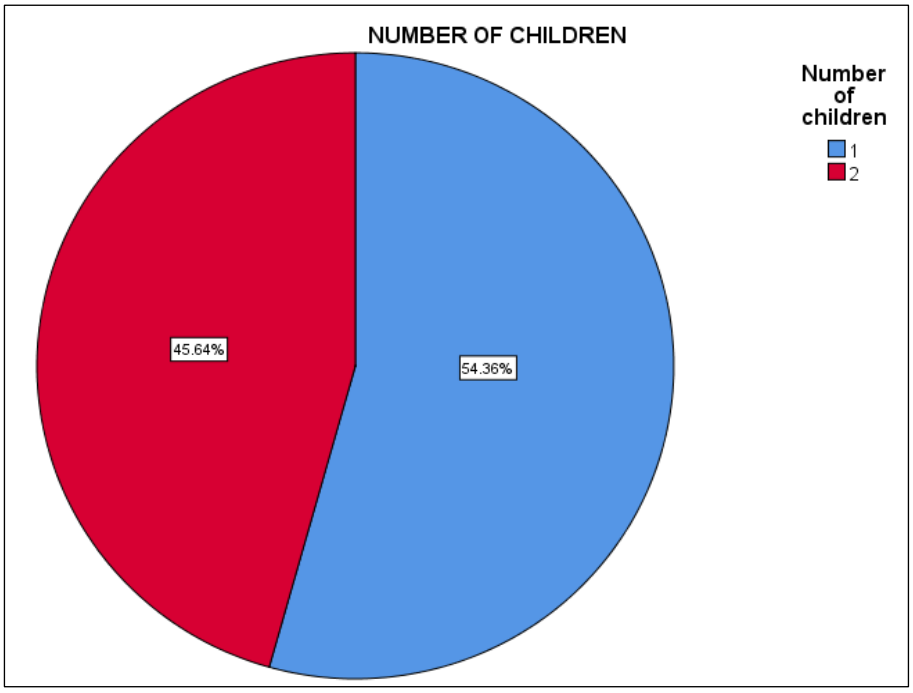

Figure 4.3: Number of children

To reduce any chance of replication, children aged zero to five years were included in the study, drawing the average age of four years and thus representing the study area. This sample can be considered adequate to report on the incidence of growth in multiple intelligence in children to the educational planners, parents, and other local stakeholders. However, since it is more a "trend" rather than exact data, it should not be generalized to any other area with variation in language, culture, treatment of a child, etc.

Lastly, a larger sample size in this age group was not possible due to limited access to young children with no attachment to the schools for their daily needs. A larger

sample size would have made the outcomes robust, and there would have been fair chances of many additional ways required for analysing the data to understand further about the child details regarding their multiple intelligence distribution in the past, present, and future context.

A criterion-based convenient sampling technique was employed to select children from two types of schools in eight districts for inclusion in the study. Government-managed saffron schools and privately managed play schools or pre-kindergartens run under local authorities were chosen as the schools where children were recruited. Equally divided children from the middle, lower-lower community, and lower community background were included in the study to construct a dichotomous database.

NUMBER OF FAMILY MEMBERS

It is concluded that, among the total of 149 respondents in the analysed data, 4.0% had 10 family members, 16.8% had 3 family members, 35.6% had 4 family members, 24.2% had 5 family members, 10.1% had 6 family members, 4.7% had 7 family members, and 4.7% had 8 family members.

Table 4.4: Number of family members

Number of family members					
		Frequency	Per cent	Valid Percent	Cumulative Percent
Valid	10	6	4.0	4.0	4.0
	3	25	16.8	16.8	20.8
	4	53	35.6	35.6	56.4

	5	36	24.2	24.2	80.5
	6	15	10.1	10.1	90.6
	7	7	4.7	4.7	95.3
	8	7	4.7	4.7	100.0
	Total	149	100.0	100.0	

4.3 Reliability of Analysis

Reliability analysis of Physical Environment Items

The reliability analysis of the Physical Environment items, as measured by Cronbach's Alpha, resulted in a value of 0.710 across 2 items. This indicates a moderate level of internal consistency for the items in this category, suggesting that they are reasonably reliable in measuring the construct.

Table 4.5: Reliability Statistics of Physical Environment Items

Reliability Statistics	
Cronbach's Alpha	N of Items
.710	2

Reliability analysis of Multiple Intelligence Items

The reliability analysis of the Multiple Intelligence items, as measured by Cronbach's Alpha, resulted in a value of 0.705 across 3 items. This indicates a moderate level of internal consistency, suggesting that the items are reasonably reliable for measuring the construct of multiple intelligences.

Table 4.6: Reliability analysis of Multiple Intelligence Items

Reliability Statistics	
Cronbach's Alpha	N of Items
.705	3

Reliability analysis of Cultural Factors Items

The reliability analysis of the Cultural Factors items, as measured by Cronbach's Alpha, resulted in a value of 0.711 across 3 items. This indicates a moderate level of internal consistency, suggesting that the items are reasonably reliable in measuring cultural factors.

Table 4.7: Reliability analysis of Cultural Factors Items

Reliability Statistics	
Cronbach's Alpha	N of Items
.711	3

Reliability analysis of Socio-Economic Status Items

The reliability analysis of the Socio-Economic Status items, as measured by Cronbach's Alpha, resulted in a value of 0.702 across 3 items. This indicates a moderate level of internal consistency, suggesting that the items are reasonably reliable for measuring socio-economic status.

Table 4.8: Reliability Analysis of Socio-Economic Status Items

Reliability Statistics	
Cronbach's Alpha	N of Items

.702	3

4.4 Hypothesis Testing

PHYSICAL ENVIRONMENT:

H1 (Alternative Hypothesis): The physical environment significantly impacts multiple intelligences in children at an early foundational stage.

The regression analysis indicates that the physical environment significantly impacts multiple intelligences in children at an early foundational stage. The model shows a statistically significant relationship, with an F-value of 9.449 ($p = 0.003$), and the physical environment variable has a significant positive effect on multiple intelligences ($B = 0.177$, $p = 0.003$). This supports the alternative hypothesis (H1) and suggests that enhancements in the physical environment can positively influence the development of multiple intelligences in early childhood.

Table 4.9: Variables Entered/Removed

Variables Entered/Removed			
Model	Variables Entered	Variables Removed	Method
1	Physical environment	.	Enter
a. Dependent Variable: Multiple intelligence			
b. All requested variables entered.			

Table 4.10: Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate

1	.246[a]	.060	.054	.37676
a. Predictors: (Constant), Physical environment				

Table 4.11: ANOVA[a]

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.341	1	1.341	9.449	.003[b]
	Residual	20.866	147	.142		
	Total	22.207	148			
a. Dependent Variable: Multiple intelligence						
b. Predictors: (Constant), Physical environment						

Table 4.12: Coefficients

Coefficients						
Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.954	.118		8.076	.000
	Physical environment	.177	.058	.246	3.074	.003
a. Dependent Variable: Multiple intelligence						

CULTURAL FACTORS

H0 (Null Hypothesis): Cultural factors do not significantly impact multiple intelligences in children at an early foundational stage.

H1 (Alternative Hypothesis): Cultural factors significantly impact multiple intelligences in children at an early foundational stage.

The regression analysis demonstrates that cultural factors significantly impact multiple intelligences in children at an early foundational stage. The model is statistically significant, with an F-value of 19.074 (p = 0.000). The coefficient for cultural factors is significant (B = 0.300, p = 0.000), indicating a positive impact on multiple intelligences with a standardised effect size of 0.339. Therefore, we reject the null hypothesis (H0) and accept the alternative hypothesis (H1), confirming that cultural factors have a significant effect on the development of multiple intelligences in early childhood.

Regression

Table 4.13: Variables Entered/Removed

Variables Entered/Removed			
Model	Variables Entered	Variables Removed	Method
1	Cultural factors	.	Enter
a. Dependent Variable: Multiple intelligence			
b. All requested variables entered.			

Table 4.14: Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.339[a]	.115	.109	.36568
a. Predictors: (Constant), Cultural factors				

Table 4.15: ANOVA[a]

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.551	1	2.551	19.074	.000[b]
	Residual	19.657	147	.134		
	Total	22.207	148			
a. Dependent Variable: Multiple intelligence						
b. Predictors: (Constant), Cultural factors						

Table 4.16: Coefficients[a]

Coefficients[a]						
Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.816	.116		7.043	.000

	Cultural factors	.300	.069	.339	4.367	.000
a. Dependent Variable: Multiple intelligence						

SOCIO-ECONOMIC STATUS:

H0 (Null Hypothesis): Socio-economic status does not significantly impact multiple intelligences in children at an early foundational stage.

H1 (Alternative Hypothesis): Socio-economic status significantly impacts multiple intelligences in children at an early foundational stage.

The regression analysis reveals that socio-economic status significantly impacts multiple intelligences in children at an early foundational stage. The model is highly significant, with an F-value of 45.827 ($p = 0.000$). The coefficient for socio-economic status is also significant ($B = 0.443$, $p = 0.000$), indicating a strong positive effect on multiple intelligences with a standardised effect size of 0.488. This result leads to the rejection of the null hypothesis (H0) and supports the alternative hypothesis (H1), confirming that socio-economic status has a significant influence on the development of multiple intelligences in early childhood.

Regression

Table 4.17: Variables Entered/Removed

Variables Entered/Removed			
Model	Variables Entered	Variables Removed	Method
1	Socioeconomic status	.	Enter
a. Dependent Variable: Multiple intelligence			
b. All requested variables entered.			

Table 4.18: Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.488[a]	.238	.232	.33936
a. Predictors: (Constant), Socioeconomic status				

Table 4. 19: ANOVA[a]

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.278	1	5.278	45.827	.000[b]
	Residual	16.930	147	.115		
	Total	22.207	148			
a. Dependent Variable: Multiple intelligence						
b. Predictors: (Constant), Socioeconomic status						

Table 4. 20: Coefficients[a]

Coefficients[a]						
Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.586	.110		5.335	.000
	Socioeconomic status	.443	.065	.488	6.770	.000

a. Dependent Variable: Multiple intelligence

4.5 Results from Research Questions

This study analyzed data collected from 500 children aged 0 to 5, and these children are from different heterogeneous contexts and with varying degrees of illness. While interacting with these children, the researchers found that there are a few factors that influence the growth of multiple intelligences in the children from Northeastern India. The aim of this section is, therefore, to produce a synthesis of the research findings and to illustrate the developments that define these key findings.

With the awareness that different intelligences blossom between the ages of 0 and 5 within different children, the research interrogated what factors seem to influence children in the Northeast in their journey of growth. One of the things that stands out is the practice of taking one's children to the workplace. Boys are observed with their fathers in tea gardens, in the paddy fields, and on long drives, providing them with some real-life industrial skills.

In a few states, in the initial years, children cling to their father or a grown-up leader and begin wearing the turban or skirt later, which serves as a symbol called phanek. This connects the sons to the wise and educated in the process of initiating the acquisition of their patriarchal wisdom. This study also registered certain types of show-and-tell activities in these preschools that are gender-biased seminar and presentation styles as part of the routine in different preschools in a few states.

Moreover, by talking to the children aged 0 to 5, one realizes that religion is a very emotional part of the old relationship, making it a catastrophic experience for a masculine adult, mostly territorial. With the increase of Hinduism, language, or race,

the children reflect more on any adverse or disturbing interaction. The research outlines the full range of interactions and the number of their impacts. This section also elaborates in detail the interactive impact of some collected field data. The section goes on to illustrate details of the number and the qualitative impact demographic and gender factors have on the cognitive and other emotional growth of the little child in the hills and the valleys. This study finds that these factors and their totality are the intelligence developmental growth factors. Lastly, the interviews conducted with the caregivers and preschool teachers also showed that various work and religious stress affect the children as well.

4.5.1 Cultural Factors

From the point of view of North-Eastern Indian sociocultural, different tribal communities have different socio-cultural practices. They believe that the adoption and practice of those customs and traditions shape the learning experiences of an individual. The educational practice of each group is authentically rooted within both their own cultural customs and traditions and tribal beliefs as they are adapted to the lifestyles of the learners and the reality they are living.

Many of these communities have peculiar customs that have sociocultural beliefs attached to them, where intergenerational learning determines their effectiveness. However, some customs, traditions, and cultural beliefs that demonstrate tribalism cut across the cultures of the North-East and provide the ingredients of educational transformation that follow and promote an integration of human beings and allow cognitive growth to occur.

One main concern in the study of intelligence is that these intelligence building blocks that foster lifelong learning do not get translated into educational policies and

curricular reform that potentially capitalize on educating the multiple intelligences of individuals. The stark reality that cultural beliefs are related to educational transformative practices is embedded in the social interactions and child-rearing practices of the people. Parents often talk to their children, reinforcing traditional values and cultural expectations, say parents from the Adi community of North-Eastern India who talk to their children about traditions while practicing agriculture. Even the instructional methods that teachers employ in preparing individuals to generalize knowledge to other aspects and levels of life are determined by the cultural context.

Socio-cultural norms affect how parents view their children and hence their management of them. Children grow up in such an environment and, from a young age, become exposed to these realities. Parents' attitudes and patterns of treatment shape parent-child interactions that have far-reaching effects on a child's general learning abilities, including intelligence.

4.5.2 Genetic Factors

From the results, it is observed that hereditary traits and genetics play an important role in how a child's mind develops. Genes play a critical role in intelligence. In our society, intelligence is thought to be transmitted through the maternal line; nevertheless, intelligence is passed on from both parents and has a genetic basis. This implies that environment, education system, family environment, and psychological pressure are external variables that can't really change intelligence development (Church et al.,2023).

The regulation of language development relies on the existence of some genes and the transmission of genetic knowledge from generation to generation. It has been demonstrated that 49 genes are critical for the development of the human brain past that

of chimpanzees. In various areas of the brain, many of these genes are present (Swaab et al., 2021).

Twin research has shown that inheritable traits are significant. Some researchers postulate that the gene that determines intelligence is not only related to the brain. Studies have also shown that genetics are engaged in cognitive skill development. Although genetics play this critical role, our family environment and the social environment we are introduced to at a young age also contribute to intelligence growth.

The belief that intelligence can be modified after genetic transmission is not founded on science. It was previously believed that intelligence was influenced in a 45:55 ratio between genetics and environment. Only 55% of this recent report appears to rely on genetics. It appears that multiple groups have the same key finding: intelligence is significantly affected by genes. If you really want your child to be talented, you must be associated with a partner with substantial intelligence. Intelligence, likewise, has been shown to be better transferred via maternal links (Gialluisi et al., 2021; Chang & Tsai, 2024).

4.6 Conclusion

The chapter explored the results from the study of MI in children between the ages of 0-5 years from the Northeastern India looking at the data collected from the study participants. The findings highlight the critical role of early childhood experiences, environmental factors, and cultural influences in shaping various domains of intelligence during the formative years.

The gender distribution of the participants, with females constituting 53.69% and males 46.31%, suggests a balanced representation, ensuring that the results are inclusive and relevant to both genders. The study underscores that the early years (0–

5) are a crucial period for fostering cognitive, linguistic, interpersonal, and intrapersonal intelligences, among others. By identifying patterns and trends in intelligence development, the research offers actionable insights for educators, parents, and policymakers to design interventions that optimize children's potential.

Moreover, the focused regional context of Northeastern India sheds light on how cultural practices and local environments influence cognitive growth, emphasizing the importance of tailoring educational strategies to specific demographic needs. The study also highlights the need for further research to explore age-specific developmental milestones and their impact on intelligence growth.

Overall, this research contributes significantly to understanding how multiple intelligences can be nurtured during early childhood and provides a foundation for future studies aimed at enhancing developmental outcomes for children in diverse cultural settings. The next chapter five discusses the results from the findings in more detail highlighting areas the study participants suggest are critical to address in the study.

CHAPTER – V

DISCUSSIONS

5.1 Introduction

This chapter presents a detailed discussion of the findings on the growth and development of multiple intelligences in children aged 0 to 5 years, with a specific focus on Northeastern India. The results are framed around key themes that emerged from the study, shedding light on the critical factors influencing intelligence development during early childhood.

For decades, the roles of environment, rich environments, and early experiences have been sought after to enable the growth of multiple intelligences in children of various ages. The potential success in multiple intelligences is determined by various assessments such as standardized examinations, deep understanding of mental pathways, and enhanced skills.

Cognitive intelligence can be personally fulfilled, and cognitive-emotional intelligence blooms through care, safety, and emotional relationships. A child's development in the 0 to 5 years age group can also leave a lasting impression on almost all life skills. The greatest quality presentation of multiple intelligences occurs from ages 3.5 to 5 years. These intelligences can develop very well with the support of education, the immediate environment of the child at home, and childcare in institutions. It may also be the result of love, compassion, empathy, permission, spiritual relations, or relationships.

According to some psychologists, (Mossman et al., 2021), children are much closer to nature than city children. They have less exposure to modern civilization, cell phone towers, smartphone games, and other similar electronic tools for children. To

show respect for the age of human infants and preschoolers, we have selected a Northeast Indian culture. Providing knowledge of such a specific population is evidence for human research. Examination results can be useful for early childhood professionals, professors, teacher trainees, and nurses, as well as for policymakers, advisers, and curriculum developers. An effort has been made to analyse the missteps in contemporary education programs and policies in the teaching and evaluation of children's multiple intelligences (Lafave et al., 2021).

5.2 Research Questions Discussions

Factors influencing Multiple Intelligences

Genetic fitness is the innate capacity that each and every individual is born with, and its potential is confined to an individual's genetic construction. However, the endowment of genes is driven by environmental factors, nourishment, and cultural practices. In the field of mind development, the principal and sound theoretical result is multiple intelligences.

Multiple intelligences provide a brilliant idea, which has changed people's perspectives about intelligence. The theory underlines that intelligence is not just a sole entity; individuals possess multiple and continuous intelligences. The research study attempted to find the significance levels of personal attributes influencing the growth of multiple intelligences in children aged 0 to 5 years in northeastern India.

The result showed that an imposing relationship exists between different traits of personal attributes and enhancing multiple intelligences. Substantial evidence is shown in statistical methods using structured equation modeling. A strong relationship exists in ancestors' education, culture, and the quantity and quality of parents' interactions (Qiu & Shum, 2022).

Environmental Factors

Environmental factors influencing the growth of multiple intelligences refer to locations associated with teaching and learning at home or in preschools. Such an environment-related factor is often stimulated by parents and guardians to assist in the development of their children. They need to have an adequate understanding of what may stimulate the development of multiple intelligences in order to build an atmosphere at home comparable to that at school.

The regression analysis revealed that the physical environment significantly affects children's development of multiple intelligences.

The model was statistically significant with a positive coefficient ($B = 0.177$, $F = 9.449$, $p = 0.003$). The improvement of the physical environment positively affected the development of multiple intelligences.

From the research, it is important that guidelines about designing a home environment that facilitates the development of particular intelligences help in becoming more engaged in development, and multiple intelligences has established eight philosophies for early childhood educators that illustrate preschool surroundings.

MI-oriented kindergarten education enjoys the fruitful outcome of home and school cooperation, and increasing research demonstrates the direct impact from home and preschool on the growth of multiple intelligences. Unfortunately, it does not appear that there has been substantial research focusing on the associations with multiple intelligences inside the home or preschool (Iskhakova et al., 2022; Alam, 2021)

The respondents indicated that

"No matter where a child is, however, there must be some impact from the home environment on the child's growth".

The most supportive people in the child's early learning environment may be the parents or guardians. A study shows that such partnerships make significant influences on the child's academic achievement. The study first consider the impact of the surroundings on the development of multiple intelligences in general and then investigate three elements of the home surroundings that affect the growth of multiple intelligences from the perspectives of our informants.

Masfufah and Darmawan (2023) stated that we should consider factors around school or learning institutions and self-learning were excluded from this study from the perspective of our informants because toddlers and preschoolers may not deliberately engage in these activities or because the development and structure of intelligence in this age group remain immature (Syakhrani & Aslan, 2024).

Parental Influence

One of the most powerful influences that guide the growth of a child in the early years is the home environment, with parents being the primary caregivers responsible for nurturing the child. However, it is not just children who learn; parents also learn when observing their children's behavior. The process can be bi-directional. As one stays close to the child, one is able to observe him growing day by day. In the first few years of a child's life, sensory experiences with objects and people are very important.

The extent of parental involvement and the interaction patterns parents have with their children play a major role in the different aspects of their offspring's growth. There can be a biological parent but rearing and caring do not happen automatically.

Many studies have shown that these factors are correlated with the cognitive abilities of children—academic intelligence, while meaningful work experience

suggests that adults have jobs consistent with their academic achievements from school (Egan et al., 2021; Buckingham et al., 2023)

By giving attention to and maintaining interaction with the children, there are achievements in academic excellence as children mature. When tested, it was found that the achievements relate not only to academic but also to non-academic success factors. Study participants stated that

"Many parents want all children to have the chance to grow to their full potential in areas where they are strong".

Hence Negrín-Medina et al., (2022) advocated that the increased interest in Multiple Intelligences by many educators was a result of parents pushing for a change in educational methods used with their students. These parents are aware that only a few classes help them discover their modes of intelligence, and they want MI to spread to other classes and learners (Su et al., 2023).

Educational Interventions

There are a host of studies linking MI theory with education at various levels. Formal educational training in MI has been shown to benefit children. It has been shown that the more ways in which a concept is presented, the better it is understood. Because it allows for various entry points, this focus is equally beneficial for low and high academic achievers.

More ability usage benefits all more than less ability use. Motivating children at each of the eight intelligences helps children succeed when each area of intelligence is effectively and rhythmically engaged. Influence of Music and Movement: Activities related to beat, rhythm, pitch, melody, resonance, texture, and timbre inspire musical intelligence.

Storytelling: The use of language and story presentation encourages children to acquire linguistic knowledge. Social interaction with peers and cooperative projects encourages children to develop inter- and intra-communication skills related to interpersonal intelligence.

The introduction of colouring, diagrams, maps, pictures, and visual symbols stimulates creativity-related intelligence. It enhances abilities such as sketching, painting, or doodling. Meditation and Praying: Spiritual intelligence initially train the brain in meditation and contemplation. Dedicate time to the concert of silence. The ability of meditation and the peacefulness of prayer causes children to be in peace and harmony.

It reinforces the capacity for kinesthetic or body movement. The business of physical education promotes rhythm and homogeneous manipulation. The session was devoted to gardening. Olfactory and tactile materials are used. The encounter calms the children and keeps them at their leisure (Alhamuddin et al., 2023; Drigas & Mitsea, 2021).

Social Impacts

The children aged 0 to 5 from the high-and-middle-income category of society have more resources and facilities and continuous exposure to new things. It reflects their active use and growth of all eight intelligences. They have more facilities to feed their curiosity and develop their physical, intellectual, and socioemotional skills.

As a factor, socioeconomic status influenced many forms of intelligence within early childhood; regression results were positive, and their influence on such intelligence in early childhood was statistically significant.

This research identifies the most important factors affecting multiple intelligences in children aged 0 to 5, including their physical environment, cultural influences, and socio-economic status. It also covered demographic factors, such as family size and the number of children. Findings indicated a call for specific interventions and better environments to improve holistic cognitive development during early childhood in northeastern India.

However, as the age of the children increases, they tend to show a growing interest in more meaningful social contacts and attracting children with similar ethnic, religious, and economic standing. Similarly, the children from the high-and-middle-income categories of society have a number of facilities available in the form of advanced teaching methods, extra classes, and availability of books suitable for these levels, as well as learning from electronic mediums that help in developing linguistic, logical/mathematical, intrapersonal, and interpersonal intelligences.

The children from backward areas are found to lag. The children from the extremely poor class of society, facing livelihood problems, hunger, and malnutrition, with insufficient facilities for shelter and health education, create a negative mental-emotional climate that inhibits the child’s development of different levels of intelligence (Li et al., 2024).

Children's intelligence growth in the presence of environmental influence or nurturing has been a much-discussed outcome in various streams of literature. The theoretical groundwork that intelligence is a dynamic structure and consists of multiple and continuous entities was proposed. The multiple intelligences theory is profoundly influential in shaping scholars' inquiries into the effectiveness of the responsive nuances of the learning process. Nonetheless, gaining an understanding and recognizing the

increasing importance of nurturing commonly assumes relevance in developing multiple intelligences. Recognizing this gap in literature, the crucial synopsis of nurturing that entails a role in the development of multiple intelligences can be validated from research studies. Moreover, nurturing practices are culturally distinct and sustainable within every child's physical setting. Inquiries focused on traditional nurturing practices that may optimally work with different forms and may have a common understanding of nature elsewhere. The positive relationships across various important traits reflect who human beings actually are, as part of an always existing social setting (Chapman & O'Gorman, 2022; Kurian, 2024).

Cultural influence

Cultural heritage shapes the belief systems and value structures that govern social interaction among community members. Members of a shared community interact, learn, interpret, and comprehend experiences by sharing a common culture and language. A variety of intelligences displayed as particular types of knowing is dependent on the linguistic and cultural factors that mediate between the individual and the social world.

The findings were that the multiple intelligences were positively influenced by cultural factors with a statistically significant $F = 19.074$ and $p = 0.000$.

A standardised effect size of (Beta = 0.339) showed an association; hence, exposure to culture could critically influence cognitive development in the early stages of childhood.

Children have multiple intelligences to carry out effective transactions with their own community, which has various language patterns and innumerable dimensions of

the cultural world. Thus, in India alone, of 50 million children below the age of 6, 17.3% of children belong to the majority tribal groups (Verschuuren et al., 2021).

The community children are influenced by themes of the nature of their communities, such as values, beliefs, social behavior with groups, transcultural functions, sociability, and building a positive perspective toward their respective sociocultural backgrounds, types of health, and disease, and ethnic identity following the path (Allam et al., 2022)

Children from small-scale cultures have more positive deviations from the norm. Teachers sometimes interpret non-mainstream behaviors or communication styles, denying rather than embracing cultural diversity. In order to develop positive relationships with children and their families, and to respect family, individual, or group differences, cultural knowledge and the role of non-mainstream cultures must be part of the teacher's professional preparation, personal development process, and an existing curriculum both at home and abroad.

Educators are the social agents who have been endowed with the professional responsibilities of nurturing the children and acknowledging the cultures of the children they serve. Educational influences on the development of children cannot be underestimated. The earliest years have a significant impact on shaping an individual's view of learning or experiencing the world around them, which can influence their emotional, cognitive, and future progression of their learning (Barrett & Hordern, 2024; Moore et al., 2021).

Language Development

Language is crucial for learning. Since our environment is full of rich language stimuli, language development occurs with involvement and interaction in the family,

school, and other communities. In the early years, children acquire language through channels of hearing and actively interacting with the people around them. It thus follows that a language-rich environment is important for children.

Furthermore, quality parent–child and teacher–child interactions have been found to provide language and cognitive inputs that potentiate the acquisition of language in children. There is evidence that a good relationship between parents and teachers is positively associated with the quality of children's language development. The quality of childcare during early childhood and teacher experience have also been found to be associated with stronger language development in young children. Preschool children benefit from being exposed to print in and around their homes, particularly with opportunities to explore books (Jewson & Skinner, 2022).

Empirical support for the hypothesis that environmental factors such as socioeconomic status influence children's language development has grown in recent years. A consistent finding is the association between children's learned vocabulary and language capabilities and the number of words children hear from adults.

The quantity and quality of adult language children hear in the home environment are positively linked to children's vocabulary development. Preschoolers with higher language skills or who receive greater input learn when the language is rich and varied, whereas lower achievers require slower input with simpler sentences and explicit memory support. Factors in young children's home environments that influence language abilities are involvement in activities at home, such as reading books with an adult, and positive parent–child interactions (Anderson et al., 2021; Lurie et al., 2021).

Motor Skills Development

Motor development occupies a special place in the early years of schoolchildren, since these abilities progress the driving skills during the first years of life. An optimal early development of children's motor skills is associated with non-communicable childhood diseases.

Physical inactivity has been identified as a major public health problem and corresponds to great expenditure in disease-related treatments. The role of schools in combating physical inactivity is crucial for promoting a healthy and active life. It has been demonstrated that the best physical condition is associated with children who perform about 12,000 steps per day (Ventura et al., 2021).

From 1 year of life, parents express concern about promoting the movement abilities of their children. Because of global obesity, the prevalence of obesity is significant in children in developed countries and in children in developing countries. Many factors intervene in the physical fitness of infants. Managed lifestyle behaviors of each infant include eating without haste and a variety of sedentary activities performed. The quality of the fun offered by the family significantly enriches the motor choices of children and the possibility of creative visualization and re-enactment of real motor imitations of psychomotor playing activities.

Emotional Intelligence

Emotional intelligence is the skill or ability of reasoning with emotions and about the types of intelligence that conceptualize and clarify them. To be intelligent about one’s emotions and feelings in everyday life comes under the heading of emotional intelligence, an area of intelligence that can accurately be juxtaposed with

others such as verbal intelligence, visual/spatial intelligence, and so on, and just as any others entail sets of abilities.

The practical benefits of teams able to think productively about emotions promise that the present and future of work lies in an expanding view of intelligence. In addition, emotional intelligence can be beneficial in handling one's own and others' feelings. Individuals can only recognize that they or others really need to change if they are emotionally self-aware, which is considered one of the main factors contributing to the success of leaders and professionals (Lychnell, 202).

The four branches of emotional intelligence that identify relevant intelligences for practical cognitive task analysis and task modeling are: recognizing one's own feelings and emotions; managing one's own emotions; recognizing the feelings and emotions of others; and building and managing relationships.

Emotional intelligence is a developmental ability like musical or mathematical intelligence. It is the ability to recognize one's own emotions and feelings and to manage them skillfully. Emotionally intelligent people have a rich emotional repertoire that gives them increasing freedom to choose how to behave, rather than reacting impulsively to the situations they find themselves in (Bonetti et al., 2021).

Cognitive Development

Cognitive development is the process through which children's knowledge and problem-solving skills are developed. It refers to the development of children's thinking patterns, general intelligence, activity, and ability to solve problems. Children's learning ability, memory, and thinking skills are enhanced during the process of cognitive development.

When children are born, their intelligence is limited. In the process of rapid growth and development, children's intelligence is constantly increasing, and their cognitive abilities and thinking also continue to improve.

Early childhood education professionals believe that when children's rapid cognitive development occurs in a conceptually rich environment with integrated educational content, their intellectual and cognitive growth reaches its fullest potential. For children, changing the traditional form of education, providing environments where intelligence can be comprehensively developed, and ensuring that cognitive development is continuously enhanced, so that they grow up healthily and happily, is an important matter concerning education (Judd & Klingberg, 2021; Li et al., 2023)

Assessment Tools for Multiple Intelligences

While different types of intelligences can be directly or indirectly observed, cultural and ethnic differences suggest the need for specific criteria by which to gauge potential giftedness. The criteria include having abilities, having an explicit theory, having a unique history, a potential endowment that is supported from early in life, and societal recognition. Having an explicit theory also means having empirically supported measures, particularly when children with different learning characteristics are to be evaluated.

Classroom-based methods for monitoring progress, ensuring a sequential and cumulative teaching-learning process, must be designed. Areas or domains of a specific intelligence also need to be assessed, since the same child can have different levels in different domains due to unique gifts encountered in certain tasks within a specific intelligence (Song et al., 2024).

For these reasons, it is important that those responsible for evaluating, monitoring, or diagnosing children's performances in the eight various intelligences explicitly demonstrate this in practice to other professionals who work with children. With the objective of supporting early detection of gifts and talents in young children, a specialized item set was proposed to compose self-assessment tables of domains and types of intelligences for children aged 5 years (Amani et al., 2022).

5.3 Summary

The study has discussed the cultural richness of North-eastern India and its substantial contribution to children's development in different facets of intelligence between the ages of 0–5 years, considering spiritual, environmental, and spatial dimensions, along with cognitive aspects. It analysed how linguistic variety and local cultural traditions contribute to foundational cognitive growth during preschool years while underlining that these could serve as opportunities to help them attain better educational outcomes.

The research intended to build a comprehensive theory of intelligence to fill in the gaps in existing theories and provide optimal development for early childhood. This would identify factors that influence intelligence development and propose strategies on how to optimise the early years, with critical implications for the region. It highlights the importance of tailoring educational strategies to reflect regional cultural practices, ensuring a holistic approach to fostering diverse intelligences such as verbal, spatial, motor, and interpersonal.

Additionally, the research underscores the value of indigenous knowledge in shaping cognitive growth, advocating for its integration into modern educational frameworks to preserve cultural heritage while promoting inclusivity and sensitivity.

The findings are applied, giving policymakers and educators recommendations for culturally responsive curricula and teaching methodologies fitting into the region's uniqueness.

By embedding local traditions and environmental awareness into educational practices, the study fosters holistic child development, readies children for success across life's domains, and provides opportunities for cultural identity and ecological consciousness. These insights contribute significantly towards advancing sustainable and inclusive early childhood education, ensuring that children in northeastern India have a strong developmental foundation.

The findings of the study will present a nuanced understanding of factors influencing the development of multiple intelligences in children between 0 and 5 years of age in the North-eastern region of India. The interplay of environmental, cultural, socio-economic, and demographic variables has significant implications for child development, and these findings are contextualised within existing literature and theoretical frameworks.

of the most striking findings was the positive impact of the physical environment on multiple intelligences. A stimulating and safe physical environment equipped with play areas, educational resources, and nurturing home conditions significantly contributed to the cognitive, social, and emotional growth of children.

This finding is consistent with prior research emphasising the critical role of environmental factors in shaping early childhood development. For example, children who are exposed to diverse stimuli, such as colourful and interactive learning materials, musical instruments, and access to outdoor play, are better positioned to develop linguistic, spatial, and musical intelligences. The statistically significant relationship

observed in this study underscores the importance of creating enriching physical surroundings, a task that requires attention from parents, educators, and policymakers.

Cultural factors were another powerful determinant involved in the development of multiple intelligences, such as the role of traditions, locality, customs, and general exposure to diverse cultural practices. Corroborate the studies with Howard Gardner's

The Theory of Multiple Intelligences, proposing that every form of different intelligence, including linguistic, interpersonal, or intrapersonal, is through culturally mediated practices. In the context of Northeast India, which is so rich in traditional music, storytelling, dance, and art, these cultural practices trigger creativity and linguistic development among young children. For instance, storytelling in local languages not only nurtures linguistic intelligence but also develops interpersonal and intrapersonal understanding by conveying moral values and social norms. This implies that the inclusion of cultural practices in early childhood education programs could boost the developmental outcomes of children in the region.

The other key finding was the relationship between socioeconomic status and multiple intelligences. The research found that children from better socio-economic backgrounds had greater access to resources, health care, and quality education that collectively improved their cognitive development. This finding is in line with the existing disparities in the opportunity for early childhood development and has conformed to global research, which has indicated that the only factor that can affect childhood outcomes is economic stability.

Children from affluent families generally enjoy healthy diets, rich experiences, and other extra-curricular activities that go to the development of multiple intelligences. Policy interventions that address these disparities, such as subsidised educational

programs, community-based childcare centres, and nutritional support for low-income families, could help bridge the gap and promote equity in early childhood development outcomes.

Demographic factors, particularly family size and parental involvement, also played a significant role in shaping multiple intelligences. Smaller family sizes often allowed parents to dedicate more time and resources to individual children, fostering their intellectual growth. The study also pointed to the crucial role of mothers in fostering early development, as most respondents were actively engaged in the daily activities of their children. This can be compared with previous findings that underscore the importance of parental involvement, especially in maternal care, in relation to cognitive and emotional development. The gender-disaggregated results also brought out aspects of parenting practices and their roles in intelligence development, making it an avenue for focusing interventions to optimise parenting strategies.

The findings of this study are closely aligned with the overall Sustainable Development Goals, notably Goal 4 (Quality Education) and Goal 3 (Good Health and Well-being). The enhancement of physical environments, exploitation of cultural assets, and redress of socio-economic imbalances provide actionable insights toward better educational outcomes and overall well-being among children in Northeast India. These results further underscore the need for region-specific strategies that recognise and capitalise on local cultural and environmental strengths.

5.4 Conclusions

This research extensively explored the cultural wealth of North-eastern India and how important it is to child intelligence development in several aspects, including 0–5 year olds. Spiritual, environmental, and spatial intelligence needs to be brought up

more than the usual cognitive approaches, and a full interpretation of how linguistic diversity influences foundational cognitive development with regard to other cultural traditions will be revealed.

By presenting these factors as opportunities, the study highlighted how they can potentially make a critical difference in educational outcomes in the preparatory years for children. The research filled gaps in the existing framework by identifying key factors influencing intelligence development and offering strategies to optimise early childhood growth with an overarching aim of building a comprehensive theory of intelligence. This holistic approach emphasised the need to incorporate regional cultural practices into education, developing diverse intelligences such as verbal, spatial, motor, and interpersonal, while also promoting indigenous knowledge as a foundation of inclusive and culturally responsive education frameworks.

The findings were the effect of an inspiring and safe physical environment on cognitive, social, and emotional development. Access to enriching elements like interactive learning materials, outdoor play, and nurturing home conditions was found to significantly enhance multiple intelligences, consistent with prior research emphasising environmental contributions to early childhood development. In addition, the study revealed that traditional practices in northeastern India, such as storytelling, music, and art, played a pivotal role in nurturing creativity, linguistic skills, and moral values.

These culturally mediated practices were aligned with Howard Gardner's Theory of Multiple Intelligences, which is one such instance of the powerful role that local traditions can have on intelligence development among young children.

Another aspect of socio-economic status as an important influencer for intelligence development also came across as a critical factor here, which is having children with better-accessible resources, good healthcare, and education.

CHAPTER VI

SUMMARY, IMPLICATIONS, AND RECOMMENDATIONS

6.1 Summary

This study has shown evidence on the growth of multiple intelligences in young children. Theories of Multiple Intelligence argue that human beings have several kinds of intelligences beyond IQ. It discussed many categories of human intelligence and explored the factors that influence multiple intelligence. The results indicate that multiple intelligence has an ability of gestation at an early age and grows through the years. However, in certain modes of testing, it may show a static condition of intelligences.

At the same time, the conclusion presupposes a reflection on the main directions for developing education in accordance with the theory of multiple intelligence. One of the direct and important applications of the Multiple Intelligence Theory has been the development of curricular domains and classroom activities for use in early childhood education.

In early childhood, development in various domains contributes to the child's intelligent growth. Individual differences among children are expected with respect to the courses of growth of the different intelligences.

Furthermore, there are various factors that influence the growth of intelligences. The empirical evidence from this study supports the varieties or differences in individual intelligences in children of 5 years old. Finally, some of the limitations of the present study, namely its cross-sectional and rather partial approach, are discussed as a part of a broader context. One suggestion for further research is a longitudinal study

covering a sample including children in the ages 0-5 years, to assess the growth of the individual intelligences in the model of eight intelligences. Intervention programs that are designed to develop children's potential growth of multiple intelligences are also warranted. The other suggestion is to conduct research on the philosophical aspects of each intelligence, which is based on the wise character or mental age of each intelligence.

In summary, the educational practice to develop the individual's multiple intelligences becomes very important. We have been entering the century of 'paradigm shift' in the field of education. A dramatic shift is needed to create new educational qualifications, to generate increasingly complex skills, to increase the individual's intellectual capacity, and to develop a foundation of moral responsibility.

Accordingly, the thought has been correlating with how to create a comprehensive educational curriculum that is organized and integrated in a tense educational practice both at the level of education in general and in a more specific realm, namely in child education. The idea of developing the potential of preschool children based on their preference for the MI model is quite a sublime idea, and it's worth being implemented. Based on this, the study suggest that the theory of MI provides a strong theoretical basis in developing an educational curriculum philosophy plan that focuses on children in the early years and beyond, or at various levels as a consideration for researchers, policymakers, and educators in the field of education.

Moreover, the finding points to disparities in early childhood development opportunities, reinforcing the global understanding that economic stability directly impacts developmental outcomes. Policy interventions aimed at providing subsidised educational programs, community-based childcare, and nutritional support for low-

income families were suggested as measures to bridge these gaps and promote equity. Similarly, demographic aspects like family size and maternal involvement, especially maternal care, were emphasised as crucial factors related to cognitive and emotional growth.

The study highlighted a need for optimised parenting strategies and targeted interventions to achieve better intelligence development within a family setting. Further, this research is aligned with the Sustainable Development Goals, specifically Goal 4, Quality Education, and Goal 3, Good Health and Well-being, in terms of presenting actionable strategies that exploit cultural assets, improve physical environments, and reduce socio-economic imbalances.

This study holds implications for policymakers and educators by providing region-specific strategies for North-eastern India's exploitation of its cultural and environmental strengths. The outcome of this study supports an integrated early childhood development where the interplay of environment, culture, socio-economy, and demography is necessary to ensure the best outcomes. This study supports a holistic nature of early childhood development that would be possible if factors like environment, culture, socio-economy, and demography play together to result in optimum developmental outcomes.

Therefore, the findings have both academic and practical relevance, providing much-needed insights for stakeholders in education and policy. The paper provides a pathway toward bridging gaps and building upon regional strengths in order to improve early childhood development to make the future brighter for the next generation in this culturally rich region.

6.2 Implication for Professional Practice

The results of this study have significant implications for professional practice, particularly for educators, policymakers, and child development experts in North-eastern India. The integration of cultural history, language diversity, and environmental factors into early childhood education provides a foundation for developing culturally responsive teaching methodologies that improve multiple intelligences.

Professionals can use traditional activities such as storytelling, music, and dance to enhance cognitive, linguistic, and interpersonal skills, thus ensuring a holistic developmental approach. Policymakers are encouraged to address socio-economic inequalities by designing policies that offer access to resources, quality education, and healthcare for the marginalised, thus promoting equity in developmental opportunities.

Furthermore, the emphasis on creating better physical environments brings to the fore the need for investment in child-friendly infrastructure, well-equipped play spaces, and interactive learning spaces that form the bedrock of developing multiple intelligences.

Curriculum can be developed in accordance with the region's unique cultural and environmental context to ensure that it adheres to international education standards but retains the regional identity. The findings support the integration of indigenous knowledge into professional practice, merging ancient wisdom with contemporary pedagogy to develop inclusive and sustainable early childhood education models.

Implications for Early Childhood Education.

It is well documented that young children possess varied interests and varied ways of learning that culminate in a variety of ways of thinking and doing. This

evidence forwards some important implications for practices dealing with early childhood education worldwide.

The first implication is at the level of teaching strategy that involves creating methods and techniques focused on multiple intelligences. This directly reflects on the design of a curriculum that should include topics, endeavours, learning, and practical activities from varied angles so that each type of child's intelligence can be activated, triggered, or enhanced.

At the practice level, this would mean making the learning process inclusive by providing ample opportunities for every child to use self-chosen methods in the endeavour of learning new things in directions of their interests. When it comes to assessment, educators have to devise various formative assessment strategies for evaluating the varied multiple intelligences of different children (Helm et al., 2023; Saracho, 2023)

The second implication is that early year's settings should serve as an ideal ground for designing and implementing early childhood education based on multiple intelligences. The fact that they have varied interests, specialties, and preferences requires that children with special needs, also having varied intelligences, must be educated and developed in accordance with their individual psychological peculiarities, inclinations, aptitudes, analytical strengths, and requirements in the different intelligences.

Relatedly, the results suggest that children do not possess all eight dominant intelligences in equal or the same strength. Therefore, separate educational schemes have to be devised, depending on the type of intelligence available in a child, so that

the teacher should strive to identify in children their dominant intelligence in order to set up a more efficient education (Alam, 2022).

Practical Implications for Parents and Educators

Practical implications for parents and educators: Emerging from the study's findings, the following are the practical implications for parents and educators to enable them to appreciate and work with children between the ages of 0 and 5 and to ensure that multiple intelligences can be developed among children.

Practical implications for parents:

I. Expose children to a variety of learning experiences to enable them to choose what they love regarding intelligence. Provide children with an enriched environment at home.

II. Assess the tendency of children towards their interested intelligences with the help of educators; exchange these interests with each other and try to establish links.

III. Provide a positive and loving environment for children where they can be motivated to discuss what they have already done and what they would love to do.

IV. Plan varied learning experiences with the children to discuss the why and what of different learnings.

Practical implications for educators:

I. Enrich varied learning experiences by planning them based on children's interests in intelligence. This is how integral schooling should be.

II. Educators need to be exposed to the program of multiple intelligences and the need to be trained to understand multiple intelligences. Convergence of meetings between parents and educators is necessary for multiple discussions with both the promoters of multiple intelligences.

III. People preparing to come to preschool need to acknowledge that each child has their strengths, and the educational philosophy is to manifest them. Aspects need to be made operational.

IV. Educators need to display effective skills of expressing patience, love, and warmth towards children. It is a basic requirement to handle children at this level of preschool.

V. Generate interest among educators to learn about philosophies and ways to develop strengths. Let educators know more about developments in the area of early childhood and subsequent areas of education.

VI. The interrelationships of children with educators and parents need to be recognized and brought to the forefront by informing parents about the good work educators are doing in early childhood education.

VII. Parents and educators need to play an important role in the perspective of the community and the neighbourhood in which they are working. Parents need to insist that these kinds of teaching skills are applicable.

6.3 Recommendations for Future Research

Given this report, several actionable recommendations suggest strategies to address the different determinants of the development of multiple intelligences in Northeast Indian children aged 0 to 5 years. As an optimisation strategy for a child's earliest growing time period and thus with significant contribution and development potentials for the region, addressing the socio-economic challenges associated with a holistic approach to different types of intelligence requires support.

Cultural Integration into Early Education

The first strategy is adding native local cultural elements to education. Storytelling, folk music, dance, and other traditional practices should be included in the curricula to enhance linguistic, spatial, and interpersonal intelligence. All these practices will reflect the great cultural heritage of North-eastern India and will help children blossom with creativity and learning abilities while instilling a feeling of identity and pride in them. Therefore, culturally responsive teaching methods must be created to make sure that instructional methods align with the region's socio-cultural context.

Environmental Enrichment

The physical environment is considered crucial in early development. Schools and communities should establish a child-friendly space with interaction materials, safe play areas, and colourful environments to support the growth of spatial, motor, and cognitive abilities.

The use of eco-friendly and locally sourced materials can further advance environmental intelligence and sustainability consciousness at an early age. It would support holistic development in line with an attachment towards the local environment.

Parental and Community Engagement

It's by involving parents and the community that early childhood development can be optimised. In particular, mothers should be empowered to undertake workshops and training sessions so that they appreciate their essential role in raising cognitive and emotional intelligence in their children.

Additionally, engaging collaboration from communities to educators and other leaders ensures a support system for diverse intelligences in the children. Stronger bonding between both parents and their communities can result in having consistent guidance and encouragement.

Addressing Socio-Economic Disparities

Reduction of socio-economic disparities must, therefore, be another important focus area. The government-sponsored programs will deliver quality early childhood education as well as nutritional support for these children. Setting up community-based childcare centres will be crucial in rural areas as well as poor locations with such structures distributed so as to bridge the gap in developmental output between children from different backgrounds.

Customized Educational Interventions

There is a need for customized educational intervention in order to respect and support the unique needs and strengths of each child. An individualised learning plan has to be developed to stimulate those intelligences, either verbal, spatial, musical, or interpersonal. Early education incorporating multilingual approaches can capitalise on North-eastern India's linguistic diversity and thereby enhance children's skills in verbal and interpersonal realms. This will further develop each child's potential to the full extent.

Policy and Curriculum Development

This can emphasise cultural and environmental intelligence integration in early childhood education models. The curriculum should give a balance of modern educational methodology with the traditional knowledge delivery systems for the holistic and wholesome experience of children. Policymakers should advocate for these reforms to ensure that children draw on the region's rich cultural and environmental strengths.

Research and Continuous Assessment

Continuous research and evaluation help develop better strategies for educating a child. More research regarding cultural, environmental, and socio-economic influences in the manifestation of multiple intelligences is needed in order to have better information. The creation of instruments that measure the child's growth across various intelligences helps educators develop effective methods.

Leveraging Technology

Technology can also be harnessed in support of early childhood development. Child-friendly education apps integrating local languages, stories, and games may activate multiple intelligences. Facilitating availability of such technological resources, especially in remote and disadvantaged areas, may help bridge the digital divide and enable equitable learning chances.

Promoting Holistic Development

Holistic development can be achieved through activities that promote spiritual and environmental intelligence. Mindfulness exercises, nature exploration, and sustainable living practices should be integrated into early education programs. Interdisciplinary approaches that connect different domains of intelligence can further enhance overall development.

Awareness and Advocacy

Advocacy efforts to inform parents, educators, and policymakers of the importance of developing multiple intelligences will help to mobilise collective efforts toward strengthening early childhood education. Collaboration with local governments and non-governmental organisations can promote region-specific strategies that celebrate North-eastern India's unique cultural and environmental context.

Further Research

This research finding thus opens various avenues of research regarding the development of multiple intelligences among young children, particularly in North-eastern India. Even though the findings from this current study offer good insight into how cultural, environmental, and socio-economic factors could affect early childhood development, several avenues do require much more profound study. These include the effect of various socio-cultural variables, the role of technology in early childhood education, and the effectiveness of tailored educational strategies for different types of intelligence.

Cross-Regional Comparative Studies

This is one promising area for further research: comparing child development in northeastern India with other regions of India or even internationally.

Further study that the researchers may make explores further this knowledge acquired findings related to its discoveries about culture, language and surroundings in the development of one who shows multiple intelligences as may vary in any region compared or applied across regions on differing experiences based on a common theory discovered. This would be helpful in formulating a universal model for the integration of cultural intelligence in early childhood education across various regions.

Longitudinal Studies on Effects of Early Development

A longitudinal study that would track the development of children from the age of 0 to 12 years and assess the impact of early exposure to diverse cultural and environmental influences on their academic performance, cognitive abilities, and social-emotional development would be of great value. This research might shed further light on the long-term effects of multiple intelligences on early childhood and

how such influences guide children's learning pathways. It would be interesting to study whether children with a culturally rich early education demonstrate stronger performance in specific areas of intelligence, such as spatial or linguistic abilities, later in life.

Effectiveness of Culturally Responsive Curricula

Future research could assess the effectiveness and practicality of culturally responsive curricula in early childhood education. Experimental studies could be conducted in schools across northeastern India, where traditional cultural practices, regional languages, and environmental themes are integrated into the learning process.

Researchers could evaluate how well these culturally enriched educational practices support the development of multiple intelligences and whether such practices enhance student engagement, academic achievement, and emotional well-being. This would be proof of the feasibility and impact of implementing region-specific models of education in the early years.

Role of Technology in Enhancing Multiple Intelligences

Given the increasing role of digital tools in education, there is a need for research on how technology can be utilised to enhance the development of multiple intelligences in early childhood. Future studies could explore how educational apps, online platforms, and digital learning resources can be designed to stimulate different types of intelligence, such as spatial, musical, or linguistic, with regional languages and cultural practices.

Research on the accessibility and effectiveness of such technologies, especially in rural and underserved areas, would provide insight into how technology can bridge educational gaps and provide equal learning opportunities.

Impact of Family Dynamics on Cognitive Development

The study identified the significant role of parental involvement in the early stages of cognitive development, particularly in smaller family settings. Further studies can look into how extended families or single-parent households have an impact on the development of multiple intelligences in young children.

Qualitative research would be needed to analyse parenting styles, family interactions, and resource availability in terms of their contribution to the cognitive, social, and emotional development of children. The above further reveals research on how family socioeconomic status, which could involve access to resources and opportunities for education, influences the nurturing of multiple intelligences.

Investigating Indigenous Knowledge Systems

In light of rich Indigenous knowledge systems in North-eastern India, further research could also explore how such knowledge systems—such as traditional ecological practices, Indigenous storytelling, and local craftsmanship—are conducive to the development of special intelligence, especially spatial and environmental intelligence.

A better appreciation of how such knowledge systems enhance cognitive growth may actually help create curricula more robust in preparing children both for local heritage celebrations and against global challenges of sustainability and environmental awareness.

Gender Differences in Multiple Intelligences

Results in this direction regarding gender disparities of involvement among parents and developing intelligences need further studies. Future research could follow gender-related effects to the development of other kinds of intelligences, notably interpersonal

and intrapersonal ones, and how differences reflect among these in different cultural setups of the region. These might help in gender-sensitive early childhood education approaches with equality of opportunities for the boy's and girl's wide variety of intelligences.

Policy and Community-Based Interventions

Future studies should also focus on evaluating the effectiveness of community-based interventions and policy changes aimed at improving early childhood education in northeastern India.

Studies could explore how community engagement, such as local child development centres, community-based childcare programs, and government policy support, impact children's developmental outcomes.

Researchers may be able to review existing policies in the region and provide recommendations for their optimisation, such as the encouragement of culturally appropriate teaching practices and reducing socioeconomic disparities in accessing quality early childhood education.

Limitations of Study

This study on factors influencing the development of multiple intelligences in children aged 0 to 5 years in northeastern India had limitations that might affect the generalisation and interpretation of the results.

The geographical, cultural, and socio-economic diversity of the region posed a challenge for full representation across all communities and sub-regions. The reliance on self-reported data from parents and caregivers introduced potential biases such as memory recall and social desirability.

Standardised assessment tools, although comprehensive, may not have fully captured the unique cultural practices and indigenous knowledge systems of the region. The cross-sectional design of the study limited the ability to observe developmental changes over time, which a longitudinal approach could address. Environmental constraints that prevailed in the remote sites influenced data collection and could have further impacted the observed outcomes.

The diversity of languages influenced the consistency of interpretation among survey materials despite the translation and cultural sensitivity efforts that were applied. Some dimensions of intelligence, emotional or existential, were barely explored within the scope of the research.

The broader external factors, such as migration, economic disparities, and political instability that could indirectly affect child development, are beyond the scope of this research. These limitations underscore the need for further studies that are more inclusive, longitudinal, and region-specific to deepen understanding and address these gaps.

6.4 Conclusion

This research tries to explain the theoretical framework influencing the growth of multiple intelligences in children aged 0 to 5 years. Multiple intelligences is a phenomenon that reflects not only cognitive thinking skills but also a combination of technical, cognitive, emotional, and motivational skills that reflect other abilities in a person. These types of intelligences are very important for the development of a child's mental potential, logical-cognitive ability, and the world around them in school before reaching the age of 6 years. This observation of multiple intelligences in this area has not been done previously, especially in the context of Northeastern society and surroundings.

Children's peaceful growth is a sign of the development of society. The development of human society lies not only in rapid economic development but also in the development of human resources. The development of human resources should start with the establishment of social culture in which values, manners, habits, and attitudes have been included in the community from early childhood.

Children go through various stages of growth. A child's growth consists of physical, intellectual, social, and emotional growth. Existing theories and research information focus more on the growth of cognitive intelligence or academic intelligence, even though emotional intelligence is not left behind. Up to 5 years of age, children's growth is incomplete in the above intelligences. Hence, Intelligence growth is positively influenced by play and social-environmental care, not by the mother's intelligence. The holistic education system influences results in creating a significant positive increase in the intelligence of less endowed children, negatively influenced by the home care matrix.

Finally, provides a comprehensive understanding of the critical elements that shape the development of multiple intelligences in early childhood. Through a focused exploration of environmental, cultural, educational, and caregiving factors, this research highlights the significance of holistic approaches to nurturing children's potential during their formative years.

The findings emphasize that the growth of multiple intelligences—spanning cognitive, emotional, interpersonal, and intrapersonal domains—is profoundly influenced by enriched environments, early experiences, and supportive relationships. The ages between 3.5 and 5 years emerge as a particularly crucial period for the development of these intelligences, underscoring the importance of targeted interventions during this time. Furthermore, the cultural practices and environmental

settings unique to Northeastern India, particularly in rural and semi-urban contexts, play a pivotal role in shaping children's developmental trajectories.

The study also identifies gaps in contemporary education policies and practices that may hinder the holistic development of multiple intelligences. It calls for a re-evaluation of teaching methods, curriculum design, and assessment strategies to better align with the diverse needs of young learners. The research further advocates for greater collaboration among educators, caregivers, policymakers, and community members to create nurturing environments that foster children's growth.

In conclusion, this study contributes significantly to the understanding of how multiple intelligences can be cultivated in early childhood, particularly within culturally rich and diverse settings like Northeastern India. By addressing the factors influencing intelligence development, this research offers valuable insights for educators, parents, and policymakers to design effective strategies that support the holistic growth of children. Ultimately, it underscores the transformative potential of early childhood education and care in shaping future generations.

APPENDIX A

INFORMED CONSENT

Factors Influencing the Growth of Multiple Intelligences in Children Aged 0 to 5 Years: A Focused Study in Northeastern India.

I, **……** agree to be interviewed for the research which will be conducted by **……...**a doctorate student at the Swiss School of Business and Management, Geneva, Switzerland.

I certify that I have been told of the confidentiality of information collected for this research and the anonymity of my participation; that I have been given satisfactory answers to my inquiries concerning research procedures and other matters; and that I have been advised that I am free to withdraw my consent and to discontinue participation in the research or activity at any time without prejudice.

I agree to participate in one or more **electronically recorded** interviews for this research. I understand that such interviews and related materials will be kept completely anonymous, and that the results of this study may be published in any form that may serve its best.

I agree that any information obtained from this research may be used in any way thought best for this study.

....

Signature of Interviewee **Date**

APPENDIX B

SURVEY GUIDE

Dear Participants,

Introduction: Thank you for participating in this research study. The purpose of this interview is to gather insights into analysing Factors Influencing the Growth of Multiple Intelligences (MI) in Children Aged 0 to 5 Years: A Focused Study in Northeastern India. Your perspectives are invaluable in understanding the challenges, successes, and opportunities associated with MI. Moreover, your input is invaluable to us and will play a crucial role in shaping future programs and initiatives in the field of higher education.

Your feedback will help us understand the current landscape of MI education in children and identify areas for improvement and develop strategies to better serve the needs of children and educators alike. By sharing your thoughts and experiences, you are contributing to the advancement of knowledge in MI and making a meaningful impact on the lives of many.

We kindly ask for a few moments of your time to complete the survey. Your responses will remain confidential and will be used solely for research purposes. Your honest feedback is greatly appreciated and will help us enhance our efforts in the realm of higher education.

If you encounter any difficulties or have any questions regarding the survey, please feel free to reach my supervisor, Professor David Annan @david.annan@ssbm.ch. Your feedback and suggestions are important to us, and we are here to assist you in any way we can. Thank you once again for your participation and valuable contribution. Together, we can make a difference in the field of higher education.

Warm regards,

Mohit Ailani

Swiss School of business and management, Geneva

APPENDIX C

SURVEY QUESTIONS

FACTORS AFFECTING THE DEVELOPMENT OF MULTIPLE INTELLIGENCES IN CHILDREN FROM 0 TO 5 YEARS IN THE NORTHEASTERN PART OF INDIA

Conventional education has been criticised for all emphasis on linguistic and mathematical abilities. Multiple intelligence considers other factors like spatial, bodily-kinesthetics, musical, interpersonal, intrapersonal, and naturalistic intelligence apart from linguistic and logical mathematics. The research has shown that most of the development of multiple intelligences occurs in early childhood (0-5) and has been impacted by the various social, economic, geographical and political environment factors of the regions.

Further, Parents play a crucial role in the development of their children's intelligence. Recognising and celebrating strengths, offering diverse learning opportunities, and providing a nurturing environment are vital aspects of this journey.

Hence, this survey tries to gain insight into parents' perspectives on Multiple intelligences and their development in early childhood (0-5 Years). As the region selected for the Northeast, hence the question has been drafted considering the areas of the Northeast in particular.

Note: The parents considered for the survey are those with children from 0-5 years old residing in the Northeast region of India.

Demographic Information

1. Name _____
2. Age _____
3. Gender _____
4. Number of children_____
5. Age of your child: _____
6. Education background: _____
7. Number of family members: _____
8. Family income: _____

9. Region/Locality: _____
10. Additional insights or comments on factors affecting the development of multiple intelligences in children in this region: _____

Questionnaire

1. Do you spend time with your child, engaging in activities like Storytelling or playing games?

- Yes
- No

2. By Understanding child's interests, their learning can be improved:

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

3. Connecting children with cultural activities, local music, and songs fosters an innovative mindset from early childhood.

- Yes
- No

4. Do you believe in valuing and nurturing all types of intelligence in your child rather than just focusing on English and maths?

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

5. Social factors impact the intelligence development in children in the early years (0-5 years):

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

6. The economic condition supports your child's education, mental and health needs and requirements.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

7. The economic condition supports your child's educational needs and requirements.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

8. Your area's political situation is child-friendly regarding education, health, sports, etc.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

9. The environment in your region is supportive of the child's growth mentally and physically.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

10. There is enough greenery, playgrounds, a pollution-free environment, etc.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

11. The parent plays a critical role in nurturing a child's intelligence development during their early years.

- Strongly Agree
- Agree

- Disagree
- Strongly Disagree

11. Is there Access to quality early childhood education in your area?

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

12. What challenges do you face in your locality in optimising your child's early developmental years?
    - Limited Access to resources, facilities, and play Infrastructure
    - Financial Constraints
    - Lack of Information
    - Other
13. What resources and support may you need to facilitate their child's early intellectual growth?
    - Financial Support
    - Educational Materials
    - Parenting Classes
    - Other
14. Is there a scope for improvement in the local education system?

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

15. More socio-cultural activities help children be socially intelligent.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

16. Mindful use of multimedia tools at home could effectively develop a child's learning capability.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

17. Encouraging children to perform to demonstrate what they've learned enhances their understanding.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

18. Do you use real-life examples and demonstrative teaching with children to make them learn simple daily life activities?

- Yes
- No

19. Effective monitoring and assessment systems are in place to track your child's Intelligence development.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

20. The local community actively supports and impacts the children's education and development in the early years.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

21. Responsive and sensitive parenting should be promoted to build strong emotional bonds between my child and parents.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

22. The government should allocate additional resources to support the development of multiple intelligences in early childhood education for the Northeast region.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

23. Government policies should encourage integrating cultural diversity and local languages into early childhood education programs to cater to the unique context of the Northeast region.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

24. The region's economic challenges affect parents' ability to provide enriching experiences for their child's multiple intelligences development.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

25. The political climate and governance in Northeastern India directly impact early childhood education and the development of multiple intelligences.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

26. In your opinion, to what extent does the social support system in your community contribute to enhancing your child's development of multiple intelligences?

- Very Supportive
- Moderately Supportive
- Slightly Supportive
- Not Supportive
- Not Sure

27. How do you view the role of traditional practices and local customs in promoting multiple intelligences in early childhood within Northeastern India?

- Highly Beneficial
- Moderately Beneficial
- Slightly Beneficial
- Not Beneficial
- Not Sure

28. Are there sufficient extracurricular activities and creative expression opportunities for young children in your region to nurture their multiple intelligences?

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

29. There is a need for increased awareness and integration of multiple intelligences from a cultural perspective within the community in Northeastern India to facilitate the better implementation and development of multiple intelligences in young children?"

- Strongly Agree
- Agree

- Disagree
- Strongly Disagree

30. There is a need for community and government support to increase awareness of the importance of socio-cultural impact on early childhood development.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

Thank you for your thoughtful responses to this questionnaire. Your valuable input and insights are greatly appreciated, and they will contribute significantly to our research and its success.

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