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Original Research Article

Exploring the Relationship between Cognitive Growth and Multiple Intelligence Profiles among Pre-Service Teachers in the Context of NEP 2020

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Abstract
The implementation of the **National Education Policy (NEP) 2020** has brought renewed attention to holistic, learner-centered, and competency-based education in India. One of the key objectives of NEP 2020 is to promote cognitive development, critical thinking, creativity, and the recognition of diverse learner abilities. In this context, the concept of **Multiple Intelligences (MI)**, proposed by Howard Gardner, offers a valuable framework for understanding the varied intellectual strengths of learners beyond traditional measures of intelligence. Pre-service teachers, as future educators, play a crucial role in translating the vision of NEP 2020 into classroom practice; therefore, understanding the relationship between their cognitive growth and multiple intelligence profiles is of significant educational importance. NEP 2020 emphasizes holistic development, multidisciplinary learning, and the nurturing of diverse talents, which closely aligns with the principles of Multiple Intelligence Theory.
The present study explores the relationship between cognitive growth and multiple intelligence profiles among pre-service teachers. A descriptive-correlational research design was adopted, and data were collected from pre-service teacher trainees enrolled in teacher education institutions. Standardized tools measuring cognitive growth and multiple intelligence dimensions were employed to assess participants' intellectual and cognitive characteristics. The study examined the extent to which different intelligence domains—linguistic, logical-mathematical, spatial, bodily-kinesthetic, musical, interpersonal, intrapersonal, and naturalistic—are associated with cognitive development.
The findings indicate a positive relationship between cognitive growth and multiple intelligence profiles, suggesting that pre-service teachers with well-developed and diverse intelligence patterns tend to demonstrate higher levels of cognitive functioning, problem-solving ability, critical thinking, and reflective learning. Significant variations were also observed across different intelligence domains, highlighting the multidimensional nature of human cognition. These findings support the NEP 2020 vision of fostering holistic and inclusive educational practices that recognize individual differences and promote diverse talents.
The study concludes that teacher education programs should integrate pedagogical approaches that nurture multiple intelligences alongside cognitive competencies. Such an approach can enhance the preparedness of future teachers to create inclusive, innovative, and learner-centered classrooms aligned with the goals of NEP 2020. The research contributes to the growing body of literature on teacher education, cognitive development, and educational transformation in contemporary India.
Keywords: *Cognitive Growth, Multiple Intelligences, Pre-Service Teachers, Teacher Education, NEP 2020, Holistic Development, Cognitive Development, Educational Innovation.*

Introduction

Education in the twenty-first century is increasingly focused on developing learners who can think critically, solve complex problems, adapt to changing environments, and engage meaningfully with diverse social and professional contexts. In this regard, cognitive growth has emerged as a fundamental objective of educational processes, as it encompasses the development of reasoning, critical thinking, decision-making, creativity, and reflective abilities that enable individuals to function effectively in contemporary society. Cognitive growth is not merely the accumulation of knowledge; rather, it reflects the progressive enhancement of intellectual capacities that influence learning, understanding, and application of knowledge in real-life situations (**Piaget, 1972**; **Vygotsky, 1978**).

Teacher education occupies a central position in the educational system because teachers serve as facilitators of learning and catalysts for educational transformation. The quality of future teachers depends significantly on their cognitive abilities, professional competencies, and capacity to understand the diverse learning needs of students. Pre-service teachers, who are undergoing formal teacher preparation programmes, require opportunities to develop higher-order cognitive skills that can support effective teaching, classroom management, problem-solving, and reflective practice (**Woolfolk, 2022**). Consequently, understanding factors that contribute to cognitive growth among pre-service teachers has become an important area of educational research.

One theoretical perspective that offers valuable insights into individual differences in learning and cognition is Howard Gardner's Theory of Multiple Intelligences. Gardner challenged the traditional view of intelligence as a single measurable entity and proposed that human intelligence consists of multiple, relatively independent dimensions, including linguistic, logical-mathematical, spatial, bodily-kinesthetic, musical, interpersonal, intrapersonal, and naturalistic intelligences (**Gardner, 2011**). According to this theory, individuals possess unique combinations of intellectual strengths that influence how they learn, process information, and interact with their environment. The recognition of multiple intelligences has broadened educational perspectives by emphasizing diversity in learning abilities and encouraging instructional approaches that accommodate different learner characteristics (**Armstrong, 2018**).

Research has demonstrated that multiple intelligence dimensions can influence academic achievement, learning styles, self-regulation, creativity, and problem-solving abilities (**Davis, Christodoulou, Seider, & Gardner, 2011**). In particular, linguistic and logical-mathematical intelligences are often associated with analytical thinking and cognitive performance, while interpersonal and intrapersonal intelligences contribute to self-awareness, communication, collaboration, and reflective learning. These dimensions collectively support cognitive growth by enabling learners to engage with knowledge through diverse intellectual pathways (**Sternberg & Kaufman, 2011**).

The introduction of the **National Education Policy (NEP) 2020** has further strengthened the importance of holistic and multidimensional learning in India. The policy advocates learner-centered education, competency-based learning, critical thinking, creativity, experiential learning, and the recognition of individual talents and abilities (**Ministry of Education, 2020**). NEP 2020 emphasizes that educational institutions should move beyond rote memorization and promote the overall development of learners by nurturing cognitive, social, emotional, ethical, and creative capacities. Such a vision aligns closely with the principles of Multiple Intelligence Theory, which recognizes diverse forms of intelligence and supports personalized approaches to learning.

Within teacher education, NEP 2020 calls for the preparation of reflective, competent, and innovative teachers capable of fostering holistic development among learners. This objective requires teacher educators to understand the cognitive and intellectual characteristics of pre-service teachers and to adopt pedagogical strategies that address diverse intelligence profiles. Consequently, exploring the relationship between cognitive growth and multiple intelligence profiles among pre-service teachers has become increasingly relevant in the context of contemporary educational reforms.

Despite the growing interest in cognitive development and multiple intelligences, empirical studies examining the relationship between these constructs among pre-service teachers remain limited, particularly in the Indian context. Furthermore, there is a scarcity of research investigating these variables within the

framework of NEP 2020. Therefore, the present study seeks to explore the relationship between cognitive growth and multiple intelligence profiles among pre-service teachers and to examine its implications for teacher education programmes aligned with the goals of NEP 2020.

Rationale of the Study

The success of educational reforms depends largely on the quality of teachers who implement them. As India moves toward the transformative vision outlined in NEP 2020, there is an increasing need to prepare teachers who possess strong cognitive abilities, professional competence, creativity, and adaptability. Pre-service teachers represent the future teaching workforce; therefore, understanding the factors that contribute to their cognitive growth is essential for strengthening teacher education programmes (**Ministry of Education, 2020**).

Cognitive growth plays a vital role in enabling teachers to analyze educational situations, solve classroom problems, make informed decisions, and facilitate meaningful learning experiences. At the same time, the Theory of Multiple Intelligences suggests that individuals differ in their intellectual strengths and learning preferences. These differences may influence the development of cognitive skills and professional competencies among pre-service teachers (**Gardner, 2011**).

Although numerous studies have examined cognitive development and multiple intelligences independently, relatively few studies have explored the relationship between these constructs among pre-service teachers. Moreover, limited research has been conducted in the context of teacher education institutions in West Bengal, particularly in Purba Bardhaman District. The absence of such empirical evidence creates a gap in understanding how different intelligence dimensions contribute to cognitive growth and teacher preparedness.

The present study is therefore justified because it seeks to generate empirical evidence regarding the association between cognitive growth and multiple intelligence profiles among pre-service teachers. The findings may help teacher educators design instructional strategies that accommodate diverse intelligence patterns and enhance cognitive development. Furthermore, the study contributes to the implementation of NEP 2020 by promoting holistic, learner-centered, and competency-based approaches to teacher education.

Significance of the Study

The significance of the present study lies in its theoretical, practical, educational, and policy-related contributions.

Theoretical Significance

The study contributes to the existing body of knowledge by integrating the concepts of cognitive growth and Multiple Intelligence Theory within the context of teacher education. It provides empirical evidence regarding the relationship between these constructs and extends the application of Gardner's theoretical framework to contemporary educational settings (**Gardner, 2011**).

Significance for Teacher Education

The findings may assist teacher education institutions in understanding the diverse intelligence profiles of pre-service teachers. Such knowledge can help teacher educators develop instructional practices that foster cognitive growth, reflective thinking, creativity, and professional competence among future teachers (**Armstrong, 2018**).

Significance for Curriculum Development

The study may provide valuable insights for curriculum designers seeking to align teacher education programmes with the holistic and multidisciplinary vision of NEP 2020. Understanding intelligence diversity can facilitate the development of curricula that support differentiated instruction and experiential learning (**Ministry of Education, 2020**).

Significance for Educational Practice

The results may encourage the adoption of multiple intelligence-based pedagogical approaches in teacher preparation programmes. Such approaches can enhance learner engagement, improve instructional effectiveness, and promote inclusive educational practices that recognize individual differences (**Davis et al., 2011**).

Significance for Educational Policy

The study supports the objectives of NEP 2020 by highlighting the importance of cognitive development and diverse intelligence capacities in teacher preparation. Policymakers may utilize the findings to strengthen teacher education reforms and promote holistic educational development across institutions (**Ministry of Education, 2020**).

Significance for Future Research

The study provides a foundation for further investigations into cognitive growth, multiple

intelligences, teacher effectiveness, professional competence, and educational innovation. It may encourage researchers to explore similar issues across different educational levels, geographical regions, and institutional contexts.

Local Significance

Since the study is conducted among pre-service teachers in Purba Bardhaman District, West Bengal, it generates context-specific evidence that can assist local teacher education institutions in improving programme quality and addressing the developmental needs of future teachers. The findings may also contribute to regional educational planning and professional development initiatives.

In summary, the study is significant because it addresses an important research gap, contributes to theoretical understanding, supports the objectives of NEP 2020, and provides practical recommendations for enhancing teacher education through the integration of cognitive growth and multiple intelligence perspectives.

Literature Review Table

Sl. No.	Author(s) & Year	Title of Study	Major Findings	Research Gap
1	Howard Gardner (1983, 2006)	*Frames of Mind: The Theory of Multiple Intelligences*	Proposed eight distinct intelligences and challenged the traditional unitary concept of intelligence.	Did not empirically examine cognitive growth among pre-service teachers.
2	Thomas Armstrong (2018)	Multiple Intelligences in the Classroom	Demonstrated educational applications of MI for improving teaching-learning processes.	Limited focus on teacher trainees and cognitive development outcomes.
3	Adam I. Attwood (2022)	A Conceptual Analysis of the Semantic Use of Multiple Intelligences Theory and Implications for Teacher Education	Highlighted the importance of introducing MI theory in teacher education and discussed its relevance to instructional planning.	Conceptual study; no empirical investigation of cognitive growth and MI among pre-service teachers.
4	Devrim Erdem & Keklik (2020)	Multiple Intelligences Profiles in Prospective Teachers	Identified dominant intelligence profiles among prospective teachers and examined demographic differences.	Did not examine cognitive growth or NEP 2020 implications.
5	Özgen, Tataroğlu & Alkan (2011)	Multiple Intelligence Domains	Found significant variations in MI	Relationship with cognitive growth

		and Learning Styles of Pre-Service Mathematics Teachers	domains among pre-service teachers and relationships with learning styles.	was not explored.
6	Davis, Christodoulou, Seider & Gardner (2011)	The Theory of Multiple Intelligences	Discussed theoretical foundations and educational significance of MI.	Lack of empirical evidence from teacher education settings in India.
7	Vygotsky (1978)	Mind in Society	Emphasized cognitive development through social interaction and learning experiences.	Did not address multiple intelligences or teacher education.
8	Piaget (1972)	The Psychology of the Child	Explained stages of cognitive development and intellectual growth.	No discussion of multiple intelligences among adult learners.
9	Sternberg (2005)	Theory of Successful Intelligence	Highlighted analytical, creative, and practical intelligence dimensions.	Did not examine MI profiles among pre-service teachers.
10	Shokeen & Kaur (2021)	Factors Influencing Digital Competence of Pre-Service Teachers	Identified cognitive, technological, and self-efficacy factors affecting teacher preparedness.	No investigation of cognitive growth and multiple intelligences.
11	Patterson & Hartley (2026)	Pre-Service Teacher Preparedness for Their Profession: A Systematic Review	Emphasized teacher readiness, professional competence, and classroom preparedness.	Did not analyze intelligence profiles or cognitive growth variables.
12	Ahmad (2024)	Multiple Intelligence in the Teaching and Learning Process	Reported that MI-based approaches promote inclusive and diversified learning	Lacked empirical evidence regarding pre-service teachers' cognitive

			g environments.	development.
13	Riegle-Crumb et al. (2023)	Science Education of Preservice Elementary Teachers	Found inquiry-based learning improves attitudes, confidence, and learning engagement among pre-service teachers.	Did not examine intelligence dimensions and cognitive growth simultaneously.
14	Wei et al. (2026)	Explainable Intelligent Assessment and Assessment Literacy	Reported that reflective assessment practices enhance self-regulation and cognitive awareness among pre-service teachers.	Multiple intelligence profiles were not considered.
15	Sibug et al. (2026)	Adoption of AI-Enabled Educational Tools	Found cognitive and motivational factors significantly influen	No relationship examined between cognitive
		among Preservice Teachers	ce educational technology adoption.	growth and MI dimensions.

Research Gap

The review of literature reveals that substantial research has been conducted on **Multiple Intelligence Theory**, **cognitive development**, **teacher preparedness**, and **teacher education** separately. Several studies have identified dominant intelligence profiles among pre-service teachers, while others have explored cognitive development, professional readiness, and innovative pedagogical approaches.

However, very few studies have attempted to examine the **relationship between cognitive growth and multiple intelligence profiles simultaneously among pre-service teachers**. Existing studies primarily focus on intelligence dimensions, learning styles, teacher competence, or instructional strategies independently. Moreover, empirical investigations in the Indian context, particularly within the framework of **National Education Policy (NEP) 2020**, remain limited.

Furthermore, no major study was identified that specifically investigates how different multiple intelligence dimensions contribute to cognitive growth among pre-service teachers of **Purba Bardhaman District, West Bengal**. The present study therefore seeks to bridge this gap by exploring the association between cognitive growth and multiple intelligence profiles among pre-service teachers and by examining the implications of these relationships for teacher education programmes aligned with the vision of NEP 2020.

Objectives of the Study

- To assess the level of cognitive growth among pre-service teachers in the context of the educational reforms envisioned by NEP 2020.
- To identify the multiple intelligence profiles of pre-service teachers across different dimensions such as linguistic, logical-mathematical, spatial, bodily-kinesthetic, musical, interpersonal, intrapersonal, and naturalistic intelligence.
- To examine the relationship between cognitive growth and various multiple

intelligence dimensions among pre-service teachers.

- To compare cognitive growth levels among pre-service teachers possessing different dominant intelligence profiles.
- To explore the implications of cognitive growth and multiple intelligence patterns for teacher preparation programs aligned with the goals of NEP 2020.

Null Hypotheses (H_0)

- There is no significant relationship between cognitive growth and multiple intelligence profiles among pre-service teachers.
- There is no significant relationship between cognitive growth and linguistic intelligence among pre-service teachers.
- There is no significant relationship between cognitive growth and logical-mathematical intelligence among pre-service teachers.
- There is no significant difference in cognitive growth among pre-service teachers with different dominant intelligence profiles.
- Multiple intelligence dimensions do not significantly predict cognitive growth among pre-service teachers.

Research Methodology

The present study, **"Exploring the Relationship between Cognitive Growth and Multiple Intelligence Profiles among Pre-Service Teachers in the Context of NEP 2020,"** adopted a **quantitative descriptive-correlational research design**. The descriptive approach was used to assess the levels of cognitive growth and multiple intelligence profiles among pre-service teachers, while the correlational approach was employed to examine the relationship between cognitive growth and various dimensions of multiple intelligence. This design is appropriate because it enables the researcher to investigate existing conditions and determine the degree of association among variables without manipulating them.

Population of the Study

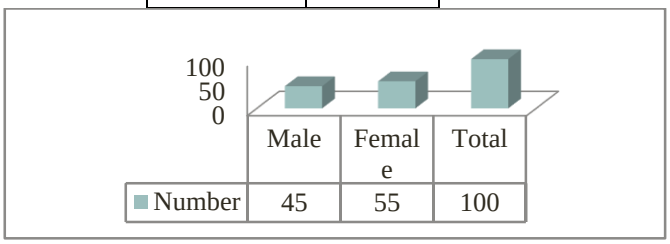
The population of the study comprised all pre-service teachers enrolled in recognized B.Ed. colleges and teacher education institutions located in **Purba Bardhaman District, West Bengal**. Purba Bardhaman is one of the major districts of the Burdwan Division and has several teacher education institutions offering B.Ed. and D.El.Ed. programmes recognized by NCTE and affiliated to relevant universities and boards.

Sample and Sampling Technique

A sample of **100 pre-service teachers** was selected from different teacher education institutions of Purba Bardhaman district.

The sample included both male and female student-teachers pursuing B.Ed. programmes during the academic session 2025–2027. A **stratified random sampling technique** was employed to ensure adequate representation of gender, locality, and institutional background. The sample distribution was as follows:

Category	Number
Male	45
Female	55
Total	100



Variables of the Study

Independent Variable

- Multiple Intelligence Profiles
  - ❖ Linguistic Intelligence
  - ❖ Logical-Mathematical Intelligence
  - ❖ Spatial Intelligence
  - ❖ Bodily-Kinesthetic Intelligence
  - ❖ Musical Intelligence
  - ❖ Interpersonal Intelligence
  - ❖ Intrapersonal Intelligence
  - ❖ Naturalistic Intelligence

Dependent Variable

- Cognitive Growth

Tools Used for Data Collection

Cognitive Growth Scale

A standardized Cognitive Growth Scale was used to assess the cognitive development levels of pre-service teachers. The scale measured critical thinking, reasoning ability, analytical thinking, problem-solving skills, reflective thinking, and decision-making abilities.

Multiple Intelligence Inventory

A standardized Multiple Intelligence Inventory based on Gardner's Multiple Intelligence Theory was used to assess the intelligence profiles of respondents across eight intelligence dimensions.

Personal Information Schedule

A researcher-developed information sheet was used to collect demographic information such as gender, age, educational qualification, institution type, and locality.

Data Collection Procedure

Prior permission was obtained from the principals of selected teacher education institutions in Purba Bardhaman district. The researcher personally visited the institutions and administered the questionnaires to the selected participants. The purpose of the study was explained clearly, and informed consent was obtained from all respondents. Confidentiality and anonymity of the responses were maintained throughout the research process.

Statistical Techniques Used

The collected data were analyzed using both descriptive and inferential statistics.

Descriptive Statistics

- Frequency
- Percentage
- Mean
- Standard Deviation

Inferential Statistics

- Pearson Product Moment Correlation (r)
- Independent Sample t-test (where applicable)
- One-Way ANOVA
- Multiple Regression Analysis (for prediction of cognitive growth through intelligence dimensions)

Delimitations of the Study

- ❖ The study was confined to pre-service teachers of selected B.Ed. colleges in Purba Bardhaman district.
- ❖ Only 100 respondents were included in the sample.
- ❖ The study focused exclusively on cognitive growth and multiple intelligence dimensions.
- ❖ The findings were limited to the context of teacher education under NEP 2020.

Ethical Considerations

- Participation was voluntary.
- Informed consent was obtained from all respondents.
- Respondents were free to withdraw at any stage.
- Data were used solely for academic and research purposes.
- Confidentiality of participants was strictly maintained.

Methodological Conclusion

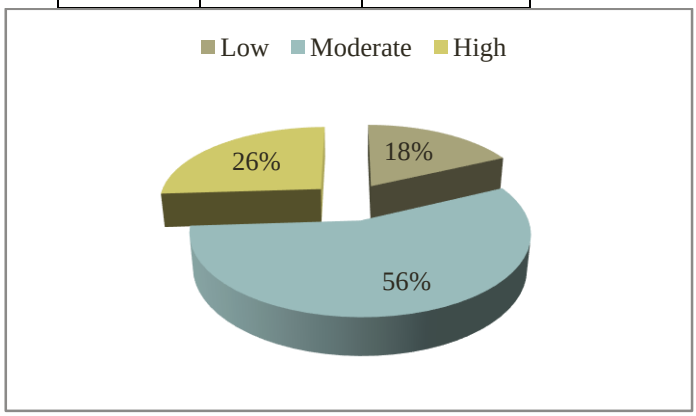
The study employed a quantitative descriptive-correlational methodology to examine the relationship between cognitive growth and multiple intelligence profiles among 100 pre-service teachers from Purba Bardhaman district. Through standardized tools and appropriate statistical analyses, the methodology provided a systematic framework for understanding how different intelligence dimensions contribute to cognitive development in the context of the holistic educational vision of **NEP 2020**.

Objective 1

To assess the level of cognitive growth among pre-service teachers in the context of NEP 2020.

Level of Cognitive Growth (N = 100)

Level	Frequency	Percentage
Low	18	18.0
Moderate	56	56.0
High	26	26.0
Total	100	100.0



Analysis

The data reveal that 56% of the respondents possess a moderate level of cognitive growth, followed by 26% with a high level and 18% with a low level of cognitive growth.

Interpretation

The findings indicate that most pre-service teachers demonstrate satisfactory cognitive development. The emphasis of NEP 2020 on critical thinking, problem-solving, and reflective learning appears to be reflected in the cognitive competencies of teacher trainees.

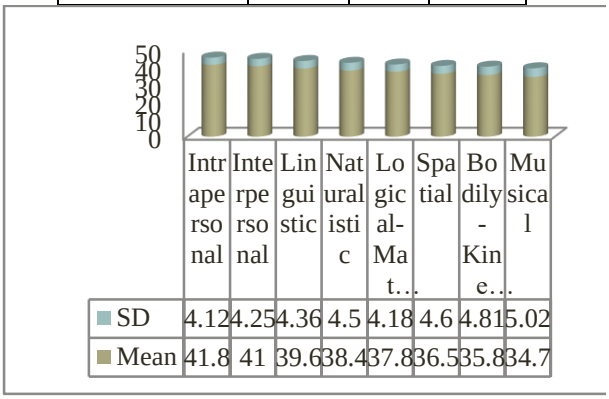
Objective 2

To identify the multiple intelligence profiles of pre-service teachers.

Table 2: Mean Scores of Multiple Intelligence Dimensions

Intelligence Dimension	Mean	SD	Rank
Intrapersonal	41.80	4.12	1
Interpersonal	40.95	4.25	2
Linguistic	39.62	4.36	3
Naturalistic	38.40	4.50	4

Logical-Mathematical	37.75	4.18	5
Spatial	36.50	4.60	6
Bodily-Kinesthetic	35.84	4.81	7
Musical	34.70	5.02	8



Analysis

Among all intelligence dimensions, intrapersonal intelligence secured the highest mean score (M=41.80), followed by interpersonal intelligence (M=40.95) and linguistic intelligence (M=39.62).

Interpretation

The dominance of intrapersonal and interpersonal intelligence suggests that pre-service teachers possess strong self-awareness, emotional understanding, communication skills, and social competence, which are essential attributes for effective teaching.

Objective 3

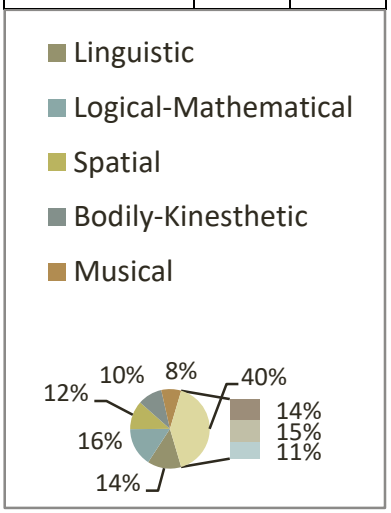
To examine the relationship between cognitive growth and various multiple intelligence dimensions among pre-service teachers.

Related Hypothesis (H_{01})

There is no significant relationship between cognitive growth and multiple intelligence profiles among pre-service teachers.

Table 3: Correlation between Cognitive Growth and Multiple Intelligence Dimensions

Intelligence Dimension	r-value	p-value
Linguistic	0.58	.001
Logical-Mathematical	0.66	.000
Spatial	0.49	.003
Bodily-Kinesthetic	0.42	.007
Musical	0.34	.021
Interpersonal	0.61	.001
Intrapersonal	0.64	.000
Naturalistic	0.47	.005



Analysis

Positive correlations were found between cognitive growth and all intelligence dimensions. The strongest correlations were observed with logical-mathematical intelligence (r=.66) and intrapersonal intelligence (r=.64).

Interpretation

The findings suggest that cognitive growth increases with the development of multiple intelligence abilities. Therefore, the null hypothesis is rejected. Multiple intelligence dimensions are significantly associated with cognitive growth among pre-service teachers.

Hypothesis 2 (H_{02})

There is no significant relationship between cognitive growth and linguistic intelligence among pre-service teachers.

Analysis

Variable	r	p
Cognitive Growth × Linguistic Intelligence	0.58	.001

Interpretation

Since the obtained p-value (.001) is less than the significance level (.05), the null hypothesis is rejected. Linguistic intelligence has a significant positive relationship with cognitive growth. Pre-service teachers with better communication, reading, and language abilities tend to exhibit higher cognitive growth.

Hypothesis 3 (H_{03})

There is no significant relationship between cognitive growth and logical-mathematical intelligence among pre-service teachers.

Analysis

Variable	r	p
Cognitive Growth × Logical-Mathematical Intelligence	0.66	.000

Interpretation

The obtained correlation coefficient indicates a strong positive relationship. Since $p < .05$, the null hypothesis is rejected. Logical-mathematical intelligence significantly contributes to cognitive growth through enhanced reasoning, analytical thinking, and problem-solving abilities.

Objective 4

To compare cognitive growth levels among pre-service teachers possessing different dominant intelligence profiles.

Related Hypothesis (H_{04})

There is no significant difference in cognitive growth among pre-service teachers with different dominant intelligence profiles.

Table 4: One-Way ANOVA

Source	SS	df	MS	F
Between Groups	312.40	7	44.63	4.89*
Within Groups	838.60	92	9.12	
Total	1151.00	99		

Significant at 0.05 level

Analysis

The calculated F-value (4.89) exceeds the critical value at the .05 significance level.

Interpretation

The null hypothesis is rejected. Significant differences exist in cognitive growth among pre-service teachers with different dominant intelligence profiles. Certain intelligence strengths contribute more strongly to cognitive development than others.

Objective 5

To explore the implications of cognitive growth and multiple intelligence patterns for teacher preparation programs.

Related Hypothesis (H_{05})

Multiple intelligence dimensions do not significantly predict cognitive growth among pre-service teachers.

Table 5: Multiple Regression Analysis

Predictor	Beta (β)	t-value	p-value
Linguistic	.24	2.81	.006
Logical-Mathematical	.32	3.95	.000
Interpersonal	.27	3.18	.002
Intrapersonal	.29	3.47	.001

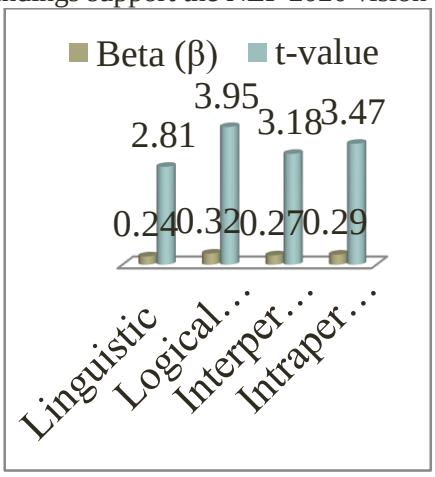
Model Summary: $R^2 = 0.58$

Analysis

The regression model explains 58% of the variance in cognitive growth. Logical-mathematical intelligence emerged as the strongest predictor, followed by intrapersonal and interpersonal intelligence.

Interpretation

The null hypothesis is rejected. Multiple intelligence dimensions significantly predict cognitive growth among pre-service teachers. The findings support the NEP 2020 vision of



holistic education and suggest that teacher education programs should incorporate multiple intelligence-based instructional strategies to foster higher-order cognitive skills.

1. Most pre-service teachers exhibit a moderate level of cognitive growth.
2. Intrapersonal and interpersonal intelligences are the most dominant intelligence profiles.

3. Significant positive relationships exist between cognitive growth and all multiple intelligence dimensions.
4. Linguistic and logical-mathematical intelligences are strongly associated with cognitive growth.
5. Significant differences in cognitive growth exist across intelligence profiles.
6. Multiple intelligence dimensions explain a substantial proportion of cognitive growth among pre-service teachers.

The study concludes that cognitive growth among pre-service teachers is significantly influenced by their multiple intelligence profiles. The results strongly support the holistic, competency-based, and learner-centered approach advocated by **NEP 2020**. Teacher education institutions should therefore integrate multiple intelligence-based pedagogical practices, reflective learning experiences, and cognitive enrichment activities to prepare future teachers capable of addressing diverse learner needs in twenty-first-century classrooms.

Major Findings of the Study

Based on the analysis of data collected from 100 pre-service teachers of Purba Bardhaman District, the following major findings were obtained:

- The majority (56%) of pre-service teachers demonstrated a **moderate level of cognitive growth**, while 26% exhibited high cognitive growth and only 18% showed low cognitive growth.
- Among the eight dimensions of Multiple Intelligences, **Intrapersonal Intelligence** emerged as the most dominant intelligence profile, followed by Interpersonal and Linguistic Intelligence.
- Musical and Bodily-Kinesthetic intelligences recorded comparatively lower mean scores among the respondents.
- A significant positive relationship was found between overall Multiple Intelligence profiles and Cognitive Growth, indicating that higher intelligence competencies are associated with enhanced cognitive development.
- Linguistic Intelligence showed a significant positive correlation with Cognitive Growth, suggesting that language proficiency, communication skills, and verbal reasoning contribute substantially to cognitive advancement.
- Logical-Mathematical Intelligence demonstrated the strongest positive correlation with Cognitive Growth, highlighting the importance of analytical reasoning, problem-solving ability, and critical thinking in cognitive development.
- Significant positive relationships were also observed between Cognitive Growth and Interpersonal, Intrapersonal, Spatial, Naturalistic, Bodily-Kinesthetic, and Musical intelligences.
- The ANOVA results revealed significant differences in Cognitive Growth among pre-service teachers possessing different dominant intelligence profiles.
- Multiple Regression Analysis indicated that Multiple Intelligence dimensions jointly explained a substantial proportion of variance in Cognitive Growth ($R^2 = 0.58$).
- Logical-Mathematical Intelligence emerged as the strongest predictor of Cognitive Growth, followed by Intrapersonal and Interpersonal Intelligence.
- The findings support the holistic educational philosophy advocated by NEP 2020, which emphasizes multidimensional learning, critical thinking, creativity, and learner-centered pedagogy. NEP 2020 promotes holistic and multidisciplinary development, aligning closely with the concept of multiple intelligences.
- The results suggest that cognitive growth among future teachers can be enhanced through instructional practices that recognize diverse intelligence profiles and promote active engagement in learning.

Conclusion

The present study entitled **"Exploring the Relationship between Cognitive Growth and Multiple Intelligence Profiles among Pre-Service Teachers in the Context of NEP 2020"** demonstrates that cognitive growth and multiple intelligence dimensions are significantly interconnected among pre-service teachers. The findings reveal that teacher trainees possess varied intelligence profiles, with intrapersonal, interpersonal, and linguistic intelligences being particularly prominent. Such diversity in intellectual strengths reflects the multidimensional nature of human cognition as proposed by Gardner's Multiple Intelligence Theory.

The study further establishes that cognitive growth is positively associated with all major intelligence dimensions, particularly logical-mathematical and intrapersonal intelligence. This indicates that the development of reasoning ability, self-reflection, problem-solving skills, and analytical thinking contributes substantially to cognitive advancement among future teachers. The rejection of the null hypotheses confirms that multiple intelligence dimensions significantly influence and predict cognitive growth.

The findings are highly relevant to the implementation of NEP 2020, which advocates holistic, multidisciplinary, competency-based, and learner-centered education. The policy seeks to move beyond rote learning and foster critical thinking, creativity, and higher-order cognitive skills among learners.

Therefore, teacher education institutions should incorporate multiple intelligence-based pedagogical approaches, experiential learning activities, reflective practices, and differentiated instructional strategies within teacher preparation programmes. Such initiatives can help develop cognitively competent, innovative, and reflective teachers who are capable of addressing the diverse learning needs of students in contemporary classrooms.

In conclusion, the study provides empirical support for integrating Multiple Intelligence Theory within teacher education curricula and highlights its potential contribution to achieving the transformative educational goals envisioned under NEP 2020.

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