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**Department of Research and Evaluation
STATE COUNCIL OF EDUCATIONAL RESEARCH
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**DEPARTMENT OF
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Message from the Director, SCERT, Assam

In the realm of education, research-based interventions have now attained the status of an essential tool, deemed indispensable for ensuring the quality of education. Conventional and stereotypical educational endeavours have proven to yield meagre outcomes in terms of advancing the educational landscape of a nation. Hence, it becomes imperative that our state embraces innovative, research-driven actions to propel itself forward in alignment with the contemporary advancements within the educational domain.

Since its inception, SCERT, Assam, has consistently underscored the importance of research and activities rooted in research, particularly pertaining to school and teacher education. It is with great pride that the Department of Research and Evaluation at SCERT, Assam, presents the Eight volume (No.I) of its Educational Research Journal. This compilation showcases research contributions from scholars engaged in diverse educational spheres.

It is my anticipation that this enlightening journal will effectively facilitate the dissemination of research findings amongst educational practitioners. Moreover, I believe it will serve as a valuable resource for teachers, teacher educators, educational planners, and administrators, aiding them in comprehending the current status of school and teacher education. Furthermore, it will empower them to formulate pertinent, outcome-oriented strategies for the advancement of these domains.

I extend my heartfelt gratitude to all the diligent contributors of research papers, the esteemed members of the editorial board, the discerning reviewers, the assiduous editors, and the unwavering support group. Their painstaking efforts have culminated in the publication of this volume.

Dr. Nirada Devi
Director, SCERT, Assam, Ghy-19
Chief Editor

The Editorial Board is pleased to present the June 2026 issue of the *Educational Research Journal, SCERT Assam*, featuring scholarly contributions from researchers and academicians representing renowned institutions such as *Jamia Millia Islamia*, *Banaras Hindu University (BHU)*, *Regional Institute of Education (NCERT)*, *Tezpur University*, *Sibsagar University*, *SCERTs*, *DIETs*, and other teacher/ higher education institutions across India. The diverse studies included in this volume address significant issues in contemporary education and reflect the growing engagement of researchers, teacher educators, and practitioners in shaping educational policy, pedagogy, and learner development through evidence-based inquiry.

The issue begins with a study on the **effect of counselling on career aspirations and self-efficacy among underachieving senior secondary students**, highlighting the significance of counselling in strengthening learners' confidence, aspirations, and educational trajectories. Complementing this learner-centred perspective, the study on **integrating assessment with school guidance and counselling** emphasizes the importance of addressing both academic and socio-emotional dimensions of secondary-stage learners.

The journal also brings attention to **educational quality and learning outcomes** through the comparative study of National Achievement Survey (now, PARAKH Rashtriya Sarvekshan) results in aspirational and non-aspirational districts of Jharkhand. The study provides an important perspective on disparities in educational achievement and the need for context-specific planning and interventions. Similarly, the study on **classroom behaviour and moral education in primary schools of Odisha in the context of NEP 2020** draws attention to the role of values, behaviour, and moral development in shaping meaningful educational experiences.

Technology and digital transformation constitute another significant strand of this volume. The exploratory study on teachers' awareness of the **DIKSHA App**, the study on **PM e-VIDYA and its impact on school education in Assam**, and the comparative study of **TPACK among pre-service and in-service teachers** collectively highlight the growing importance of digital platforms, technological competencies, and technology-integrated pedagogy. The study on **attitudes towards Artificial Intelligence among college teachers affiliated to Gauhati University** further brings an emerging dimension to the discourse on technology in higher education.

Questions of **equity, inclusion, and gender** are prominently represented. The study on gendered interaction in mathematics classrooms examines classroom experiences through a gender perspective, while the study on **gender differences in adjustment among adolescents in Guwahati** explores adjustment across home, health, social, and emotional domains. The review and empirical study on **Kasturba Gandhi Balika Vidyalayas (KGBVs)** in India, with particular reference to the Bodoland Territorial Region of Assam, further highlights the importance of educational opportunities for girls and the advancement of educational equity.

The issue also addresses important **context-specific educational and community concerns**. *Classroom Silence: Investigating the Fear of Speaking among High School Students in South Kamrup, Kamrup District, Assam* draws attention to students' classroom participation and the need for supportive environments that encourage learners to express themselves. The study on **activity-based learning among primary teachers** examines teachers' attitudes in relation to gender and locality, contributing to the discourse on learner-centred pedagogy.

Particularly relevant to Assam is the study on **flood-risk knowledge and flood-risk education among flood-affected people in Dhemaji District**. It highlights the educational dimensions of disaster preparedness and the importance of developing community knowledge and resilience in a flood-prone region.

Taken together, the studies in this volume demonstrate the breadth of contemporary educational research – from learner development and counselling to technology, assessment, gender, girls' education, pedagogy, and disaster-risk education. They offer valuable insights for **teachers, teacher educators, educational administrators, researchers, and policymakers**, while also opening avenues for further inquiry

The Editorial Board extends its sincere appreciation to all the authors for their valuable contributions; special thanks to the reviewers of this current volume – *Dr. Mona Sedwal, NIEPA Delhi; Dr. Padmini Bhuyan Baruah, Gauhati University; Dr. Daisy Borah, Dibrugarh University; Dr. Tulika Dey, NERIE (NCERT); Dr. Yeasmin Sultana, Tezpur University, Dr. Pratisha Padmashri Deka, Cotton University; Dr. Ratan Sarkar, Tezpur University, Dr. Munmi Saikia, Patharkandi College; Dr. Hitesh Sharma, Tezpur University; Dr. Abhimanyu Datta, IGNOU; Dr. Mohammad Asif, Tezpur University and Dr. Krishna Devi Bonia, IASE* for their rigorous assessment (blind peer review) and constructive feedback, which have helped maintain the quality and integrity of this publication. We also acknowledge the unstinted support of Dr. Nirada Devi, the Director, SCERT Assam in promoting educational research and fostering a culture of scholarly inquiry in the state.

We hope that the articles presented in this volume will stimulate meaningful dialogue, inspire further investigation, and contribute to the continuous improvement of educational practice and policy. Through such research endeavours, we move closer to realizing the shared goal of inclusive, equitable, and quality education for all, as envisaged in the National Education Policy (NEP) 2020.

Dr. Raj Kiran Doley,

Ph.D. (TU), PGDEPA (NIEPA Delhi), ECCE (NCERT)

EDITOR

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Study the Effect of Counselling on Career Aspirations and Self-Efficacy of Underachieving Senior Secondary Students of Rohtak District

Dr. Suman Lata, Assistant Professor
D.I.E.T. Madina, Rohtak (Haryana)

Abstract

Career counselling is an important means of supporting young people. Choosing a career, especially among a variety of alternatives, is a herculean task that is critical to one's life. This highlights the importance of guiding adolescents in their career planning and decision-making. The education system is responsible for supporting children in making sound career choices based on their abilities, aptitudes, interests, and other personality traits. Many studies have found that most secondary school dropouts in India made poor career choices due to unrealistic occupational goals. The aim of the study is to assess the influence of counselling on underachieving students' career goals and self-efficacy levels. Data were obtained from a sample of 140 class XI students of both genders drawn from several senior secondary schools in Rohtak. The data were collected using Ralf Schwarzer and Matthias Jerusalem's self-constructed career aspiration tool and self-efficacy measure. The data were quantitatively analyzed using descriptive statistics and a t-test to determine the significance of the mean difference in self-efficacy and career goals between underachievers in the control and experimental groups.

Keywords: *Career counselling, adolescents, vocational aspiration, self-efficacy and underachievers*

Introduction

The goal of education is to tap into a child's inner potential and help them achieve their full potential. Education should aim to bring about changes in students' knowledge and improve their skills and attitudes so that they grow into individuals who can adapt to changes in society. It is the responsibility of society to provide every individual with a fair chance and opportunities to demonstrate their potential. Education should instil habits, character, attitudes and personal attributes in students so that they are completely prepared to meet life's challenges and

changing economic conditions. Education is one of the most significant foundations of a nation; therefore, sound education must be provided for national development.

The school also plays a crucial role in forming the child's character, as well as providing them with opportunities for friendship and success. During this time, children go through a variety of changes, including growth, development, struggles, puberty, deciding between reliance and independence, making significant mistakes and realising them.

To develop properly, every child

requires affection, a sense of belonging and being needed, and respect as an individual. The sort of motivation a child receives, as well as the role of the family and the family's economic situation, all have an impact on their education and future success. It is vital to broaden educational opportunities for children since children born today have more potential than ever before, but for unknown reasons, many children fail to achieve success in life. These children are classified as underachievers.

Underachievers are young people who are not intellectually deficient, but who have average or even exceptional abilities. The failure of such children should be of great concern to a developing country like India, which cannot afford to lose human potential in the high ability range. Lewis (1941) said that at the age of the underachiever's educational age is 1 year below their physical ages. Gowan (1957) conducted an experiment in which he selected youngsters with an IQ of 130 or higher and classified them as underachievers in the middle third and severe underachievers in the bottom third.

Underachievement

Underachievement is a major issue in India's education system. Despite the provision of a wide range of education, most people in different countries are not given the opportunity to reach their full potential. To fully develop a country, it is critical to ensure that all of its residents realise their full potential. To prevent underachievement, every country should take prompt measures to improve education

and provide adequate resources. The primary goal of every educational system is to recognise and develop the potential of the child. Each child has unique potential.

Certain children, despite their potential, fail to develop fully and achieve the intended ultimate result at both physical and educational levels. Certain children, in addition to their academic performance, fail to realise their full potential compared to their peers. Because of this issue, many abilities remain undiscovered, and these talents are entirely wasted if not properly explored. The commission has also requested that the focus be on the key causes of children's underachievement, as well as the factors that hinder them from reaching their full potential. Some of the typical characteristics that contribute to underachievement include psychological issues, fluctuating moods, and increased stress in both students and teachers. However, the majority of the reasons for underachievement are linked to the child's social environment and surroundings. Underachievers feel the same way since they are not given adequate opportunities to demonstrate their skills and realise their potential.

Career Aspirations

A person's orientation towards an ideal career aim under ideal circumstances is reflected in their career aspirations. More recently, career aspiration provides information about a person's interests and expectations that is not based on facts. The concept of career aspiration can be defined as a set of demands, goals, and behavioural

intentions that people express in a variety of occupational fields. The social concept of career desire has centred on an individual's intention to advance through a hierarchy of roles. An individual who does not aspire to advance up a hierarchy has generally been described as lacking ambition. The relative stability of the childhood environment, as well as parents' child-rearing practices, causes the child to develop the habit of aspiring realistically or unrealistically. By adulthood, the individual has formed sentiments of personal inadequacy or superiority based on his success or failure in accomplishing his goals over time.

Self-Efficacy

Self-efficacy is a construct that focuses on an individual's assessment of their ability to perform successfully in a given situation. Albert Bandura described the construct as 'people's evaluations about their skills to arrange and execute courses of action required to achieve specified types of performance. It is critical to realize that the notion refers to ideas about one's perceived ability or inability to execute a certain activity, not one's actual capabilities or performance. The rise of social cognitive theories, which view individuals as active agents in control of their own choices and behaviours, sparked early interest in self-efficacy. Bandura (1977) contributed significantly to these advancements by demonstrating how self-efficacy beliefs influence our choice of tasks, the amount of effort we put into them, and our perseverance in completing them.

Bandura discovered four distinct sources for an individual's self-efficacy beliefs: (1) mastery experiences, (2) vicarious experiences, (3) verbal persuasion, and (4) physiological and affective conditions.

'Mastery experiences' refer to a person's recollection of and reflection on their own previous accomplishments in similar tasks, whereas 'vicarious experiences' arise from observing or hearing about the accomplishments of others. 'Verbal persuasion' refers to the assessments or feedback provided by others, whilst 'physiological and affective states' refer to a person's interpretation of information obtained through their own senses.

Counselling

There are many different experiences in life that people may struggle to deal with. Questions, choices and changes are all part of everyday life, and they are often easier to manage with the help of friends or family. Counseling is a practice designed to help people take more control of their daily lives. It is a process for discussing personal feelings and thoughts in confidence with someone who is an excellent listener. It is a technique in which clients are aided in resolving their own personal and interpersonal conflicts. Counsellors are educated to assist an individual with difficulties that cause anxiety, helping them to understand these difficulties and find solutions. Students of all ages and academic backgrounds are welcome to attend and receive assistance with a

variety of challenges. Personal counselling is provided to people to help them deal with a wide range of concerns, including stress, depression, marital problems and substance misuse. Counseling can usually be accessed quickly and at a low cost. The counsellor does not diagnose or label someone, but rather listens to the individual and works with them to find the best ways to understand and address their problems.

Review of Related Studies

Karishma Wahengbam and Monu Lal Sharma (2024) conducted a study on the impact of self-efficacy on career aspirations among males and females. The study revealed that self-efficacy significantly influences career aspirations and highlighted notable gender differences in self-efficacy levels, which affect professional choices.

Zhou (2024) examined the relationship between perceived parental career expectations and adolescent career development. The study found that career-planning and goal-setting self-efficacy act as mediating factors, while parent-adolescent career congruence serves as a moderating factor. The findings highlight that higher congruence strengthens the impact of parental expectations on adolescents' career adaptability and decision-making.

Jamwal and Gupta (2025) explored the role of self-efficacy and outcome expectations in shaping career choices among students with disabilities. Using a systematic review of studies (2015–2024), the findings highlighted that self-efficacy

and outcome expectations significantly influence career aspirations and decision-making. The study further emphasised the importance of tailored career counselling in enhancing students' confidence, improving career readiness, and supporting successful transitions to higher education and employment.

Savugathali, Mustafa, and Jusoh (2025) examined self-efficacy in career decision-making and outcome expectations among final-year students. The study found significant differences in self-efficacy across academic disciplines and highlighted its important role in influencing students' career decisions and expectations. The study examined students' self-efficacy in career decision-making and their outcome expectations among final-year university students in Malaysia. The findings revealed significant differences based on academic faculty, indicating that self-efficacy influences career decisions. The study highlighted the need for career guidance and counseling to enhance students' confidence and employability.

Rationale for the Study

India is experiencing high levels of illiteracy, wastage and stagnation of human potential, as well as brain drain to wealthier countries. It cannot afford to allow underachievers to become social misfits. Children are not born underachievers; their learned behaviour is learnt. Direction has an important role in resolving the students' educational, personal, social, mental, and emotional

concerns. The goal of guidance and counselling services for younger children is to promote academic achievement, increase self-efficacy, self-image, and coping abilities, reduce dropouts, and encourage positive attitudes towards life. Guidance services support teachers in the classroom and enable educators to provide quality guidance to assist students in their holistic development. School teachers can implement both systematic and appropriate interventions in schools and communities to prevent students from dropping out due to underachievement. The study intends to determine whether guidance can enhance these students' sense of self-worth and career goals. The researcher provided guidance to underachievers in order to increase their self-efficacy and career goals, which are important indicators of success. This study may encourage administrators to consider appointing school counsellors to assist underachievers.

Statement of the Problem

Study the Effect of Counselling on Career Aspirations and Self-Efficacy of Underachieving Senior Secondary Students of Rohtak District.

Operational Definition of Variables

Counselling: A process in which individuals learn about themselves, their interpersonal relationships and behaviour that advances their personal development.

Underachievers: Underachievers are those whose educational age is one year or more below their mental age. They represent a slower rate of learning than would be otherwise predicted by the level of intellectual function.

Self-efficacy: Self-efficacy refers to a

person's belief in their own ability to complete tasks and achieve goals. It is a self-judgment of someone's capacity to carry out a job within a particular domain.

Career Aspiration: A career aspiration is a goal or aim of a person in accordance with their career choices.

Objectives of the Study

1. To study the relationship between the career aspirations and self-efficacy of underachievers.
2. To study the effect of counselling intervention on self-efficacy of underachievers.
3. To study the effect of counseling treatment on career aspirations of underachievers.

Hypothesis of the Study

1. There is no significant relationship between self-efficacy and career aspirations of underachievers.
2. There is no significant difference in the pre-test and post-test self-efficacy scores of the sample.
3. There is no significant difference in the pre-test and post-test career aspiration scores of the sample.

Independent Variable

- Counselling

Dependent Variable:

- Self-efficacy
- Career aspiration

Research Methodology

Method: An experimental research methodology (two group i.e. experimental and control groups) was used.

Population: The population of the present

study comprised pupils studying in Class XI of Rohtak District.

Sample: The sample comprised 140 pupils studying in class XI from the government senior secondary schools of Rohtak district.

Sampling Technique: The investigator randomly selected ten senior secondary schools of Rohtak district. From the chosen schools, Class XI students who were underachievers were selected by the researcher with the help of the counsellor using purposive sampling. The sample was chosen on the basis of scores obtained by pupils from achievement tests, an intelligence test and previous class performance.

Formation of Experimental and Control Groups

A total of 140 underachieving students were identified through achievement tests, intelligence tests, and previous academic performance. These students were randomly assigned into two groups to ensure homogeneity and eliminate bias:

- Experimental Group (N = 71)
- Control Group (N = 69)

The randomisation process ensured that both groups were comparable in terms of intelligence level, academic achievement, and socio-economic background. The experimental group was exposed to a structured counselling intervention programme conducted over a period of 6–8 weeks. The programme included regular counselling sessions focusing on self-awareness, goal setting, career planning, motivation enhancement, and confidence building.

In contrast, the control group did not receive any counseling intervention during the same period and continued with

their routine classroom activities.

Both groups were administered pre-tests prior to the intervention and post-tests after the completion of the counseling programme using standardised tools for measuring self-efficacy and career aspirations. The differences in scores between pre-test and post-test were analysed to determine the effectiveness of the counseling intervention.

Tools Used for the Collection of Data

Group Test of Intelligence (GIT): The Group Test of Intelligence, developed and standardised by Ahuja (1971) to measure students' intelligence, was adapted with the help of a counsellor.

Achievement Test: Developed by the researcher to measure students' achievement. Both the Group Test of Intelligence and the Achievement Test were used to identify underachievers.

Self-Efficacy Scale: The Self-Efficacy Scale, developed and standardised by R. Schwarzer and M. Jerusalem to measure underachievers' self-efficacy, was adopted.

Career Aspirations Scale: Developed by the researcher to measure the career aspirations of the underachievers.

Data Analysis

Objective 1: To study the relationship between career aspirations and self-efficacy of underachievers.

Table showing Relationship between Self Efficacy and Career Aspiration of higher secondary school students

S. No	Variables	N	r
1	Career Aspiration	140	0.639
2	Self-Efficacy		

Pearson's correlation test was applied to the career aspiration and self-efficacy scores, and the significance coefficient r was 0.639 at the 0.01 level of significance. This number exceeds the table value of 0.181 at the 0.01 level of significance required to reject the null hypothesis. Thus, the hypothesis "There is no significant relationship

between career aspirations and self-efficacy of underachievers" was rejected. It was concluded that underachievers' self-efficacy had a significant association with their career aspirations.

Objective 2: To study the effect of counselling intervention on self-efficacy of underachievers.

Experimental Group: Table showing Significance of Mean Difference Between (pre and post-test) Self-Efficacy Scores of Experimental group

	Pre-test	Post-Test
N	71	71
X	13.63	28.33
Σ	3.02	2.74
T		38.16**

Control Group: Table showing Significance of Mean Difference Between (pre and post-test) Self-Efficacy Scores of control group

	Pre-test	Post-Test
N	69	69
X	13.65	15.45
Σ	3.68	6.01
T		0.66**

The table clearly revealed that the Experimental Group's self-efficacy scores improved by 52.68 percentage points as a result of the introduction of the Counselling Intervention Model, as the mean scores before (pre-test) and after (post-test) the intervention were 13.63 and 28.33, respectively. The standard deviations for pre-test and post-test scores were 3.02 and 2.74, respectively. This class had a much higher percentage change between pre- and post-testing, indicating that the counselling treatments were effective and produced positive results in the sample population used for the research in terms of self-efficacy.

The Control Group's self-efficacy scores increased by 5.36 percent, with the

mean scores before (pre-test) and after (post-test) the intervention being 13.65 and 15.45, respectively. The standard deviation for the pre-test results was 3.68. It demonstrated a very modest increase in self-efficacy from the pre-test to the post-test in the Control Group, indicating that there is a need for counselling because the Control Group's scores have not improved significantly. As a result, the hypothesis "there is no significant difference in the pre-test and post-test self-efficacy scores of the sample" was rejected.

Objective 3: To study the effect of counselling treatment on career aspirations of underachievers.

Experimental Group: Table showing Significance of Mean Difference Between (pre and post-test) Career Aspiration Scores of Experimental group

	Pre-test	Post test
N	71	71
X	4.44	22.34
Σ	9.07	7.01
T	14.31**	

Control Group: Table showing Significance of Mean Difference Between (pre and post-test) Career Aspiration Scores of control group

	Pre-test	Post test
N	69	69
X	5.74	4.44
Σ	9.24	8.49
T	0.09**	

The table clearly demonstrated that the Experimental Group's career aspirations grew by 66.79% as a result of the introduction of counselling intervention, as the mean scores of the Experimental Group before (pre-test) and after (post-test) were found to be 4.44 and 22.34. The standard deviations before and after the test were 9.07 and 7.01, respectively. This group had a considerably larger percentage change between pre- and post-testing, indicating that the counselling intervention were effective and produced positive results in the sample used in the study.

The Control Group's career aspirations were reduced by 12.75%, with the mean score before (pre) and after (post) the intervention being 5.74 and 4.44, respectively. The standard deviations before and after the test were 9.51 and 8.49, respectively. It exhibited a small reduction in career aspiration levels in the pre-test and post-test results among the Control Group, indicating the need for counselling because conditions in the Control Group did not improve much. The mean scores of the pre-test and post-test between the Control and Experimental Groups clearly demonstrated the significance of the percentage change in both groups.

Therefore, the hypothesis "there is no significant difference in the pre-test and post-test career aspiration scores of the sample" was rejected.

Findings of the Study

1. It was revealed that there was a significant association between career aspirations and self-efficacy in underachievers.

2. The study found that there was no significant decline in career aspiration levels among the Control Group as a result of the pre-test and post-test impacts, indicating that there is a need for counselling in both groups.
3. The study found an insignificant increase in career desire levels in the Control Group's pretest and post-test findings, indicating that counselling was required for both groups.
4. Counselling improved the self-efficacy of this sample of students because there was a significant mean difference between pre-test and post-test self-efficacy scores of Experimental Group, whereas in the case of the Control Group, there was only a slight increase in mean pre- and post-test self-efficacy scores in the outcomes. School counselling interventions had a significant impact on both students' careers and their personal development.

Conclusion

Economic hardship is a common occurrence in emerging countries such as India, where rapid social and financial changes, anxiety, political uncertainty and a limited range of occupations are available to citizens. As a result, career guidance is an important means of supporting young people. Choosing a profession, especially among several options, is a challenging task that is crucial to one's life. This emphasises the need to guide adolescents in planning their careers and making career decisions. The school system has the responsibility of

assisting adolescents in making informed career choices that are appropriate for their abilities, aptitudes, interests and other personality characteristics. Numerous studies have found that most secondary school leavers in India made poor career choices as a result of unrealistic career goals. It has been established that students choose careers largely because of the remuneration, status, prestige and distinction associated with them.

Educational Implications

1. Teachers can organise numerous self-awareness programmes to help students understand different aspects of their personalities and make the best vocational decisions.
2. Teachers can organize a variety of co-curricular activities with clearly achievable goals in order to boost students' self-efficacy.
3. Teachers should assist students in setting achievement objectives and then assist them in achieving those goals.
4. Teacher educators can organize career guidance workshops in schools to provide thorough information about numerous career alternatives.
5. Counsellors, in addition to teachers, may design and deliver classroom guidance activities aimed at determining self-efficacy in relation to work by involving students in class discussions and experiential activities to identify their current interests and self-efficacy in various occupations.
6. School counsellors can assist students in choosing the suitable profession based on suitable aptitude testing.
7. There are career guidance centres in schools and colleges, but their effectiveness is limited due to a lack of experienced personnel and funding. As a result, appropriate funding should be provided for career guidance centres in schools and universities.

Scope for Further Research

1. This study could be replicated with a larger sample of senior secondary students from both private and government schools.
2. The study could be replicated with a larger sample of senior secondary students from both urban and rural institutions.
3. The study could also be conducted with postgraduate and graduate students from other universities.
4. Future research could include similar-aged groups from other socioeconomic backgrounds.
5. The current study was limited to examining the effect of guidance and counselling on academic underachievers. Similar studies can be undertaken to examine the impact of guidance and counselling on certain groups of children, such as slow learners, the learners with intellectual disabilities, learners with physical disabilities and other disabilities, as well as bright and creative learners.

Delimitations of the Study

1. The study is limited to class XI students only.
2. The sample in this study is restricted

- to Rohtak district only.
3. The sample was limited to 140 students.
 4. The current study was limited to examining the effect of counselling on academic underachievers.

References

- Bhatnagar, A. (2012). Effect of individual Counseling on the achievement of bright underachievers. *Journal of Indian Educational Review*, (NCERT), New Delhi pp. 10-18.
- Debasmita, Paul, (2013). Occupational aspiration of youth in colleges: A sociological analysis of present and future position of youth in Siliguri city, *International Journal of Social Science & Interdisciplinary Research*, Vol.2 (1), January (2013). pp 118-123.
- Devi, P.N. (2003). Effectiveness of group counseling: Adjustment among women college students. *Journal of Indian Educational Psychology*, Vol.21,(2), 67-77.
- Hasan, B., (2006). Career Maturity of Indian Adolescents as a Function of Self-Concept, Vocational Aspiration and Gender, *Journal of the Indian Academy of Applied Psychology*, February 2006, Vol. 32, No.2, 127-134
- Jamwal, AnuRadha, and Swati Gupta. 2025. "Exploring Career Paths: The Role of Self-Efficacy and Outcome Expectations in Shaping Career Choices for Students With Disabilities". *Asian Journal of Education and Social Studies* 51 (2):442-52.
- Kerr Barbara and Erb Cheryl (1991). Career Counseling with Academically Talented Students: Effects of a Value-Based Intervention. *Journal of Counseling Psychology*, Vol. 38, No. 3, (1991), 309-314.
- Kodad and Kazi, (2014). Emerging area of Counseling in Schools in India, *International Research Journal of Social Sciences* ISSN 2319–3565 Vol. 3(3), 44-47,
- Ogbonnia Chukwu-Etu, (2009). Underachieving learners: Can they learn at all. *ARECLS*, 2009, Vol. 6, (pp. 84-102)
- Parveen Amina, (2003). Effect of individual counseling on the achievement of underachievers. M.Phil., Edu., University of Kashmir, J&K
- Savugathali, A. F., Mustafa, M. B., & Jusoh, A. J. (2025). Self-efficacy in career decision making and outcome expectation among final year students. *International Journal of Academic Research in Business and Social Sciences*, 15(1), pp. 40-49.
- Wahengbam, K. & Sharma, M.L. (2024). Impact of Self-Efficacy on Career Aspirations Among Males and Females an In-Depth Analysis of Gender Differences in the Professional Development of Males and Females. *International Journal of Indian Psychology*, 12(2), 397-410.
- Zhou, N. (2024). Perceived parental career expectation and adolescent career development: The mediating role of adolescent career-planning and goal-setting self-efficacy and the moderating role of perceived parent–adolescent career congruence. *Journal of Counseling Psychology*, 71(6), 621–632.

Understanding Flood-Risk Knowledge and Flood-Risk Education from the Perceptives of Flood-Affected People in Dhemaji District, Assam

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Abstract

This study focused on understanding the flood-risk knowledge and perception of risk-education from the flood-affected people of Dhemaji district, Assam. The study uses descriptive statistics to examine a flood-prone area of Dhemaji. One hundred flood-affected people participated in this study. The results show that respondents possess basic awareness of flood causes and safety measures, but there are gaps in their knowledge of evacuation routes and safe shelters. All participants strongly supported the inclusion of flood-risk education in school curricula, emphasizing the need for structured learning to improve preparedness and safety behaviour.

Keywords: *Flood, Flood-risk knowledge, Flood-risk education, Perception, School curricula, Dhemaji district*

Introduction

Flood Risk and Flood-Risk Knowledge

Assam is one of the most flood-affected states in India. In Assam, floods create severe and recurring challenges every year during the monsoon season. This is mainly because the state is traversed by the Brahmaputra and Barak rivers, along with more than fifty of their tributaries (Water Resources, Government of Assam, India, 2025). According to the report by the Assam State Disaster Management Authority, nine districts are identified as the most flood-affected districts of Assam. Of these nine districts, Dhemaji is affected by floods every year (Bora, 2025). Flood risk is the outcome when a flood hazard meets the vulnerability of people or places (Cançado

et al., 2008). Reducing flood risks requires a clear understanding of the factors driving floods. A careful examination of evolving flood risk policies and recognition of different types of flood-risk knowledge can guide policy decisions. The recognition of the specific conditions of each context has been highlighted as essential for developing more effective flood risk policies (Arinabo, 2023).

The impact of climate change on flood risks is expected to increase in rivers and floodplains. The direct impacts of flooding include both loss of life and economic damage, which are likely to rise due to population growth in flood-prone areas (Bosschaart, van der Schee,

& Kuiper, 2016). From a statistical point of view, natural hazards include both the harmful event and the chance that it can occur. However, people perceive risks in different ways. This is known as risk perception. It depends on personal factors such as whether the risk is taken by choice and how much control a person feels they have over its outcomes (Tyszka, 2017). Researchers and policymakers are very interested in understanding the key factors that shape how people view risks. One widely used approach in this field is the psychometric model, created by Slovic and his colleagues (Michailova & Macko, 2017; Paul, 2016). In this model, five dimensions are considered crucial. Among these dimensions, knowledge of risks is particularly important because it influences how individuals understand flood hazards, evaluate safety measures, and respond to disaster situations. Therefore, this study focuses on flood-risk knowledge as one of the key dimensions influencing preparedness and awareness. Of these dimensions, this paper focuses on knowledge of risk, referred to here as flood-risk knowledge (Michailova & Macko, 2017).

A truly representative process in flood risk management can include people who reflect the whole community at risk. This helps to collect different types of flood-related knowledge, which can then be reviewed and used to guide better decisions. The people who live and interact with their environment every day often have strong local knowledge about how floods behave. For example, they may know the early paths of floodwater, spots where debris builds up and causes blockages, or where the most vulnerable residents live. This information

adds important detail to expert-designed strategies and offers a better understanding of how people make decisions during a flood (Maskrey et al., 2018). In Pickering, North Yorkshire, a new method is used to involve local people in creating flood-risk knowledge jointly. These efforts combine community experience with expert insights, helping to develop a shared or hybrid understanding of flood risk (Lane et al., 2010; Landström et al., 2011; Haughton et al., 2015; Maskrey et al., 2018).

Flood-Risk Education and Preparedness

Flood-risk education is another important dimension of this paper, particularly for schools, which have several compelling reasons to participate in this process. One key reason is that formal education can give proper time and attention to important topics such as flood risk (Bosschaart, van der Schee, Kuiper, et al., 2016). Many different groups are involved in flood-risk education and communication. Some groups lead the process by sharing information. Others receive this knowledge, including the people who are directly impacted by floods. Certain stakeholders have an official duty to manage risks or reduce flood damage. Others may not have formal responsibilities but still take part because it relates to their organisational goals. Some groups act as communication intermediaries. The overall number of participants is large, especially when considering national, regional, and local levels (Konieczny et al., 2017).

The flood risk education programme can change people's beliefs and improve their preparedness. To develop this program, it is important to understand how they think about floods. This process

generally happens in three steps: first, increasing knowledge and understanding of flood risks; second, raising awareness and strengthening personal risk perception; and finally, motivating people to take preparedness actions (Bosschaart, van der Schee, & Kuiper, 2016). In a flood risk education programme, students are given realistic information about local flood conditions that can create a moderate level of concern. This encourages them to think carefully about the risk without becoming anxious. Activities such as serious games, simulations, field visits, and discussions allow students to explore different aspects of flood risk in their own environment. Through these experiences, they start to connect places around them with flood-related knowledge and emotions. By highlighting both the danger of floods and the actions that can be taken to stay safe, the program provides a balanced understanding of flood risk. Previous studies suggest that flood-risk education programmes can improve awareness, influence risk perception, and strengthen preparedness intentions among individuals and communities. Structured educational interventions may therefore play an important role in enhancing long-term disaster preparedness in flood-prone regions.

Conceptual Relationship Between Flood-Risk Knowledge and Flood-Risk Education

Although flood-risk knowledge and flood-risk education are discussed as separate dimensions in the literature, both concepts are closely interconnected in disaster preparedness. Flood-risk knowledge refers to people's understanding of flood causes, hazards,

evacuation processes, and safety measures, while flood-risk education focuses on structured processes through which such understanding, awareness, and preparedness behaviours are developed. Therefore, flood-risk education can contribute to the development of flood-risk knowledge by increasing people's understanding of local flood conditions and appropriate response strategies. At the same time, individuals with prior flood-risk knowledge may also engage more actively with educational and preparedness activities. In this study, these two dimensions are examined together to understand how flood-affected people in Dhemaji district perceive flood risks and the role of education in improving preparedness and resilience.

Study Context and Research Gap

Existing studies on flood-risk knowledge and flood-risk education have mainly focused on disaster preparedness programs, risk perception, and educational interventions in different international contexts. While several studies have examined school-based disaster education and community awareness initiatives, limited research has explored both flood-risk knowledge and perceptions of flood-risk education together from the perspective of flood-affected communities in Assam. In particular, there is limited empirical evidence from highly flood-prone districts such as Dhemaji, where recurring floods continue to affect livelihoods, education, and community resilience.

Therefore, this paper aims to understand the flood-risk knowledge and the perceptions of flood-risk education among flood-affected people in Dhemaji district, Assam. The state of Assam in

India receives very heavy rainfall. The Brahmaputra River that flows through the state causes floods almost every year. These floods seriously affect the region's economy. The floods in Assam occur due to both natural conditions and human activities. The state has experienced major flood damage in several years, including 1954, 1962, 1966, 1972, 1977, 1984, 1986, 1988, 1998, 2000, 2002, 2004, 2007, and in more recent times as well. These floods severely affect the region's agriculture and economy (Chaliha et al., 2012).

The Dhemaji district of Assam is highly flood-affected, posing a major concern for livelihoods and young people. It is one of the districts in India that faces frequent and severe flooding. It is ranked 60th in national development indicators. The district has a significant tribal population of about 47.29%, and around 92.16% of the people live in rural areas. Nearly 70% of the district is affected by floods. Floods have caused major damage to agriculture in this region, along with riverbank erosion and sand deposition (Kakoty et al., 2018).

Dhemaji district lies in eastern Assam and includes four revenue circles: Dhemaji, Sissiborgaon, Jonai, and Gogamukh (District Disaster Management Plan Dhemaji District, 2024). For this study, the focus is on the Dhemaji revenue circle, which is one of the most flood-affected lowland areas and covers about 467.32 km². The study area extends from 94°25'E to 94°37'E longitude and 27°16'N to 27°37'N latitude. It is bordered by Arunachal Pradesh to the north, Gogamukh revenue circle to the west, the Brahmaputra River and Dhakuakhana to the south, and Sissiborgaon revenue circle to the east. The region is intersected by many tributaries

and sub-tributaries of the Brahmaputra, such as the Silly, Simen, Jiadhal, Gainadi, Moridhal, and Subansiri rivers. Among them, the Jiadhal River is the main cause of recurring floods in the area. The region receives heavy annual rainfall ranging from 2600 mm to 3200 mm, and temperatures vary from about 39.9°C in summer to 5.9°C in winter.

Research Methodology

This study adopted a quantitative descriptive design to evaluate two dimensions: flood-risk knowledge and perception of flood-risk education among the flood-affected people of Dhemaji district. The target population consisted of individuals who had experienced flood events in previous years and met the inclusion criterion of previous flood exposure. Dhemaji district was selected as the study area for this paper because it is one of the most flood-prone districts of Assam (Bora, 2025), especially in Upper Assam. The district experienced approximately ten flood events between 2011 and 2020 (DRR Roadmap, 2022).

A multistage sampling approach was adopted. In the first stage, purposive sampling was used to identify flood-affected areas and eligible respondents based on the inclusion criterion of previous flood exposure. Information regarding flood-affected areas and eligible respondents was obtained through consultation with local field officers and local administrative records. In the second stage, simple random selection was applied among eligible individuals to reduce selection bias and improve representation.

The questionnaire was developed based on the dimensions of flood-risk

knowledge and perception of flood-risk education identified through a literature review. The questionnaire consisted of items measuring respondents' knowledge of flood risks and their perceptions of flood-risk education, and items were adapted and refined from concepts identified in previous studies. Items were designed to evaluate respondents' understanding of flood-related issues and their perceptions regarding educational approaches to flood preparedness using Likert-scale items. A pilot survey was conducted before the final data collection and necessary revisions were made based on participant feedback. To improve content validity, questionnaire items were refined following the pilot survey and reviewed for relevance and clarity. Data were collected through face-

to-face interviews. Internal consistency was assessed using Cronbach's alpha.

Participation was voluntary. Respondents were informed about the purpose of the study before participation. Informed consent was obtained, anonymity and confidentiality of responses were maintained, and participants were informed that they could withdraw at any stage. After questionnaire refinement, a total of 125 questionnaires were administered for data collection. Of the 125 questionnaires, 100 respondents provided consent and participated in the study. The survey was conducted between September 16, 2025, and September 26, 2025. The collected data were analysed using descriptive statistics to explore flood-risk knowledge and perception of flood-risk education.

Demographic profile		Frequency	Percentage
Gender	Male	43	43
	Female	57	57
Age	21-40	35	35
	41-60	59	59
	>60	6	6
Occupation	Cultivation	68	68
	Business	21	21
	Government Sector	5	5
	Others	6	6
Education level	<Matriculation	41	41
	Matriculation	27	27
	High school	20	20
	Bachelor degree	11	11
	> Bachelor's degree	1	1

Flood-Risk Knowledge

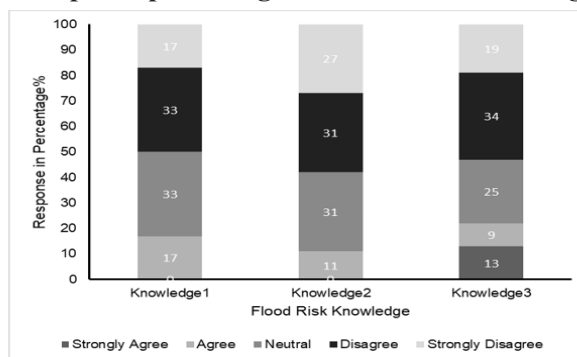
Knowledge affects an individual's flood-risk perception and their understanding and perspective on particular hazards (Botzen et al., 2009; Kellens et al., 2012; Liu et al., 2022). Huang et al. (2020) reported in a case study that flood risk knowledge was strongly associated with flood risk perception. To evaluate flood-risk knowledge, respondents were asked their level of agreement with the indicators presented in Table 1 using a five-point Likert scale (1 = Strongly agree to 5 = Strongly disagree). Mean scores were interpreted as follows: lower values indicate stronger agreement, while higher values indicate increasing disagreement.

Figure 1 illustrates respondents' distribution across the flood-risk knowledge indicators. The indicator 'I know the main cause of floods in my area'(knowledge1) received the highest number of responses with 17 respondents agreeing (17%), but responses were concentrated in the neutral (33%) and disagree (33%) categories. This shows that respondents demonstrated moderate confidence rather than strong

certainty regarding their understanding of local flood causes. Similarly, the indicator: 'I know the location nearby in our house where to go during floods'(Knowledge 3) receives the second highest response with 13 respondents strongly agreeing (13%) and 9 respondents agreeing (9%). However, responses remained distributed across the remaining categories, indicating variation in preparedness-related knowledge among respondents.

Overall flood-risk knowledge had a mean of 3.54, a standard deviation of 1.04 and a Cronbach's alpha of 0.76. Since higher mean values represent increasing disagreement, this result indicates an overall tendency toward neutral to disagreement rather than strong agreement. This suggests that repeated exposure to flood events alone does not necessarily lead to stronger perceived flood-risk knowledge and highlights the importance of structured flood-risk education and awareness initiatives. The internal consistency of the construct was acceptable (Cronbach's alpha = 0.76), indicating satisfactory reliability.

Figure 1
Response percentage for flood-risk knowledge



Compilation: author

Table 1
Descriptive statistics for flood-risk knowledge

Indicators	N	Mean	SD	Min	Max
Flood risk knowledge scale(Cronbach's alpha =0.76)	100	3.54	1.04	1	5
I know the main cause of floods in my area (knowledge1)	100	3.52	0.95	1	5
I am aware of which safety measures need to be followed during a flood (knowledge2)	100	3.73	0.92	1	5
I know the location nearby in our house where to go during floods (knowledge3)	100	3.37	1.26	1	5

Notes: The response was categorised by a Likert scale ranging from 1 = Strongly agree to 5 = Strongly disagree.

Perception of Flood-Risk Education

Flood-risk education is strongly related to flood risk perception (Huang et al., 2020; Liu et al., 2022). Therefore, teaching children about disasters from an early age seems to be an important step to help them prepare better and adapt to such situations as they grow, leading to stronger and safer communities over time (McLeod, 2007; Azmi et al., 2021). Bosschaart et al. (2016) further explained that school education plays an important role in increasing awareness of hazard-related risks, and it indirectly influences family and community awareness.

To evaluate the perception of flood-risk education, respondents were asked to indicate their level of agreement with the indicators presented in Table 2 using a five-point Likert scale (1 = Strongly agree to 5 = Strongly disagree). Figure 2 illustrates the distribution of respondents across perceptions of flood-risk education indicators. The indicator 'I feel that including flood-risk topics and flood-

related education in the school curriculum is important for our children' (Perception 3) received the highest responses with 50 respondents strongly agreeing (50%) and 50 respondents agreeing (50%) agreeing with it. This suggests unanimous support among respondents for integrating flood-risk education into school curricula and highlights the perceived importance of formal education in strengthening preparedness and awareness.

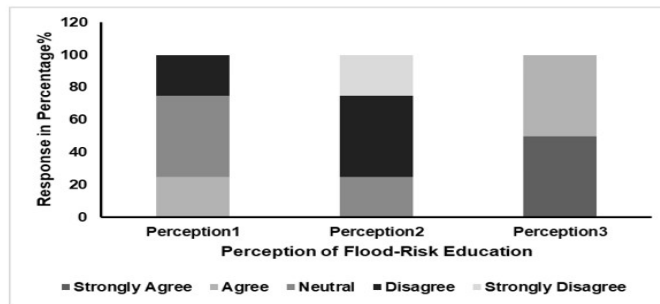
The indicator: 'I think that the people of our village get enough education about flood risk' (Perception1) showed more varied responses across categories, suggesting that respondents do not uniformly perceive current flood-risk education efforts as sufficient. This may indicate gaps in awareness initiatives and opportunities to strengthen local flood education programmes.

The overall perception of flood-risk education score had a mean of 2.84 and a standard deviation of 0.64. Since lower mean values indicate stronger agreement,

this result suggests an overall tendency toward moderate agreement regarding the importance and effectiveness of flood-risk education. This indicates that respondents generally recognise flood-risk education as valuable for preparedness and awareness,

although perceptions regarding existing educational efforts remain varied. The internal consistency of the construct was high (Cronbach's alpha = 0.92), indicating excellent reliability.

Figure 2
Response percentage for perception of flood-risk education



Compilation: author

Table 2
Descriptive statistics for perception of flood-risk education

Indicators	N	Mean	SD	Min	Max
Perception of flood risk education scale (Cronbach's alpha =0.92)	100	2.84	0.64	1	5
I think that the people of our village get enough education about flood risk (perception1)	100	3	0.71	1	5
School programs in our area are effective in teaching children how to respond during floods(perception2)	100	4	0.71	1	5
I feel that including flood-risk topics and flood-related education in the school curriculum is important for our children (perception3)	100	1.50	0.50	1	5

Notes: The response was categorised on a Likert scale ranging from 1 (strongly agree) to 5 (strongly disagree).

The findings of this study indicate differences in respondents perceived flood-risk knowledge and their perceptions of the importance of flood-risk education for preparedness. Respondents reported moderate levels of flood-risk knowledge (Mean = 3.54), suggesting an overall tendency toward neutral to disagreement. This finding supports previous research indicating that repeated exposure to flooding does not necessarily translate into stronger perceived knowledge or understanding of flood risks. In contrast, respondents showed comparatively stronger support for flood-risk education (Mean = 2.84). In particular, all respondents either agreed or strongly agreed that flood-related topics should be included in school curricula. This finding suggests that respondents recognise education as an important mechanism for strengthening preparedness and increasing awareness even when perceived knowledge remains moderate. At the same time, variation in responses regarding whether villages receive sufficient flood education indicates that existing educational efforts may not be viewed as fully adequate, highlighting opportunities to strengthen community-level flood-risk education initiatives.

Discussion

Our study found that 50% of the respondents strongly agreed and 50% agreed that including flood-risk topics and flood-related education in the school curriculum is important for our children (perception 3). There is a need for structured education on flood disasters, particularly at the school and community levels. Formal education can address issues such as flood

risk more comprehensively. Therefore, school education should be included in this process. Risk education is a key approach to shaping the risk perceptions of people by emphasising various experiences through experiential methods (Bosschaart et al., 2016). Individual perceptions of flood risk can be improved through learning opportunities provided across public, private, and non-profit sectors (S. Hutton & J. Allen, 2021). The Hyogo Framework for Action (2005–2015) highlights the need to employ knowledge, innovation, and education to foster a culture of safety and resilience across all levels of society (UN Office for Disaster Risk Reduction, 2007; Mudavanhu, 2014). Asian Disaster Preparedness Center (ADPC) (2007) states that schools are considered important places for shaping long-lasting shared values and are therefore suitable for promoting disaster prevention and resilience. Floods have also been associated with reduced instructional time, which negatively affects the quality of education (Mudavanhu, 2014).

The unanimous agreement regarding the inclusion of flood-risk education in school curricula is particularly important because it reflects strong public support for institutionalised disaster education. This finding indicates that respondents perceive formal education as an important mechanism for improving long-term preparedness and awareness in flood-prone communities.

The sphere of education is also heavily affected by floods. Students in Assam face difficulties attending school during flood events. After flood events, it becomes difficult for students and families to return to normal life. Floods damage

school infrastructure, students' books and other educational materials. Children's regular education is also affected because of school closures, dropouts and loss of life (Bora, 2025). In this study, the strong support for flood education suggests the need for a flood-education curriculum in schools of Assam. This finding suggests that flood-risk education is viewed not only as an educational activity but also as an important preparedness strategy for reducing vulnerability among children and communities in flood-prone regions.

Bosschaart, van der Schee, and Kuiper (2016), in their study in the Netherlands, highlighted the importance of combining flood-risk education with practical and participatory learning approaches to improve preparedness intentions and realistic perceptions of flood risk. Their findings suggest that structured educational programmes supported by practical activities and reflection exercises can strengthen disaster preparedness. These findings are relevant in the context of Dhemaji, Assam, where structured and context-specific learning approaches may help improve preparedness among students living in flood-prone areas.

Mujalin Intaramuean et al. (2025), in a study in Thailand, found that a structured educational program can significantly improve students' knowledge of floods and their level of preparedness. Integrating local flood knowledge into the basic education core curriculum may be helpful. Education within health and physical education or science can particularly strengthen students' understanding of disaster preparedness. Similar approaches would also be beneficial in Assam, where

recurring floods disrupt livelihoods, education, and community life almost every year. Incorporating flood hazard maps into geography lessons can also be helpful for students to identify flood-prone areas and evacuation routes. The local disaster agencies can help in emergency drills, along with practical activities such as preparing emergency kits. This can further enhance real-world preparedness during floods. The involvement of parents and regional authorities in school-based flood education can support stronger community resilience. Integrating these strategies into the curriculum would help students acquire practical skills and a deeper understanding of flood risks, contributing to long-term disaster preparedness.

School-based flood education demonstrates that systematic and context-specific learning programs can significantly improve students' understanding of flood hazards and preparedness responses. The programs that combine classroom instruction with practical activities like preparedness have been shown to be effective for students. Practical exercises conducted in coordination with disaster management agencies, including the preparation of emergency kits and school drills, can help convert the theoretical knowledge into real-world skills.

The flood-affected people in Dhemaji have a moderate level of knowledge about floods. Most respondents know the causes of floods and understand how to follow the safety measures during a flood. However, some of them are not fully aware of safe places to which they can evacuate. Therefore, the information about safe places needs to be shared

before emergencies. This can be included as information during the awareness campaigns by disaster management authorities. Although Dhemaji experiences recurring floods almost every year, respondents demonstrated only moderate levels of perceived flood-risk knowledge. This may indicate that repeated exposure to flood events alone does not automatically translate into stronger preparedness knowledge. Knowledge development may depend not only on lived experience but also on access to structured awareness programmes, communication systems, and educational initiatives. An important observation from the study is that frequent exposure to floods did not correspond with very high perceived flood-risk knowledge. This contradiction highlights a possible gap between lived experience and structured preparedness learning.

The strong support for school-based flood education indicates that respondents perceive educational institutions as important spaces for strengthening preparedness, awareness, and practical disaster-response skills among children in flood-prone regions. The study results suggest integrating flood-risk education into school curricula so that, in a flood-prone state like Assam, the students from the affected region can learn and understand information about flood hazards, evacuation routes, and safety measures from an early age. This knowledge can help improve the preparedness within families and communities. Institutionalising flood-risk education within school curricula may help create long-term preparedness cultures in flood-prone regions by strengthening

awareness and adaptive capacity from an early age.

There is a need for collaboration between schools and disaster management agencies through drills, training, awareness campaigns and preparedness programmes that translate knowledge into practical skills, which can support long-term community resilience. Overall, the findings suggest that strengthening structured and context-specific flood-risk education may help bridge the gap between repeated flood exposure and meaningful preparedness knowledge in flood-prone districts such as Dhemaji. These findings highlight the importance of moving beyond short-term awareness campaigns toward continuous, structured, and context-specific flood-risk education in highly flood-prone regions such as Dhemaji district.

Conclusion

This paper has focuses on flood-risk knowledge and flood-risk education in Dhemaji district, Assam. Assam faces recurring flood events during the monsoon season including Dhemaji district, and this makes it very difficult for students and other affected people to carry on with their daily lives. Children have the right to receive education on time, but because of the flood, schooling is disrupted for long periods. When education is suspended again and again, it affects children's academic progress and future opportunities (Bora, 2025).

The findings of this study show that while many people have basic knowledge about flood causes and safety measures, they are still not fully aware of

proper evacuation options and safe places in their local areas. At the same time, every respondent strongly believes that flood education should be included in the school curriculum. These findings suggest that repeated exposure to flood events alone does not necessarily lead to stronger preparedness knowledge and that structured educational interventions are needed to improve awareness and preparedness in flood-prone communities. This highlights the need for a proper and structured education system that teaches children how to understand flood risks and follow safety practices during floods. Schools are important places for learning. They can also become shelters during emergencies. Therefore, they must be supported with proper planning and resources. If children learn about warning systems, evacuation routes, and emergency actions at school, they can help protect themselves and support their community during floods.

Assam experiences floods almost every year. In Assam, Dhemaji faces repeated floods every year. It is one of the most flood-affected districts of Upper Assam. In the post-flood period, students may face difficulty attending school (Goswami, 2018). The infrastructure damage, loss of learning materials, and displacement of families often interrupt academic activities for long periods. As a result, children face learning gaps that can affect their regular progress and overall educational development. Schools should ensure continuous education and emotional support after floods (MFON, 2024) because maintaining educational continuity during disasters is essential for protecting children's right to education and supporting

long-term community resilience.

Disaster management agencies and schools should work together to conduct drills, practical training, and awareness activities that increase real-life preparedness. Therefore, this study suggests that improving flood-risk education in schools can support better preparedness and protect children's right to continuous learning. Improving knowledge, practical skills, and safety planning can help build stronger resilience in the flood-affected regions of Assam. The experts reviewed the work at different stages while creating the teaching and learning materials for the flood risk education programme. They assessed whether the content was consistent, practical, and likely to be effective. During this process, key design principles such as emotional engagement, accessibility, and blended learning were strengthened and further developed (Bosschaart, van der Schee, & Kuiper, 2016). Continued efforts from the government, schools, and local authorities are needed to ensure that children remain safe and their education is not compromised by recurring floods. This understanding emphasises the need to strengthen both awareness and educational strategies in flood-prone districts like Dhemaji. Productive, accessible and continuous flood-risk education can empower residents to better protect their lives and livelihoods in future disasters.

This study contributes to the growing discussion on flood-risk knowledge and flood-risk education by examining both dimensions together from the perspective of flood-affected people in Assam. However, the study is limited to descriptive statistical analysis and a

relatively small sample size within one district. Future research may expand the study to other flood-prone districts of Assam and apply inferential statistical approaches to examine relationships between flood-risk knowledge, flood-risk education, preparedness behaviour, and community resilience. Further research may also explore the effectiveness of school-based flood education programmes and community-level awareness initiatives in improving long-term disaster preparedness.

References

- Arinabo, D. (2023). Reconciling multiple forms of flood risk knowledge and institutional responses: Insights from Kampala's flood management regime. *International Journal of Disaster Risk Reduction*, 94, 103829. <https://doi.org/10.1016/j.ijdrr.2023.103829>
- Asian Disaster Preparedness Center (ADPC). (2007). Child-focused disaster risk reduction, Module 6: Community disaster risk reduction implementation, 16th Community-based disaster risk management course, Bangkok. [Preventionweb.net. https://www.preventionweb.net/files/9543_doc1ChildFocusedDisasterRiskReducti.pdf](https://www.preventionweb.net/files/9543_doc1ChildFocusedDisasterRiskReducti.pdf)
- Azmi, E. S., How, V., & Abdul Rahman, H. (2021). Effect of health belief model on flood-risk educational approach among elementary school children in Malaysia. *Jambá Journal of Disaster Risk Studies*, 13(1). <https://doi.org/10.4102/jamba.v13i1.1102>
- Bora, P. (2025). Right to Education: Myth or Reality? The Scenario in Assam. *Canadian Journal of Educational and Social Studies*, 5(3). <https://doi.org/10.53103/cjess.v5i3.360>
- Bosschaart, A., van der Schee, J., & Kuiper, W. (2016). Designing a flood-risk education program in the Netherlands. *The Journal of Environmental Education*, 47(4), 271–286. <https://doi.org/10.1080/00958964.2015.1130013>
- Bosschaart, A., van der Schee, J., Kuiper, W., & Schoonenboom, J. (2016). Evaluating a flood-risk education program in the Netherlands. *Studies in Educational Evaluation*, 50, 53–61. <https://doi.org/10.1016/j.stueduc.2016.07.002>
- Botzen, W. J. W., Aerts, J. C. J. H., & van den Bergh, J. C. J. M. (2009). Dependence of flood risk perceptions on socioeconomic and objective risk factors. *Water Resources Research*, 45(10). <https://doi.org/10.1029/2009wr007743>
- Cançado, V., Brasil, L., Nascimento, N., & Guerra, A. (2008). Flood risk assessment in an urban area: Measuring hazard and vulnerability . 11th International Conference on Urban Drainage, Edinburgh, Scotland, UK, 2008 .
- Chaliha, S., Sengupta, A., Sharma, N., & Ravindranath, N. H. (2012). Climate variability and farmer's vulnerability in a flood-prone district of Assam. *International Journal of Climate Change Strategies and Management*, 4(2), 179–200. <https://doi.org/10.1108/17568691211223150>
- District Disaster Management Plan Dhemaji District. (2024). District Disaster Management Plan Dhemaji District (2024-25), Government of Assam. Government of Assam, India. <https://dhemaji.assam.gov.in/>

- Goswami, B. K. (2018). Ships of hope: Innovative boat clinics bring health and hope to thousands of men, women and children, among India's poorest, who live along the mighty Brahmaputra river - ICSF Digital Repository. Icsfarchives.net. <https://icsfarchives.net/1038/1/920.YEM492.pdf>
- Haughton, G., Bankoff, G., & J Coulthard, T. (2015). In search of "lost" knowledge and outsourced expertise in flood risk management. *Transactions of the Institute of British Geographers*, 40(3), 375–386. <https://doi.org/10.1111/tran.12082>
- Huang, J., Cao, W., Wang, H., & Wang, Z. (2020). Affect Path to Flood Protective Coping Behaviors Using SEM Based on a Survey in Shenzhen, China. *Int. J. Environ. Res. Public Health*, 17(3), 940–940. <https://doi.org/10.3390/ijerph17030940>
- Kakoty, M., Barman, U., & Saikia, S. (2018). A study on livelihood activities followed by the male rural youths in flood affected Dhemaji district of Assam state of India. *Journal of Applied and Natural Science*, 10(1), 111–121. <https://doi.org/10.31018/jans.v10i1.1589>
- Kellens, W., Terpstra, T., & De Maeyer, P. (2012). Perception and Communication of Flood Risks: A Systematic Review of Empirical Research. *Risk Analysis*, 33(1), 24–49. <https://doi.org/10.1111/j.1539-6924.2012.01844.x>
- Konieczny, R., Kundzewicz, Z. W., Siudak, M., Działek, J., & Biernacki, W. (2017). Education and information as a basis for flood risk management – practical issues. In T. Tyszka & P. Zielonka (Eds.), *Large Risks with Low Probabilities*. IWA Publishing. <https://iwaponline.com/ebooks/book-pdf/651189/wio9781780408606.pdf>
- Landström, C., Whatmore, S. J., Lane, S. N., Odoni, N. A., Ward, N., & Bradley, S. (2011). Coproducing Flood Risk Knowledge: Redistributing Expertise in Critical "Participatory Modelling." *Environment and Planning A: Economy and Space*, 43(7), 1617–1633. <https://doi.org/10.1068/a43482>
- Lane, S. N., Odoni, N., Landström, C., Whatmore, S. J., Ward, N., & Bradley, S. (2010). Doing flood risk science differently: an experiment in radical scientific method. *Transactions of the Institute of British Geographers*, 36(1), 15–36. <https://doi.org/10.1111/j.1475-5661.2010.00410.x>
- Liu, D., Li, M., Li, Y., & Chen, H. (2022). Assessment of Public Flood Risk Perception and Influencing Factors: An Example of Jiaozuo City, China. *Sustainability*, 14(15), 9475. <https://doi.org/10.3390/su14159475>
- Maskrey, S. A., Priest, S., & Mount, N. J. (2018). Towards evaluation criteria in participatory flood risk management. *Journal of Flood Risk Management*, e12462. <https://doi.org/10.1111/jfr3.12462>
- McLeod, S. (2007, February 5). Erik Erikson's Stages of Psychosocial Development. *Simply Psychology*; *Simply Psychology*. <http://www.simplypsychology.org/Erik-Erikson.html>
- MFON, U.-Y. (2024). Climate-triggered Flooding and Child Development: Reflecting on Its "Often Overlooked" Implications for Schoolchildren's Mental Well-being in

- Bayelsa State, Nigeria. *Journal of Mental Health Disorders*, 4(1), 82–87. <https://doi.org/10.33696/mentalhealth.4.029>
- Michailova, J., & Macko, A. (2017). The role of emotions in forming judgements about risks. In T. Tyszka & P. Zielonka (Eds.), *Large Risks with Low Probabilities*. IWA Publishing . <https://iwaponline.com/ebooks/book-pdf/651189/wio9781780408606.pdf>
- Mudavanhu, C. (2014). The impact of flood disasters on child education in Muzarabani District, Zimbabwe. *Jàmá: Journal of Disaster Risk Studies*, 6(1). <https://doi.org/10.4102/jamba.v6i1.138>
- Mujalin Intaramuean, Atsuko Nonomura, & Tum Boonrod. (2025). Empowering flood preparedness: Enhancing flood knowledge, risk perception, and preparedness among primary school learners in flood-affected southern Thailand. *Progress in Disaster Science*, 26, 100410–100410. <https://doi.org/10.1016/j.pdisas.2025.100410>
- Paul, S. (2016). The Perception of Risk. *Scientists Making a Difference*, 179–182. <https://doi.org/10.1017/cbo9781316422250.040>
- S. Hutton, N., & J. Allen, M. (2021). Flood Hazard Awareness at Old Dominion University: Assessment and Opportunity. *Journal of Contemporary Water Research & Education*, 172, 19–33.
- Tyszka, T. (2017). *Large Risks with Low Probabilities*. IWA Publishing Alliance House 12 Caxton Street London SW1H 0QS, UK.
- UN Office for Disaster Risk Reduction. (2007, November 15). *Hyogo Framework for Action 2005-2015: Building the resilience of nations and communities to disasters - full text*. <http://www.unisdr.org/we/inform/publications/1037>
- Water Resources, Government of Assam, India. (2025). *Water resources*. Government of Assam, Water Resources. <https://waterresources.assam.gov.in/>

Classroom Behaviour and Moral Education in Primary Schools of Odisha: A Descriptive Study in the Context of NEP 2020

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Abstract

Moral education plays a vital role in shaping the behaviour and character of young learners, especially at the primary school level when foundational values are developed. Classroom behaviour, including respect, cooperation, empathy, and discipline, is strongly influenced by the values children internalise during these early years. In the Indian context, the National Education Policy (NEP) 2020 has emphasised the integration of value-based and holistic education to nurture responsible, compassionate, and ethical citizens. Against this backdrop, the present study was undertaken to examine the impact of moral education on the classroom behaviour of primary school students. The study adopted a mixed-method descriptive design, covering a sample of eight government primary schools in the Balikuda block of Jagatsinghpur district in the state of Odisha. The participants included 16 FLN teachers, 08 headmasters, and 40 Class III students, selected through random sampling. Data were collected using teacher and headmaster questionnaires, student interviews and behavioural indicators were analysed through percentages, mean scores, and thematic interpretation. The findings revealed that structured moral education significantly enhanced students' classroom behaviour. Improvements were observed in discipline, cooperation, attentiveness, teamwork, and respect for peers and teachers. Teachers also reported that activities such as storytelling, role-play, and discussions contributed to better value-based learning outcomes. The study highlights the practical need for consistent integration of moral education within school activities, supported by teacher training and parental involvement. The results reinforce the vision of NEP 2020, which positions moral education as an essential component of holistic child development.

Keywords: Classroom Behaviour, Moral Education, Perspective, Holistic Education, Foundational Values

Introduction

Education is not only the acquisition of knowledge and skills but also the foundation for shaping values, attitudes, and behaviours essential for responsible citizenship. Moral education, particularly

at the primary level, nurtures habits of discipline, cooperation, and self-control, guiding children toward constructive classroom behaviour and life skills (Lickona, 1991). Globally, countries like

Japan, Finland, and Singapore integrate moral and character education into their curricula, emphasizing respect, responsibility, and compassion (Arthur et al., 2017). UNESCO also advocates for education that promotes peace, human rights, and ethical understanding, linking moral development with cognitive growth (UNESCO, 2015). Systematic moral education has been shown to enhance discipline, empathy, and cooperation, while a lack of structured instruction can lead to indiscipline and conflicts (Berkowitz & Bier, 2005).

In India, moral education at the primary level is often inconsistent, integrated indirectly into subjects, and overshadowed by academic pressures. NEP 2020 emphasises holistic, value-based education, promoting ethics, empathy, and constitutional values through experiential, activity-based pedagogies such as storytelling, role play, and discussions.

Against this backdrop, the present study examined the impact of moral education on classroom behaviour among primary school students in Balikuda block, Jagatsinghpur district, Odisha, addressing the gap in understanding its systematic implementation and measurable effects on student conduct.

Objectives of the study

1. To examine the implementation of moral education through classroom activities, co-curricular programmes, and teaching practices in primary schools.
2. To analyse the impact of moral education on students' classroom behaviour, particularly discipline, cooperation, respect and participation.

Delimitations

The study focused on integrating moral education into foundational literacy and numeracy in selected primary schools of Balikuda block of Jagatsinghpur district in the state of Odisha, involving FLN teachers and Class III students as key participants.

Review of Related Literature

Moral and value-based education is widely recognised as essential for holistic schooling, with research linking explicit value instruction and social-emotional learning (SEL) to improved student behaviour, social skills, and academic outcomes (Durlak et al., 2011). Effective programmes combine moral reasoning with active practice, such as role-plays, discussions and community projects, rather than relying on ad hoc efforts (Berkowitz & Bier, 2005; Lickona, 1991). International frameworks, including UNESCO guidance, emphasize integrating values like respect, empathy, and ethical understanding into curricula, reporting that coherent, school-wide programmes improve classroom climate and cooperation (Arthur et al., 2017).

In India, NEP 2020 highlights the integration of ethics, human values, and socio-emotional learning across subjects using activity-based pedagogies (Ministry of Education, 2020). School-level practices such as storytelling, value-themed assemblies, role-plays, and community projects have shown promise in enhancing student discipline and cooperation. Teachers and headmasters play a key role in implementing these programs effectively, while parental involvement and a consistent school-wide values environment further

strengthen outcomes.

Despite these advances, gaps remain, especially in rural and semi-urban Indian contexts like Odisha, where limited empirical studies evaluate structured moral education's direct impact on observed classroom behaviour. Contextual factors such as teacher training, resources, cultural norms, and parental engagement significantly affect implementation. Focused primary-school studies combining observations, teacher/headmaster perspectives, and student outcomes are therefore needed to identify scalable practices that improve classroom behaviour in the Indian context.

Research Methodology

The study adopted a descriptive research design combined with a mixed-methods approach to comprehensively examine the impact of moral education on the classroom behaviour of primary school students in the context of the National Education Policy (NEP) 2020. The descriptive framework helped capture existing practices and behavioural outcomes, while the mixed-methods orientation allowed the integration of both quantitative and qualitative data, thereby enriching the analysis.

Population and sample

The population of the study comprised primary schools in the Balikuda block of Jagatsinghpur district, Odisha. From this population, eight government primary schools were selected using a simple random sampling technique to ensure representativeness. The sample consisted of 16 FLN (Foundational Literacy and Numeracy) teachers (two from each school), 8 headmasters (one from each school), and 40 Class-III students (five from

each school). The students were selected randomly from the class attendance register using a lottery method to ensure an equal opportunity for selection. This multi-level sampling ensured adequate representation of teachers, administrators and learners.

Tools used for data collection

Two primary tools were employed for data collection.

1. **Questionnaire for Teachers and Headmasters:** A self-structured questionnaire was developed by the researchers to collect information regarding teaching strategies, school activities, curriculum integration, and challenges in implementing moral education. The questionnaire consisted of closed-ended and opinion-based items. Before final administration, the tool was reviewed by experts in education for content validity and was pilot-tested in a similar school setting to ensure clarity and suitability.
2. **Observation Checklist for Classroom Behaviour:** A structured observation checklist was developed by the researchers to assess students' classroom behaviour. The checklist included indicators such as discipline, cooperation, respect, participation, empathy, and ethical conduct. A three-point rating scale (Always, Sometimes, Never) was used to record behavioural responses. The checklist was validated through expert review and refined after pilot observation to ensure reliability and appropriateness for primary school students.

The combination of questionnaires and observation enabled the researchers to capture both educators' perspectives and actual

classroom behavioural practices effectively.

Procedure of data collection

Data were collected systematically using questionnaires and classroom observations. Necessary approvals were obtained from school authorities, and participants were informed about the study. Structured questionnaires were administered to FLN teachers and headmasters with clear instructions and sufficient time for responses. Classroom observations were carried out using a checklist to assess student behaviour, including discipline, engagement, cooperation, and ethical conduct, while ensuring minimal disruption to classroom activities.

Data analysis

Quantitative data collected through questionnaires and behavioural checklists were analysed using percentage analysis and mean values to identify trends and patterns in responses. The quantitative data were tabulated and analyzed using Microsoft Excel.

Qualitative data obtained from open-ended responses of headmasters, teachers, and classroom observations were analysed through thematic analysis following processes of data familiarisation, coding, categorization, and theme development. Recurrent themes such as storytelling, group activities, value-based discussions, cooperation, and discipline emerged during the analysis.

The integration of quantitative and qualitative findings provided a comprehensive understanding of both the implementation of moral education and its influence on classroom behaviour among primary school students.

Ethical considerations

Ethical protocols were carefully

followed during the study. Participation was voluntary, and informed consent was obtained from teachers, headmasters, and parents of the students. Confidentiality of all respondents was strictly maintained, and responses were used solely for academic purposes. Care was taken to ensure that no participant, especially students, faced any discomfort or academic disadvantage due to their involvement in the study.

Results and discussion

The analysis is presented objective-wise, focusing on the implementation of moral education in primary schools, its influence on students' classroom behaviour, and the associated challenges. Data were systematically collected through structured questionnaires administered to FLN teachers and headmasters, complemented by classroom observations conducted using a checklist. The results are presented using tables, figures, and descriptive statistics, including mean values and percentages, to ensure clarity and precision in interpretation.

Implementation of moral education through plans and activities in primary schools

The implementation of moral education in primary schools was examined through the responses of headmasters and teachers. Findings highlighted strategies such as classroom discussions, storytelling, co-curricular activities, and value-based learning programmes, providing insights into their effectiveness and challenges in promoting moral education in line with NEP 2020.

Headmasters' Responses on the Implementation of Moral Education

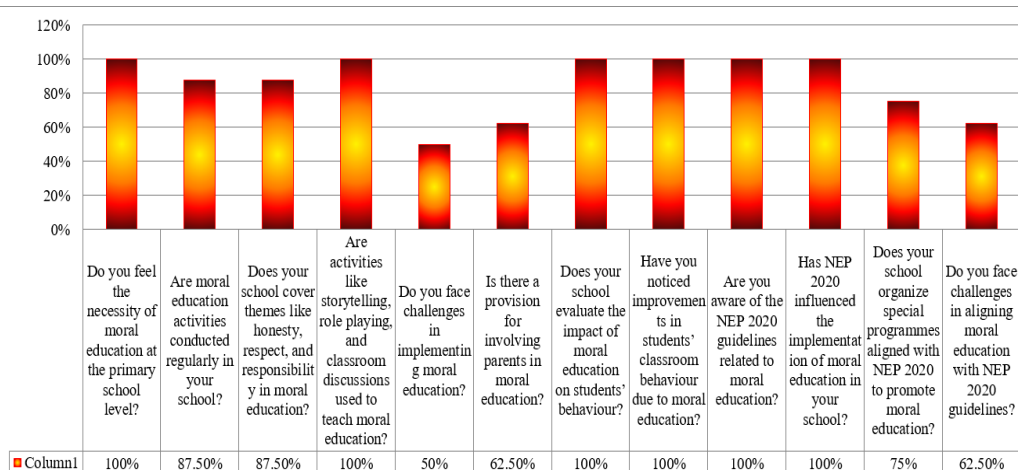
Responses from eight headmasters were collected to assess the implementation

of moral education in primary schools. The table below summarizes their views on its necessity, challenges, and the influence of NEP 2020, providing insights into the level of implementation and observed behavioural changes in students.

Table 1
Headmasters' Responses on the Implementation of Moral Education

Sl No.	Indicators	No of respondents who said 'yes'	Percentage (%)
1	Do you feel the necessity of moral education at the primary school level?	8	100%
2	Are moral education activities conducted regularly in your school?	7	87.5%
3	Does your school cover themes like honesty, respect, and responsibility in moral education?	7	87.5%
4	Are activities like storytelling, role-playing, and classroom discussions used to teach moral education?	8	100%
5	Do you face challenges in implementing moral education?	4	50%
6	Is there a provision for involving parents in moral education?	5	62.5%
7	Does your school evaluate the impact of moral education on students' behaviour?	8	100%
8	Have you noticed improvements in students' classroom behaviour due to moral education?	8	100%
9	Are you aware of the NEP 2020 guidelines related to moral education?	8	100%
10	Has NEP 2020 influenced the implementation of moral education in your school?	8	100%
11	Does your school organise special NEP 2020-aligned programmes to promote moral education?	6	75%
12	Do you face challenges in aligning moral education with NEP 2020 guidelines?	5	62.5%
13	Mean Value	Mean No. of Respondents =7.00	Mean Percentage =85.00%

Figure 1
Headmasters' Responses on the Implementation of Moral Education



All headmasters (100%) strongly supported the necessity of moral education and acknowledged its positive influence on students' classroom behaviour. Most headmasters (87.5%) reported that activities related to honesty, respect, and responsibilities were addressed regularly, with interactive approaches such as storytelling, role-playing, and classroom discussions widely practised (100%). These findings reflected the growing emphasis on value-based and participatory learning in primary schools.

However, 50% of the headmasters reported challenges such as time constraints, inadequate teacher training, and limited resources in implementing moral education effectively. Moderate parental involvement (62.5%) suggested that reinforcement of moral values outside the school environment was not always consistent. Although all headmasters recognised the influence of NEP 2020 on promoting moral education, 62.5% faced difficulties in aligning school activities fully with policy guidelines, possibly due

to limited institutional support and lack of structured implementation frameworks.

Further, 75% of schools organised NEP 2020-aligned programmes to strengthen moral values among students. The overall mean response rate of 85% indicated substantial implementation of moral education practices in primary schools, while also highlighting the need for enhanced training, resource support, and systematic planning for more effective execution.

Teachers' Responses on the Implementation of Moral Education in Primary Schools

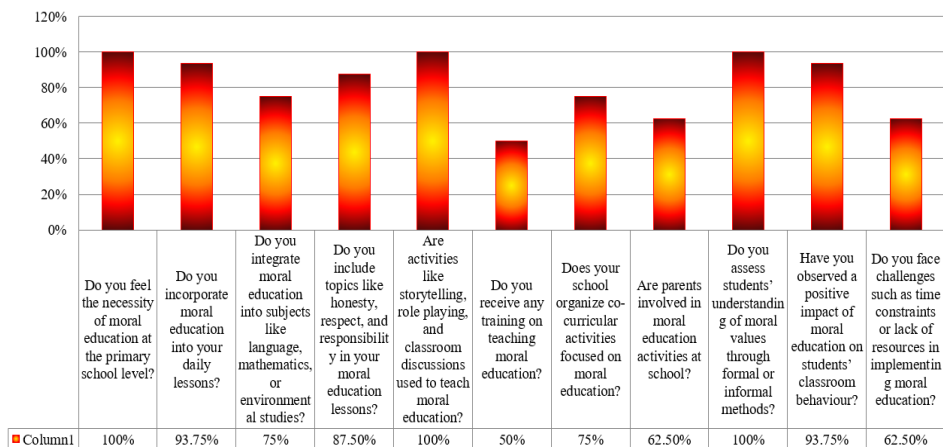
Responses from 16 FLN teachers were collected to assess the implementation of moral education. The table below summarises their views on its necessity, integration, teaching methods, challenges, and observed impact, providing insights into how moral education was incorporated into lessons, co-curricular activities, and assessments, as well as the challenges faced during implementation.

Table 2
Teachers' Responses on the Implementation of Moral Education in
Primary Schools

Sl No.	Items	No of respondents who said 'yes'	Percentage (%)
1	Do you feel the necessity of moral education at the primary school level?	16	100%
2	Do you incorporate moral education into your daily lessons?	15	93.75%
3	Do you integrate moral education into subjects like language, mathematics, or environmental studies?	12	75%
4	Do you include topics like honesty, respect, and responsibility in your moral education lessons?	14	87.5%
5	Are activities like storytelling, role-playing, and classroom discussions used to teach moral education?	16	100%
6	Do you receive any training on teaching moral education?	8	50%
7	Does your school organise co-curricular activities focused on moral education?	12	75%
8	Are parents involved in moral education activities at school?	10	62.5%
9	Do you assess students' understanding of moral values through formal or informal methods?	16	100%
10	Have you observed a positive impact of moral education on students' classroom behaviour?	15	93.75%
11	Do you face challenges such as time constraints or lack of resources in implementing moral education?	10	62.5%
Mean Value		Mean No. of Respondents =13.00	Mean Percentage =82.00%

Note: Sixteen FLN Teachers from eight schools were included in the sample

Figure 2
Teachers' Responses on the Implementation of Moral Education in Primary Schools



All teachers (100%) strongly supported the necessity of moral education, with most (93.75%) incorporating it into daily classroom practices. A majority (75%) integrated moral values across subjects such as language, mathematics, and environmental studies, while 87.5% emphasised values like honesty, respect, and responsibility. Interactive approaches including storytelling, role-playing, and classroom discussions were widely adopted (100%), reflecting the use of participatory and activity-based methods in moral instruction.

However, only 50% of teachers had received formal training in moral education, which may have limited the effective implementation of certain behavioural and socio-emotional learning strategies. Moderate parental involvement (62.5%) also suggested that reinforcement of moral values beyond the classroom was not always consistent. Although 75% of schools organised co-curricular activities to support moral development, challenges such as time constraints and

limited teaching resources were reported by 62.5% of teachers, potentially affecting regular implementation.

All teachers (100%) reported assessing students' moral development, and 93.75% observed positive improvements in classroom behaviour. The overall mean response rate of 82% indicated substantial implementation of moral education practices in primary schools. Nevertheless, the findings highlighted the need for enhanced teacher training, stronger parental engagement, and improved institutional support to further strengthen moral education initiatives.

Impact of moral education on classroom behaviour among primary school students

This section analysed the impact of moral education on students' classroom behaviour, focusing on discipline, cooperation, engagement, and ethical conduct. Classroom observations using a structured checklist assessed student

interactions, responsibility, and respect, while teachers and headmasters provided insights into observed behavioural improvements. The findings highlighted the positive influence of moral education on students' attitudes, participation, and the overall learning environment.

Impact of Moral Education on Classroom Behaviour

Structured classroom observations

were conducted to assess the impact of moral education on students' behaviour. Using a checklist, student conduct was recorded for respect, honesty, participation, discipline, empathy and teamwork. The table below shows the frequency of behaviours categorised as Always, Sometimes or Never, highlighting the influence of moral education on students' overall conduct.

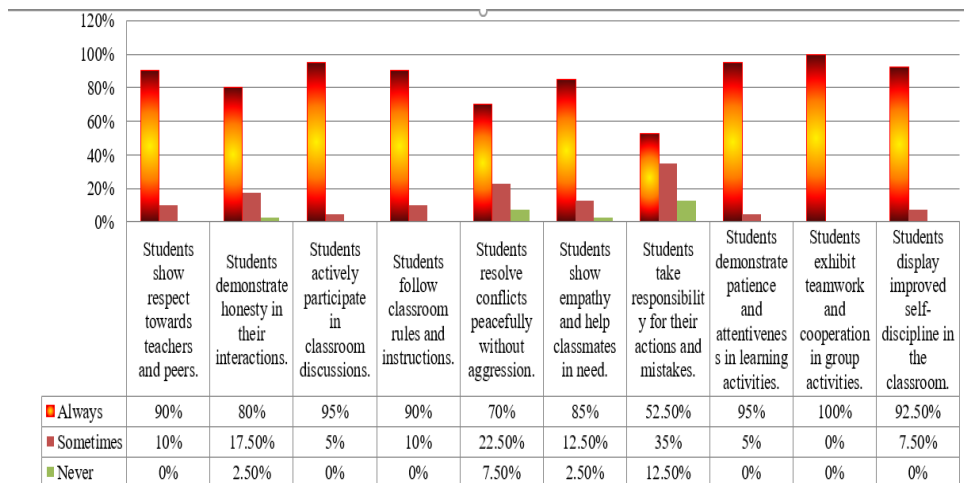
Table 3
Impact of Moral Education on Classroom Behaviour

SL No.	Behavioural Indicators	Always	Sometimes	Never
1	Students show respect towards teachers and peers.	36 (90%)	4 (10%)	0 (0%)
2	Students demonstrate honesty in their interactions.	32 (80%)	7 (17.5%)	1 (2.5%)
3	Students actively participate in classroom discussions.	38 (95%)	2 (5%)	0 (0%)
4	Students follow classroom rules and instructions.	36 (90%)	4 (10%)	0 (0%)
5	Students resolve conflicts peacefully without aggression.	28 (70%)	9 (22.5%)	3 (7.5%)
6	Students show empathy and help classmates in need.	34 (85%)	5 (12.5%)	1 (2.5%)
7	Students take responsibility for their actions and mistakes.	21 (52.5%)	14 (35%)	5 (12.5%)
8	Students demonstrate patience and attentiveness in learning activities.	38 (95%)	2 (5%)	0 (0%)
9	Students exhibit teamwork and cooperation in group activities.	40 (100%)	0 (0%)	0 (0%)

10	Students display improved self-discipline in the classroom.	37 (92.5%)	3 (7.5%)	0 (0%)
Mean Value		Mean No. of Students=34.00 Mean Percentage =(85.00%)	Mean No. of Students=5.00 Mean Percentage =(12.50%)	Mean No. of Students=1.00 Mean Percentage =(2.50%)

Note: Forty Class III students from eight schools were included in the sample

Figure 3
Impact of Moral Education on Classroom Behaviour



The results showed that respect, participation, and teamwork were the most consistently observed behaviours, with 100% of students cooperating in group activities and 95% actively engaging in classroom discussions. Self-discipline (92.5%) and attentiveness (95%) were also frequently demonstrated, indicating a positive influence of moral education on classroom behaviour. Honesty (80%) and empathy (85%) were widely reflected among students, though occasional lapses were observed. Comparatively lower

scores in conflict resolution (70%) and taking responsibility for actions (52.5%) suggested that these behavioural aspects require additional reinforcement. This may be due to limited opportunities for students to practise independent decision-making and peaceful conflict management in classroom and home settings. Furthermore, insufficient parental reinforcement and the need for more focused teacher guidance in socio-emotional learning may have influenced these outcomes. Overall, a mean response rate of 85% indicated that

moral education significantly contributed to positive classroom behaviour, while continued emphasis on responsibility and conflict management could further strengthen its effectiveness.

Emerging themes on the implementation and impact of moral education

Open-ended responses from headmasters, teachers, and classroom observations highlighted several key themes regarding moral education. Respondents emphasised its importance in shaping students' values, with structured lessons, discussions, and storytelling being common methods. Improvements were noted in respect, honesty, and self-discipline, though some teachers questioned whether these changes persisted outside the classroom. Teachers recognised their role in modelling ethical behaviour but faced challenges such as time constraints, limited training, and insufficient teaching materials. Parental involvement was often limited, affecting reinforcement of values at home. While all respondents were aware of NEP 2020's emphasis on moral education, structured implementation varied across schools due to inconsistent guidelines and resource limitations. Value-based activities were introduced in some schools, but alignment with NEP 2020 remained inconsistent. The findings also highlighted the need for continuous reinforcement through practical, real-life applications. Overall, moral education positively influenced student behaviour, but addressing gaps in teacher training, standardised curriculum,

parental engagement, and policy alignment could further enhance its effectiveness in primary schools.

Major findings of the study

- **Support for Moral Education:** All headmasters and teachers strongly acknowledged the necessity of moral education and its positive impact on students' classroom behaviour.
- **Integration into School Activities:** Moral education was widely incorporated into daily lessons, co-curricular activities, and subjects such as language, mathematics, and environmental studies, using interactive methods like storytelling, role-playing, and discussions.
- **Impact on Student Behaviour:** Observations indicated improvements in discipline, cooperation, respect, empathy, participation, and teamwork. Students demonstrated higher attentiveness, self-discipline, and ethical conduct due to moral education initiatives.
- **Areas Needing Reinforcement:** Behaviours such as conflict resolution and taking responsibility scored lower, highlighting the need for further reinforcement and structured interventions.
- **Challenges in Implementation:** Teachers and headmasters reported time constraints, limited training, insufficient teaching resources, and moderate parental involvement as key barriers to effective moral education.
- **Influence of NEP 2020:** All

respondents were aware of NEP 2020 and acknowledged its influence on promoting moral education, although alignment with policy and structured implementation varied across schools.

- **Need for Continuous Reinforcement:** The study highlighted the importance of hands-on, real-life applications to help students internalize moral values beyond the classroom.
- **Overall Effectiveness:** Despite challenges, the mean response rates (82–85%) indicated widespread implementation and a significant positive impact of moral education on primary school students' behaviour, underscoring its role in holistic development.

Educational implications

- **Integration of Moral Education:** Schools should systematically integrate moral education into daily lessons, co-curricular activities, and assessments to promote ethical behaviour and holistic development.
- **Teacher Training and Capacity Building:** Regular professional development programmes are needed to equip teachers with effective strategies for delivering moral education and modelling ethical behaviour.
- **Curriculum Planning and Resource Support:** Structured guidelines, teaching materials, and interactive tools should be provided

to ensure consistent and effective implementation of moral education across schools.

- **Parental Involvement:** Schools should actively engage parents in reinforcing moral values at home through workshops, activities, and communication strategies.
- **Emphasis on Experiential Learning:** Practical applications, real-life scenarios, and participatory activities should be emphasised to help students internalize moral values beyond the classroom.
- **Alignment with NEP 2020:** Schools should ensure that moral education initiatives are aligned with NEP 2020's vision, promoting value-based education as an integral part of foundational learning.

Conclusion

The study indicates that moral education positively influenced primary school students' classroom behaviour, enhancing discipline, cooperation, respect, and empathy. While schools effectively integrated moral education through interactive methods, challenges such as limited teacher training, resource constraints, and inconsistent parental involvement were noted. Addressing these gaps and aligning practices with NEP 2020 can further strengthen the impact of moral education, fostering holistic development and value-based learning among students.

References

- Berkowitz, M. W., & Bier, M. C. (2005). What works in character education: A research-driven guide for educators. Character Education Partnership.
- Chopra, D. (2023). Challenges in implementing NEP 2020's vision for moral education: A case study approach. *South Asian Journal of Educational Reform*, 6(4), 101-118.
- Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development*, 82(1), 405-432.
- Goswami, V., & Nair, S. (2022). Experiential learning in moral education: Insights from NEP 2020. *Indian Journal of Learning Sciences*, 11(2), 65-79.
- Hawkes, N. (2005). Values-based education: A successful strategy for nurturing positive values in schools. Independent Thinking Press.
- Hou, M. (2023). The Impact of Parents on Adolescent Moral Development. *Journal of Education, Humanities and Social Sciences*, 8, 1177-1182. <https://doi.org/10.54097/ehss.v8i.4447>
- Khanna, S. (2021). Impact of Moral Education on Primary School Students: A Character Development Perspective. *Journal of Education and Society*.
- Lickona, T. (1991). Educating for character: How our schools can teach respect and responsibility. Bantam.
- Mishra, A. (2022). Teacher preparedness for implementing moral education in primary schools under NEP 2020. *International Journal of Pedagogical Studies*, 9(3), 198-212.
- Narvaez, D., & Lapsley, D. K. (2008). Teaching moral character: Two alternatives for teacher education. *The Teacher Educator*, 43(2), 156-172.
- Rana, T., & Thakur, M. (2023). Moral education and foundational literacy: Examining the integration in NEP 2020. *Educational Perspectives & Innovations*, 7(2), 143-157.
- Singh, R., & Verma, K. (2022). NEP 2020 and character building: A roadmap for ethical development in schools. *Journal of Educational Policy & Research*, 8(2), 112-125.
- Sharma, L. (2021). The effectiveness of value-based learning under NEP 2020: A quantitative analysis. *Indian Journal of Education & Development*, 10(1), 89-105.
- UNESCO. (2015). Global citizenship education: Topics and learning objectives. UNESCO.
- Verma, R. (2022). Teachers' Role in Implementing Moral Education: Challenges and Opportunities. *Journal of Teacher Education and Development*.
- Wharton Interactive. (2023). The value of storytelling in learning. Wharton Interactive. https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf
<https://nipunbharat.education.gov.in/>
https://ncert.nic.in/pdf/NCF_for_Foundational_Stage_20_October_2022.pdf

National Achievement Survey Results of Aspirational and Non-Aspirational Districts of Jharkhand: A Comparative Study

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Abstract

The National Achievement Survey (NAS) is an educational assessment programme conducted by the Government of India. It aims to assess the learning outcomes of students at different stages of their education, focusing on core subjects such as mathematics, science, and language. This study aims to analyse the trend of NAS results from 2017 to 2021 in Jharkhand, focusing on class, subject, and gender, and to compare the achievement of students in Aspirational districts and Non-aspirational districts, also considering class, subject, and gender. The study is based on secondary data. The investigator used the results of NAS for Classes III and V for all the districts of Jharkhand and compared the results of aspirational and non-aspirational districts using percentages, averages and graphs. In Jharkhand, girls outperform boys in language and EVS on average, but their performance is lower in mathematics in Class V. In 2017, it was found that schools in non-aspirational districts had higher average achievement scores than schools in aspirational districts in all three Class III subjects (languages, mathematics, and EVS); however, this trend simply reversed itself in 2021, with the average score of students in aspirational districts being slightly higher than in non-aspirational districts. It was found that in NAS 2021, the average scores of students from Jharkhand had decreased. It indicates how the COVID-19 pandemic has affected education.

Keywords: National Achievement Survey, Aspirational Districts, Non-Aspirational Districts, Average Performance, and Academic Achievement

Introduction

The Govt. of India launched the Aspirational Districts Programme (ADP) in January 2018 under which 112 districts were identified nationwide for implementation. This initiative focused on infrastructure, skill development, healthcare, education, and agriculture. The main purpose is to expedite the development process in these districts to improve living circumstances in the nation's most underdeveloped districts

by raising them (Singh, 2021). A district is referred to as an aspirational district if it is thought to be economically and socially underdeveloped or lagging. These areas are chosen based on high poverty rates, low per capita income, insufficient access to fundamental services like healthcare and education, and other development difficulties. The words "aspirational district" and "non-aspirational district" are

used to group districts according to their state of development and potential for growth. The Government of India designated certain districts as “aspirational” districts to enhance living conditions, infrastructure, healthcare, education, and overall quality of life for the population of these districts by implementing specific development programmes, reducing regional inequities and enhancing the general well-being of the population in aspirational districts by finding and concentrating resources there. The government is also attempting to address educational issues. There are 19 aspirational districts in Jharkhand out of a total of 24 districts.

Conversely, a district that is comparatively more developed and does not meet the requirements to be labelled as an aspirational district is known as a non-aspirational district. Such districts generally have higher income levels, better access to basic services and lower poverty rates. In non-aspirational districts, government development strategies and programs could put more emphasis on maintaining and enhancing the current level of development than on meeting fundamental developmental needs. There are five non-aspirational districts in Jharkhand.

Jharkhand's education system, like that of the majority of Indian states, is divided into elementary (primary and upper primary), secondary, and higher education levels. Primary education (Classes 1–5): children between the ages of 6 and 10. The curriculum covers topics like math, science, environmental studies, and languages. The curriculum aims to give students a solid foundation in fundamental literacy and numeracy abilities. In upper

primary education (classes 6 to 8), the subjects are covered math, science, social studies, and languages. The emphasis is on developing a deeper understanding of these topics. Secondary education has classes 9 and 10 and higher secondary education has classes 11 and 12. Children can choose to specialize in a field like science, commerce, or the arts. Both public and private schools are available in Jharkhand. Although English is also widely utilized in many schools, especially at the upper levels, Hindi is the major language of instruction in government schools in Jharkhand. Depending on their curricula, private schools offer instruction in English or other languages. Jharkhand came in last place on the list of states with only a 2.1% increase in performance overall from 2015–16 to 2016–17 on the "School Education Quality Index" (SEI). For all children up to the age of 14, the Jharkhand government has implemented a free and compulsory education policy since 1st April 2010.

1.1 National Achievement Survey

India conducts a large-scale national survey called the National Achievement Survey (NAS) to evaluate the status of the nation's educational system. Data on the academic performance of pupils in classes III, V, VIII, and X is gathered through this assessment, enrolled in state Government schools, Government-aided schools, private unaided schools, and central Government schools on subjects like Language, Mathematics, and Science. This is accomplished by gathering data on pertinent background elements, such as the school atmosphere, teaching methods, teacher qualifications, and experience. It does not provide results to particular

students or schools; rather, it provides achievement scores for the country, each participating state, and specific categories such as girls, children in rural areas and other groups. It provides policymakers, curriculum specialists, researchers, principals, and teachers with a picture of what students achieve in a subject at a specific point in time (Kumari, 2018). The Ministry established a National Steering Committee for efficient monitoring and national coordination. The formulation of the Assessment Framework was given to the National Council of Educational Research and Training (NCERT), but the Central Board of Secondary Education (CBSE) was tasked with overseeing NAS 2021. Competency-based assessment was the main focus of NAS 2021. For Classes III and V, the assessment covered language, mathematics and environmental studies.

Aspirational districts' educational development is influenced by a number of national and state-level educational programmes in addition to the Aspirational Districts Programme (ADP). Programs like Samagra Shiksha and the NIPUN Bharat Mission aim to enhance infrastructure, teacher capacity, educational access, and basic literacy and numeracy at the national level. The school education system in Jharkhand has been further reinforced by educational reforms such as the Mukhyamantri School of Excellence Scheme, school digitisation initiatives, and teacher professional development programs. The implementation and results of these educational programs may be different in aspirational districts than in non-aspirational districts because aspirational districts receive

targeted resource allocation, data-driven governance, and focused monitoring under the ADP framework. Thus, studying learning results in aspirational and non-aspirational districts offers a chance to comprehend how educational attainment is impacted by policy convergence and focused developmental interventions.

1.2 Research Questions

1. What differences exist in students' NAS performance of classes III and V in language, mathematics, and EVS?
2. Is there any difference in the performance of boys and girls in language, mathematics, and EVS in classes III and V?
3. Is there any difference in the performance of students belonging to the Aspirational district and non-aspirational district?
4. How does the performance of the students vary in classes III and V in all three subjects (Language, Mathematics, and EVS) in the year 2017 and 2021?

1.3 Research Objectives

- To analyse the trend of NAS results in Jharkhand concerning class, subject, and gender.
- To compare the achievement of students of the Aspirational district and Non-aspirational district concerning class, subject, and gender.

2. Rationale of the Study

Education is fundamental for achieving full human potential, developing

an equitable and just society and promoting national development (National Education Policy [NEP], 2020). Merely expanding the educational system is insufficient; learning assessment surveys are essential for assessing children's competencies and their subsequent advancement across the grades assessed in NAS 2017.

Studies show that when teachers incorporate ongoing formative evaluations into their lessons to give students high-quality feedback, student achievement and motivation for learning rise. (Gardner, 2006; Hattie, 2016). The National Achievement Survey, which measures and assesses students' learning outcomes nationwide, is an important component of India's educational system. It is useful for determining how well children are learning different subjects at different stages of their education. This helps to highlight areas that need improvement and provides useful information about how effective the educational system is.

It assists administrators and policymakers in education in making well-informed decisions about the creation and modification of curricula. It helps identify learning gaps and disparities among pupils from various demographic groups, socioeconomic backgrounds, and geographic locations is aided by it.

Several reviews revealed that the learning objectives are still not entirely fulfilled. Annual Status of Education Report (ASER) statistics from 2018 showed that Jharkhand has severely low learning levels, with only 29% of Grade V students being able to read Grade II material and 15% of students being able to divide, which is far lower than the national averages of 44.2%

in reading and 22.7% in division.

The goal of the Aspirational District Programme is to enhance education. Aspirational districts have had their growth accelerated because of the program. Stakeholders noted several effective education-related initiatives being implemented in the districts and noted some significant developments (NITI Aayog). This is a positive update because these are important fields to evaluate development. The report compares Aspirational Districts (ADs) with non-aspirational districts and finds that thanks to increased focus on real-time data monitoring, convergence across government programmes and schemes, and benefits from the Aspirational Districts Program, ADs have performed significantly better than non-ADs (UNDP). Despite making significant strides, it also offers scope for further strengthening in education. In rural districts, the ADP has introduced novel strategies including the "Hamara Vidyalaya" concept. This model is centered on raising the standard of instruction and refining instructional strategies. In order to guarantee that students have successful learning experiences, teaching methods have also been improved Piyush (2024). Initiatives for digitization have been implemented by the program to improve access to high-quality education. The ADP seeks to close gaps and give instructors and students better educational materials by utilizing technology. Yadav, (2023). There has been an attempt to lower school dropout rates. Furthermore, there has been an emphasis on enhancing school infrastructure to establish surroundings that are favorable for learning. Therefore, it is imperative to compare the learning

outcomes of pupils in aspirational and non-aspirational districts within the NAS in Jharkhand (Singh, 2021).

With a three-year cycle, the Indian government has been implementing a rolling programme of sample-based NAS for Classes III, V, VIII and X. Since 2001, these surveys have been conducted regularly by the National Council of Educational Research and Training (NCERT). Identifying regions with poorer learning outcomes allows policymakers to allocate funds strategically to improve education and deal with particular issues.

"The COVID-19 pandemic caused the greatest disruption to global education in history, bringing learning to a grinding halt everywhere" (UNESCO 2021). Thus, NAS 2021 provides evidence that the current system needs to be reviewed. Humanitarian crises will inevitably arise, but we can all work together to find solutions to the issues they cause (Gazta & Jadhav, 2022).

Thus, this study aims to provide valuable insights into the effectiveness of the educational system, identify areas for improvement, and inform evidence-based decision-making by policymakers. Specifically, this study focuses on assessing student performance in subjects like language, mathematics, and EVS in Jharkhand.

3. Methodology

This study is based on the secondary data collected and compiled by the National Council of Educational Research and Training (NCERT), New Delhi. Hence, the method of secondary analysis

was followed to analyse and interpret the data. The NCERT conducted the National Achievement Survey (NAS) in the years 2017 and 2021 for classes III, V, VIII, and X. The subjects covered in this survey were Language, Mathematics, and Environmental Studies (EVS) for Classes III and V for both the year 2017 and 2021. In NAS 2017 the sample was 1,10,000 government and government-aided schools across 36 States/Union Territories. Three questionnaires i.e. Pupil Questionnaire (PQ), Teacher Questionnaire (TQ), and School Questionnaire (SQ) were also developed. Both tests and questionnaires comprised multiple-choice questions. Students of Classes III and V were assessed through two test forms while test forms of Classes III and V comprised 45 questions. The NAS was administered across the nation on November 13, 2017. In all 36 States/UTs, 2.2 million pupils' learning levels were evaluated across 1,10,000 schools in 701 districts. NAS 2021 focused on competency-based assessment, and the administration of NAS 2021 was entrusted to CBSE. Out of 733 targeted districts, the NAS 2021 was conducted in 720 districts on 12th November 2021 except some districts of Tamil Nadu and Andhra Pradesh.

The investigator used the results of NAS for classes III and V for all the districts of Jharkhand and compared the results of aspirational and non-aspirational districts in different subjects by using percentages, averages, and graphs. Based on the analysis, the investigator has concluded as per the objectives of the study. The details of the data analysis are presented in the following sections.

4. Data Analysis

The data were analysed as per the objectives of the study. The study has two objectives, the first focuses on analysing the trend of NAS results in Jharkhand concerning class, subject, and gender and the second on comparing the achievement

of students of the Aspirational district and Non-aspirational district concerning class, subject, and gender. The researcher analysed the data using the descriptive analysis technique using percentages and graphs, with interpretations made accordingly.

Table 1
Performance of Class-III Students in 2017 and 2021: Subject-wise

Class III	Language			Mathematics			EVS		
	A.S.	Boys	Girls	A.S.	Boys	Girls	A.S.	Boys	Girls
Average Score in 2017	69.3	68.9	69.7	64.6	64.7	64.6	65.0	64.6	65.4
Average Score in 2021	57.7	57.9	57.7	53.0	52.9	53.2	53.7	53.3	54.1

Table 1 indicates that the average student performance in the language in 2017 was 69.3 while the average student performance in 2021 was 57.7, which indicates a decrease of 11.6 percent. Similarly, the average performance of boys in 2017 was 68.9 while the average performance of boys in 2021 was 57.9, which is 11 percent less. The average student performance in the language for girls in 2017 was 69.7 while the average student performance in 2021 decreased to 57.7, which is a decrease of 12 percent in 2021. In mathematics, the average student performance in 2021 was 53.0 while in 2017 it was 64.6, which indicates a decrease of 11.6 percent. Similarly, the average performance of boys in 2017 was 64.7 while the average performance of boys in 2021 was 52.9, which is a decrease of 11.8 percent. The average student performance

in Mathematics for girls in 2017 was 64.6 while the average student performance in 2021 decreased to 53.2, which is a decrease of 11.4 percent in 2021. This table also indicates that the average performance of students in the EVS in 2017 was 65.0 while the average student performance in 2021 was 53.7, which indicates a decrease of 11.6 percent. Similarly, the average performance of boys in 2017 was 64.6 while the average performance of boys in 2021 was 53.3, which is 11.3 percent less. The average student performance in the EVS for girls in 2017 was 65.4 while the average student performance in 2021 decreased to 54.1, which is a decrease of 11.3 percent in 2021. From the above discussion, it can be concluded that the average performance of students in EVS, Mathematics, and language has decreased around the rate of 11- 12 percent in the year 2021.

Figure 1
Performance of Class-III Students in 2017, 2021 Language, Maths and EVS

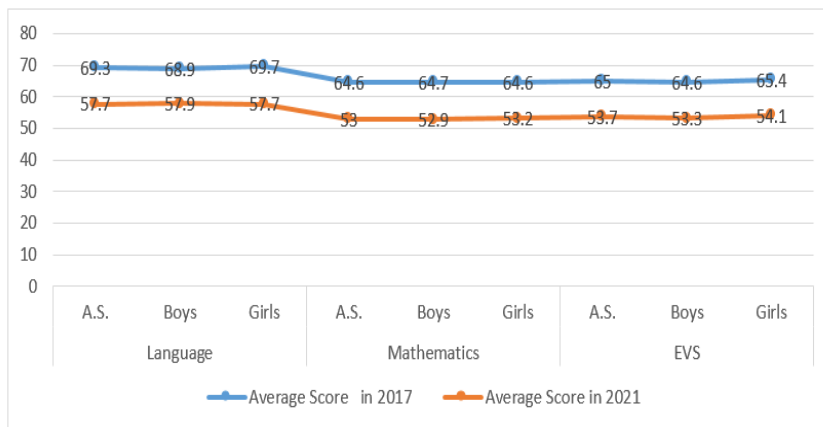


Table 2
Performance of Class-V Students in 2017, 2021 -Subject-wise

Class V	Language			Mathematics			EVS		
	A.S.	Boys	Girls	A.S.	Boys	Girls	A.S.	Boys	Girls
Average Score in 2017	61.6	60.4	61.8	56.4	55.5	56.3	63.3	62.2	63.7
Average Score in 2021	52.4	52.3	51.9	40.2	40.4	40.1	45.9	45.7	46.1

Table 2 indicates that the average student performance of Class V students in language in 2017 was 61.6 while the average student performance in 2021 was 52.4, which is a decrease of 9.2 percent. Similarly, the average performance of boys in 2017 was 60.4 while the average performance of boys in 2021 was 52.3, which is 8.1 percent less. The average student performance in the language for girls in 2017 was 61.8 while the average student performance in 2021 decreased to 51.9, which decreased by 9.9 percent in 2021. The average performance of Class V students in Mathematics in 2017 was 56.4

while the average student performance in 2021 was 40.2, which is a decrease of 16.2 percent. Similarly, the average performance of boys in 2017 was 55.5 while the average performance of boys in 2021 was 40.4, which is a decrease of 15.1 percent. The average student performance in mathematics for girls in 2017 was 56.3 while the average student performance in 2021 decreased to 40.1, which is a decrease of 16.2 percent in 2021. It also indicates that the average student performance of class V students in the EVS in 2017 was 63.3 while the average student performance in 2021 was 45.9, which is a decrease of

17.4 percent. The average performance of boys in 2017 was 62.2 while the average performance of boys in 2021 was 45.7, which is 16.5 percent less. The average student performance in the EVS for girls in 2017 was 63.7 while the average student performance in 2021 decreased to 46.1, which is 17.6 percent lower in 2021.

From the above discussion, it can

be concluded that the average performance of students in language has decreased by approximately 9 percent in the year 2021. The average performance of students in Mathematics and EVS has decreased by approximately 16-17 percent in the year 2021.

Figure 2
Performance of Class-V Students in 2017, 2021 Language, Maths and EVS

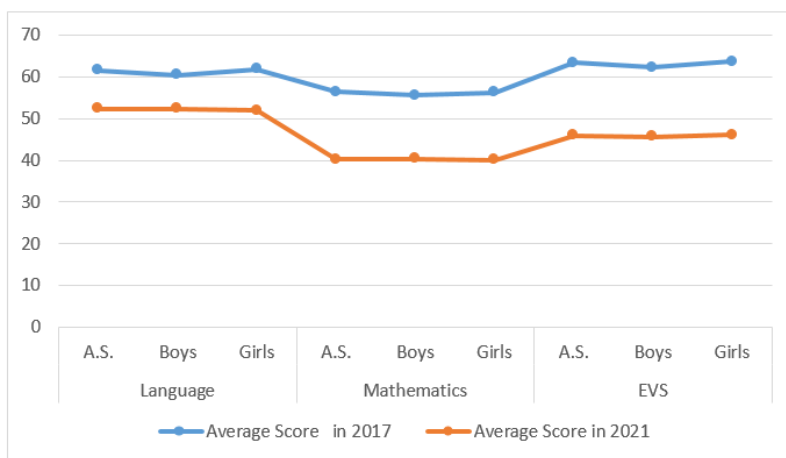


Table 3
Class III Aspirational Districts and Non-Aspirational Districts

Class III	Language			Mathematics			EVS		
	A.S.	Boys	Girls	A.S.	Boys	Girls	A.S.	Boys	Girls
Aspirational District 2017	69.3	68.9	69.7	64.6	64.7	64.6	65.0	64.6	65.4
Non-aspirational District 2017	71.3	70.9	71.6	65.0	65.0	65.1	65.7	65.6	65.8
Aspirational District 2021	57.7	57.9	57.7	53.0	52.9	53.2	53.7	53.3	54.1
Non-aspirational District 2021	55.1	54.6	57.4	52.3	52.2	53.9	52.1	51.0	55.1

Table 3 reveals that the average performance of students in the non-aspirational district in 2017 was 71.3, whereas the performance of students in aspirational districts was 69.3 which is 2 percentage points lower than that of the non-aspirational district. Similarly, in 2021, aspirational districts had an average score of 57.7 percent while non-aspirational districts had an average score of 55.1 percent, which was 2.6 percent lower. In the case of the boys' scores in 2017, it was 68.9 in the aspirational district and 70.9 in the non-aspirational district, which is 2% higher. However, in 2021, boys in aspirational districts scored 57.9 percent, compared to 54.6 percent in non-aspirational districts, a difference of 3.3 percent. In 2017 girls' scores in aspirational districts were 69.7%, while their non-aspirational district scores are 71.6 percent, which is an increase of 1.9 percent, and in 2021, girls scored 57.7 percent in aspirational districts, compared to 57.4 percent in the non-aspirational district, which is a decrease of 0.3 percent. While in Mathematics the average performance of students in non-aspirational districts in 2017 was 65.0, which is 0.4% higher than the aspirational district's 64.6 average performance. Similarly, in 2021, aspirational districts had an average score of 53.0 percent while non-aspirational districts had an average score of 52.3 percent, which was 0.7 percent higher. In the case of the Boys' score in 2017, it was 64.7 in the aspirational district and 65% in the non-aspirational district, which is an increase of 0.3%. However, in 2021, boys in aspirational districts scored 52.9 percent, compared to 52.2 percent in non-aspirational districts, a difference of 0.7 percent. Girls' 2017 aspirational district scores are 64.6 %,

while their non-aspirational district scores are 65.1 percent, which is an increase of 0.5 percent, and in 2021, girls scored 53.2 percent overall in aspirational district, compared to 53.9 percent in the non-aspirational district, which is an increase of 0.7 percent. The table also reveals that the average performance of students in non-aspirational districts in 2017 was 65.7, which is 0.7% higher than the aspirational district's 65.0 average performance. Similarly, in 2021, aspirational districts had an average score of 53.7 percent while non-aspirational districts had an average score of 52.1 percent, which was a decrease of 1.6 percent. In the case of the Boys' score in 2017, it was 64.6 in the aspirational district and 65.6 in the non-aspirational district, which is a 1% decrease. However, in 2021, boys in aspirational districts scored 53.3 percent, compared to 51.0 percent in non-aspirational districts, a difference of 2.3 percent. Girls' 2017 aspirational district scores are 65.4 %, while their non-aspirational district scores are 65.8 percent, which is an increase of 0.4 percent, and in 2021, girls scored 54.1 percent overall in aspirational district, compared to 55.1 percent in the non-aspirational district, which is an increase of 1 percent.

From the above discussion, it can be concluded that the average performance of non-aspirational districts is better than aspirational districts around the rate of 2 % in the year 2017 but in the year 2021, the average performance of students of the aspirational district is better than non-aspirational district around 2 % rate. In Mathematics and EVS the average performance of non-aspirational districts is better than aspirational districts by around the rate of 0.5 % in the year 2017 but in

the year 2021, the average performance of students of the aspirational district is higher than that of non-aspirational districts by approximately 0.5-1 percentage point.

Figure 3
Performance of Class-III Students in 2017, 2021 Language, Maths and EVS in both Aspirational and Non-aspirational districts.

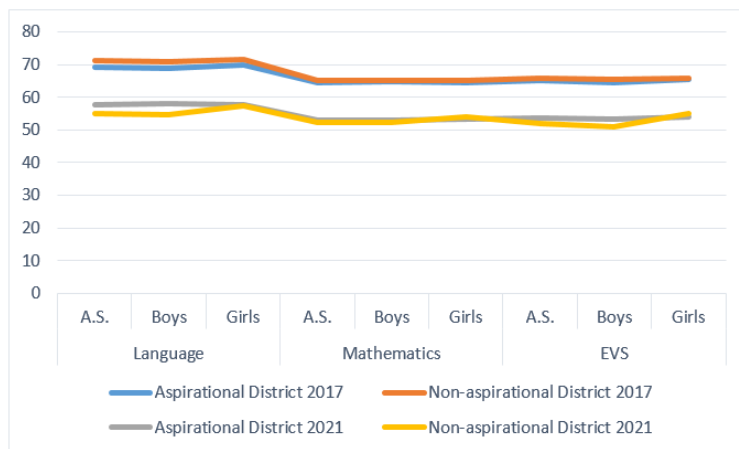


Table 4
Class V Aspirational Districts and Non-Aspirational Districts

Class V	Language			Mathematics			EVS		
	A.S.	Boys	Girls	A.S.	Boys	Girls	A.S.	Boys	Girls
Aspirational District 2017	61.6	60.4	61.8	64.6	55.5	56.3	63.3	62.2	63.7
Non-aspirational District 2017	61.6	61.5	61.6	65.0	57.4	57.4	63.4	63.1	63.6
Aspirational District 2021	52.4	52.3	51.9	40.2	40.4	40.1	45.9	45.7	46.1
Non-aspirational District 2021	49.4	48.6	50.9	39.0	38.0	40.3	44.2	43.6	44.8

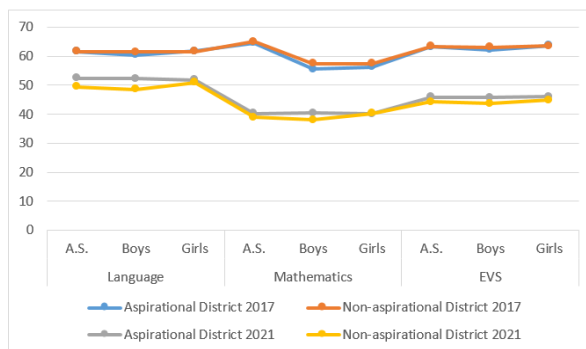
Table 4 reveals that the average performance of students in non-aspirational districts in 2017 was 61.6, which is the same as the aspirational district's 61.6 average performance. Similarly, in 2021, aspirational districts had an average score of 52.4 percent while non-aspirational

districts had an average score of 49.4 percent, which was 3 percentage points lower. In the case of the Boys' score in 2017, it was 60.4 in the aspirational district and 61.5 in the non-aspirational district, which is 1.1 % higher. However, in 2021, boys in aspirational districts scored 52.3

percent, compared to 48.6 percent in non-aspirational districts, a difference of 2.7 percent. Girls' 2017 aspirational district scores are 61.8 %, while their non-aspirational district scores are 61.6 percent, which is 0.4 percent less, and in 2021, girls scored 51.9 percent overall in aspirational districts, compared to 50.9 percent in the non-aspirational district, which is a decrease of 1 percent. In Mathematics the average performance of boys in non-aspirational districts in 2017 was 57.4, which is the same as the aspirational district's 56.4 average performance. Similarly, in 2021, aspirational districts had an average score of 40.2 percent while non-aspirational districts had an average score of 39 percent, which was decreased by 1.2 percentage points lower. In the case of the Boys' score in 2017, it was 55.5 in the aspirational district and 57.4 in the non-aspirational district, which is 1.9 % lower. However, in 2021, boys in aspirational districts scored 40.4 percent, compared to 38 percent in non-aspirational districts, a difference of 2.4 percent. Girls' 2017 aspirational district scores are 56.3 %, while their non-aspirational district scores

are 57.4 percent, which is 1.1 percent more, and in 2021, girls scored 40.1 percent overall in aspirational district, compared to 40.3 percent in the non-aspirational district, which is an increase of 0.2 percent. The table also reveals that the average student performance of the non-aspirational district in 2017 was 63.4, which is a decrease of 0.1 % from the aspirational district's 63.3 average performance. Similarly, in 2021, aspirational districts had an average score of 45.9 percent while non-aspirational districts had an average score of 44.2 percent, which was 1.7 percent lower. In the case of the Boys' score in 2017, it was 62.2 in the aspirational district and 63.1 in the non-aspirational district, which is 0.9 % higher. however, in 2021, boys in aspirational districts scored 45.7 percent, compared to 43.6 percent in non-aspirational districts, a difference of 2.1 percent. girls' 2017 aspirational district scores are 63.7 %, while their non-aspirational district scores are 63.6 percent, which is 0.1 percent less, and in 2021, girls scored 46.1 percent overall in aspirational district, compared to 44 .8 percent in the non-aspirational district, which is a decrease of 1.3 percent.

Figure 4
Performance of Class-V Students in 2017, 2021 Language, Maths, and EVS in both Aspirational and Non-aspirational districts.



Findings

From the above discussion, it can be concluded that the average performance of non-aspirational districts and aspirational districts in Language and EVS was somewhat similar in the year 2017, but in the year 2021, the average performance of students of the aspirational district is higher than that of non-aspirational districts by approximately 3-4 percentage points. But the average performance of non-aspirational districts and aspirational districts was approximately 1 percentage point higher in the year 2021. In Mathematics the average performance of non-aspirational districts and aspirational districts is a 1 % increase in the year 2017. but in the year 2021, the average performance of students in the aspirational district is somewhat similar to the non-aspirational district.

The targeted execution of educational policies and developmental initiatives in aspirational districts may have contributed to their comparatively better performance in 2021. Districts in the Aspirational Districts Program benefit from the convergence of resources from several programmes and are continuously monitored through key performance metrics. Programs like Samagra Shiksha, the NIPUN Bharat Mission, and state-level programs targeted at enhancing school infrastructure, digital learning resources, and teacher efficacy may have strengthened educational outcomes in addition to ADP interventions. Learning losses during and after the COVID-19 pandemic may have been lessened if aspirational districts had prioritized educational development and given it more administrative attention. These results imply that intensive district-

level monitoring in conjunction with coordinated execution of federal and state educational programs may be crucial to raising student attainment.

5. Result and Discussion

The primary objectives of the teaching-learning process are the enhancement of student learning and the development of necessary subject and class-specific competencies (Kumari,2018). The necessity for a reassessment of the current system is demonstrated by the NAS 2021 which can improve students' performance and the educational system by working together with parents, community members, and educators (Jadhav & Gazta, 2022) but it has been seen that the average student performance in the disciplines of language, mathematics, and EVS, was observed to decline as pupils advanced from Class III to Class V (NAS 2021) compared to NAS 2017. The COVID-19 pandemic is the main driver behind this regulation revision. Students' learning levels have been affected by school closures and the switch from traditional classrooms to online learning (Jadhav & Gazta, 2022). This is contrast to what was said by (NAS 2017) Students in Classes III and V underwent language, math, and environmental studies assessments on student accomplishment of learning outcomes, at the district level "We are aiming to support states and UTs in enhancing the ability of their teachers to narrow gaps in learning outcomes by implementing need-based pedagogies that are suitable for the requirements and environments of young learners." NAS (2017) and the effectiveness of these strategies in raising student learning

outcomes will be demonstrated in the upcoming NAS (2021).

Girls outperformed boys in the majority of disciplines, including language and EVS, according to a study that looked at performance by gender; this finding is similar to the study of Kumar (2008). The annual growth rate of the female literacy rate has been higher than that of the male literacy rate and also for Jadhav & Gazta, (2022), in Jharkhand, girls' average achievement scores are higher than boys' scores on average. Girls score much higher on average in academic achievement when they move from Class III to Class V, compared with boys

In all Class III subjects (languages, mathematics, and EVS), the average achievement scores of schools in non-aspirational districts were found to be higher than those of schools in aspirational districts in the year 2017; however, this trend simply reversed itself in the following year, with the average score of students in aspirational districts being slightly higher than those in non-aspirational districts, similar to the findings of recent National Achievement Survey (NAS) report, Ministry of Education (2020), Government of India (2022), in it a significant learning gap has been found among students in the nation, Held in over 720 districts of India, rural and urban, The "COVID-19 pandemic caused the most severe global education crisis, halting education across the board." a historical upheaval" (UNESCO, 2021). The average accomplishment score of Class III pupils at schools in the state of Jharkhand was significantly lower than that of Class V students as the students advanced from Class III to Class V. The gender-wise results

show that girls perform better in a number of primary-level topics, which is positive. However, prior research indicates that socioeconomic limitations, gender norms, household obligations, early marriage, and safety-related concerns frequently cause girls' enrollment, retention, and learning results to drop at higher educational levels. As a result, the encouraging patterns seen in Classes III and V should be regarded with caution and necessitate additional research at the upper-primary and secondary levels.

The score of Jharkhand in Class III and V is not significantly different from the national average for all three subjects i.e. Language, EVS, and Mathematics. But in 2021 the average achievement score of Jharkhand is significantly below that of the overall achievement score in all three subjects at both class III and V. Beyond the direct effects of the COVID-19 pandemic, a number of contextual factors may be responsible for the drop in accomplishment levels in Language, Mathematics, and EVS between 2017 and 2021. Students may have experienced learning loss as a result of extended school closures, restricted access to digital learning tools, uneven internet connectivity, and differing degrees of parental support, especially in rural and socioeconomically disadvantaged areas. It appears that topics needing ongoing practice, instructor direction, and conceptual understanding were more negatively impacted than language learning, as evidenced by the more pronounced loss seen in mathematics and EVS at the elementary level.

By shifting the emphasis from material to competencies through learning outcome-oriented evaluation, teachers

can modify their pedagogy and guarantee high-quality instruction for the community, parents, and members of the school management committee. Taking into account background characteristics, the State Learning Report (SLR) also identifies low-performing and high-performing learning outcomes (Kumari,2018).

6. Conclusion

Assessment is an essential phase in the teaching-learning process. The study's findings shed light on pupils' learning capacities and the learning gap. Surprisingly, Jharkhand students' average score and level have declined in NAS 2021. The average language, mathematics, and EVS score for classes 3 and 5 in Jharkhand is less than the state's total performance score for 2021. Both teachers and students had to continue their work at home while instruction was delivered online during quarantine and lockdown. Students' regular schedules were disrupted, and they lost touch with their fellow students and friends who experienced the loss of fundamental abilities, and a lack of formal education for more than a school year. The unplanned shift to online education created greater challenges for female pupils mostly because of the gendered and stereotyped behaviours when performing housework. In Jharkhand, girls' average success scores in Class III are higher than boys, but they are lower in language and maths. In Jharkhand, girls' average success scores in language and EVS are higher than boys', while in math Class V, they are lower. Class V's EVS score is higher than the national average, while Class III's score is the same as the national average. Language

and mathematics in classes 3 and 5 are on par with the national average. In Jharkhand, girls outperform boys in language and EVS for classes 3 and 5, while in mathematics, there is no difference between the sexes in Class III. According to the gender-specific results, girls outperformed boys in Language and EVS. Higher levels of classroom involvement, more awareness of girls' education, and increased engagement of girls in language-based learning activities could all be linked to this trend. The necessity for interventions targeted at boosting mathematical confidence and lowering gender-related prejudices in STEM education is highlighted by the comparatively lower performance of girls in mathematics in Class V.

These results highlight the need of putting remedial learning programmes into place, bolstering basic reading and numeracy, improving teacher support networks, and guaranteeing fair access to educational materials. Students from underprivileged families should receive extra attention because they may have had more learning disruptions during the pandemic. Policymakers can detect learning gaps and create evidence-based measures to improve educational quality and equity with the help of ongoing monitoring of learning outcomes using large-scale assessments like NAS.

The Aspirational Districts Program's targeted interventions may have contributed to the notable improvement in aspirational districts' performance in 2021. Learning losses during the epidemic may have been mitigated in these districts through increased administrative attention, infrastructure development, targeted

educational activities, and increased monitoring. The very slight accomplishment score discrepancies between aspirational and non-aspirational districts, however, show that educational disparities still exist and require ongoing policy attention. The discovery of learning gaps across all of the districts was not the main focus, thus efforts must be supported through strategic planning to assist schools in operating at the intended level. Children's education was impacted by the pandemic's financial strain on numerous households as well and the lack of income prospects affected the learning of students after Covid-19. So it is necessary to institutionalise appropriate support systems and create suitable policy frameworks for improving the learning achievement of students in the preparatory stage.

7. Educational Implications

This study will help policymakers formulate policies for improving the learning

outcomes of students. This study will assist schools in performing at the desired level. It will be beneficial for the stakeholders to act accordingly to achieve the goals. This study will help to identify the learning gaps and address them and minimise them. This study can be applied across all of the nation's districts. As this study is limited to Class III and Class V only further study can be conducted with classes VIII and X. This study focuses mainly on aspirational and non-aspirational districts so different dimensions can also be seen like rural or urban groups. Different subjects can also be taken for further research like Science as this study only focuses on three subjects that is Language, EVS, and Mathematics. Getting sponsorships for these students will also help to keep them in the classroom and ensure that their learning improves. Ultimately, the research aims to furnish policymakers with actionable insights to ameliorate educational achievements and policies on a national scale.

References

- Admin. (2022). National Achievement Survey UPSC Notes - about, significance, key facts, latest news, and FAQs. BYJUS. <https://byjus.com/current-affairs/national-achievement-survey/>
- Azim Premji Foundation (2021): "Loss of Learning during the Pandemic: Field Studies in Education. <https://azimpremjiuniversity.edu.in/field-studies-in-education/loss-of-learning-during-the-pandemic>
- Canada, G. A. (2022). Statement on International Day of Education. Canada.ca. <https://www.canada.ca/en/global-affairs/news/2022/01/statement-on-international-day-of-education.html>
- DoSE&L. (n.d.). <https://schooleducation.jharkhand.gov.in/>
- Education: From disruption to recovery. (2023). UNESCO. <https://www.unesco.org/en/covid-19/education-disruption-recovery>
- Gazta, P., & Jadhav, J. (n.d.-a). Implications for Education Policy in India. <http://apps.who.int/iris/bitstream/>

- Gardner, H. (2006). Changing minds: The art and science of changing our own and other people's minds. Harvard Business Review Press
- Hattie, J. A. (2016). Know thy impact in M. Scherer (Ed.). on formative assessment 18–23, Alexandria, VA: ASCD.
- Jharkhand Educational Profile. (n.d.). Education Profile of Jharkhand <https://www.jharkhandeducation.net/facts/#:~:text=Jharkhand%20follows%20the%2010%2B2,student%20goes%20for%20higher%20education>.
- Kumar, A. (2008). Education of Tribal Children In Jharkhand : A Situational Analysis. ResearchGate. https://www.researchgate.net/publication/236165835_
- Kumari, P. (2018). Teaching-learning and Assessment in the Classrooms: Reflections from National Achievement Survey: 2017. In International Journal of Research in All Subjects in Multi Languages (4). RET Academy for International Journals of Multidisciplinary Research (RAIJMR). https://www.raijmr.com/ijrsml/wp-content/uploads/2019/09/IJRSML_2018_vol06_issue_4_Eng_20.pdf
- NAS21_SRC_Jharkhand_Final (1). (n.d.).
- National Achievement Survey 2017. (2019). https://ncert.nic.in/pdf/NAS/WithReleaseDate_NPPTL.pdf
- NITI Aayog. (n.d.). Aspirational Districts Programme, <https://www.niti.gov.in/aspirational-districts-programme/>
- Oza, M. (2021). Back to school: why and how? <https://www.linkedin.com/pulse/back-school-why-how-madhur-oza>
- Piyush, & Piyush. (2024,). Aspirational District Programme, Features, Significance and Achievement. StudyIQ. <https://www.studyiq.com/articles/aspirational-district-programme/>
- PRIMER_ASPIRATIONAL_DISTRICTS. (n.d.). Teaching-learning and Assessment in the Classrooms: Reflections from National Achievement Survey: 2017. www.raijmr.com
- TechSpace. (2021b). Playing with Turtle Blocks. In Azim Premji University (11). <https://cdn.azimpremjiuniversity.edu.in/apuc3/media/publications/downloads/magazine/At-Right-Angles-Issue-11-Nov-2021.f1638252663.pdf>
- Senapaty, H. & National Council of Educational Research and Training. (2017). National Achievement Survey (Nas) in India. In National Achievement Survey in India. https://gaml.uis.unesco.org/wp-content/uploads/sites/2/2018/10/GAML-5-Session2_India.pdf
- United Nations Development Programme, (2021), ASPIRATIONAL DISTRICTS PROGRAMME: AN APPRAISAL. <https://www.undp.org/india/publications/aspirational-districts-programme-appraisal#:~:text=This%20Appraisal%20of%20the%20Aspirational,gaps%2C%20evidence%2Dbased%20planning%20and>
- UNDP (n.d.). appraisal report on the Aspirational Districts programme. <https://www.undp.org/india/publications/aspirational-district-programme-appraisal>
- UNESCO (2021): “One Year into COVID-19 Education Disruption: Where Do We

Stand?” <https://en.unesco.org/news/oneyear-covid-19-education-disruption-where-dowe-stand>.

Yadav, R. K. (n.d.). National Education Policy Compliance Profile: Jharkhand. www.ccs.in

Yadav, (2023). India’s Aspirational Districts programme focuses governance efforts on development — ALI Social Impact Review. ALI Social Impact Review. <https://www.sir.advancedleadership.harvard.edu/articles/indias-aspirational-districts-programme-focuses-governance-efforts-development>

Awareness of School Teachers towards the DIKSHA App: An Exploratory Study

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Abstract

The integration of Information and Communication Technology into school education has transformed how teachers access training, instructional resources and professional development opportunities. Among the various digital initiatives launched by the Government of India, the Digital Infrastructure for Knowledge Sharing, commonly known as DIKSHA, occupies a central position as the National Digital Infrastructure for Teachers. Despite its wide reach, the extent to which school teachers are actually aware of the platform, its objectives, features and functions remains an open question. This study examines the awareness of school teachers' awareness of the DIKSHA app, with particular attention to their knowledge of its origin, purpose, features and overall utility in the teaching and learning process. A descriptive survey method was adopted, and data were collected through a structured questionnaire administered in the form of a Google Form to a sample of forty three school teachers associated with Jamia Millia Islamia. The questionnaire combined factual, multiple choice items with perception based items to capture both objective knowledge and subjective attitudes. The findings indicate that while a majority of teachers, roughly sixty to seventy percent, demonstrated a reasonable level of awareness regarding the platform and its features, a substantial minority remained uninformed about specific facts such as the year of launch and the authority responsible for its initiation. The study concludes with recommendations for strengthening awareness campaigns and embedding DIKSHA orientation within pre service and in service teacher training programmes.

Keywords: DIKSHA App, Teacher Awareness, Digital Infrastructure, Information and Communication Technology, Teacher Professional Development, Online Teacher Training

Introduction

Education systems across the world are undergoing a steady transition towards digital modes of teaching, learning and professional development, and India is no exception to this trend. In recognition of the growing importance of technology in classroom practice, the Ministry of

Education, Government of India, through the National Council of Educational Research and Training, launched the Digital Infrastructure for Knowledge Sharing in September 2017 as the National Teachers Platform. The platform was conceived as a unified digital space where teachers,

teacher educators and student teachers across the country could access curriculum-linked resources, training modules, lesson plans, worksheets and assessment tools, all designed to strengthen classroom instruction and continuous professional growth.

DIKSHA is available both as a mobile application and as a web platform, allowing teachers to access content according to their convenience and connectivity. The platform hosts open educational resources, which are freely accessible materials that can be used, adapted and shared with minimal restriction, thereby supporting a culture of collaborative content creation among educators. Through its course modules, energised textbooks, quizzes and teacher training programmes, DIKSHA aims to function as a comprehensive digital ecosystem supporting the professional needs of school teachers. State governments, private organisations and individual experts have also been encouraged to contribute to and utilise the platform for capacity building and the development of teaching resources.

While the policy intent behind DIKSHA is well documented, comparatively little is known about the actual level of awareness among practising school teachers regarding the platform, its origin, its features and the range of services it offers. Awareness is a necessary precondition for adoption, and unless teachers are sufficiently informed about what the platform offers and how it can be used, the intended benefits of the initiative may not be realised in practice.

The present study therefore seeks to examine the level of awareness among school teachers, with specific reference to a sample drawn from Jamia Millia Islamia, regarding the DIKSHA app and its role in supporting the teaching and learning process.

The study is organised around three broad concerns. First, it examines the general level of awareness among teachers regarding the existence and basic features of DIKSHA. Second, it investigates the specific knowledge teachers hold about the platform, including its full form, its launch and the authority responsible for its initiation. Third, it explores teachers' perceptions of the platform's performance, usability and overall contribution to their professional development. Taken together, these three strands of inquiry provide a composite picture of how well an important national digital initiative has penetrated the awareness of the teaching community it was designed to serve.

Information and Communication Technology in Education

Information and Communication Technology, commonly abbreviated as ICT, refers to the range of digital tools and systems that enable the creation, storage, transmission and exchange of information in the form of text, sound, images and video. In the context of school education, ICT encompasses devices such as computers, tablets and mobile phones, as well as software applications and online platforms that support teaching and learning. The

relevance of ICT to the present study lies in the fact that DIKSHA itself is a product of this broader technological ecosystem, and an understanding of how ICT functions in education provides the necessary background against which teacher awareness of a specific platform such as DIKSHA can be meaningfully interpreted.

ICT-enabled platforms extend the reach of educational resources beyond the physical boundaries of the classroom. Materials that would otherwise be confined to textbooks or teacher-led instruction become available for repeated access, allowing students who require additional reinforcement, including slow learners and students with learning difficulties, to revisit content at their own pace. For teachers, ICT platforms similarly offer the opportunity to access training content, lesson plans and assessment resources at a time and place of their choosing, which is precisely the model that DIKSHA was designed to embody. The link between the general affordances of ICT and the specific design of DIKSHA therefore forms an important conceptual foundation for the present study, since teacher awareness of DIKSHA can be understood, in part, as an instance of teacher engagement with ICT more broadly.

Significance of the Study

The significance of this study lies in its potential to inform policy makers, teacher educators and school administrators about the actual reach of a major national digital initiative among practising teachers. DIKSHA was introduced with the explicit

aim of serving as the national digital infrastructure for teachers, yet the success of any such initiative depends not only on the quality of the content it hosts but also on the extent to which the intended beneficiaries are aware of its existence and capable of using it effectively.

By examining awareness levels among a sample of school teachers, this study contributes to a clearer understanding of the gap, if any, between policy intention and ground level reality. Where awareness is found to be high, the findings can serve as evidence of the success of dissemination efforts and can inform strategies for sustaining engagement. Where awareness is found to be limited, the findings can guide the design of targeted orientation programmes, ensuring that teachers are equipped not only with access to the platform but also with the knowledge required to use it meaningfully in their professional practice. The study is further significant because it focuses on usability dimensions such as ease of navigation, profile creation and the overall user experience of the app, factors that directly influence whether awareness translates into sustained use. In this sense, the study moves beyond a simple measurement of awareness to consider the broader question of how awareness, usability and engagement interact to determine the real world impact of a digital teacher training platform.

Statement of the Problem

The problem investigated in this study may be stated as follows: Awareness of School

Teachers towards the DIKSHA App, with particular reference to school teachers associated with Jamia Millia Islamia.

Operational Definitions

For the purposes of this study, the following terms are operationally defined.

- **Awareness:** The extent to which a teacher possesses accurate factual knowledge about the origin, features and functions of the DIKSHA app, as measured through responses to factual and perception-based items in the questionnaire used for this study.
- **DIKSHA App:** The mobile application and web platform developed by the National Council of Educational Research and Training under the Digital Infrastructure for Knowledge Sharing initiative, providing teacher training courses, curriculum-linked resources and assessment aids to school teachers across India.
- **School Teachers:** Practising teachers employed in schools who are eligible to enrol in and use the DIKSHA platform for professional development, and who formed the respondent group for the present study.

Research Questions

1. What is the level of general awareness among school teachers regarding the existence and purpose of the DIKSHA app?
2. To what extent are school teachers

familiar with specific factual details about DIKSHA, including its full form, its year of launch and the authority responsible for its initiation?

3. How do school teachers perceive the performance, usability and overall utility of the DIKSHA app in supporting their professional development?

Objectives of the Study

1. To assess the general level of awareness of school teachers regarding the DIKSHA app.
2. To examine the factual knowledge of school teachers regarding the origin, full form and launch of the DIKSHA app.
3. To explore the perceptions of school teachers regarding the performance and usability of the DIKSHA app.

Hypotheses

1. H_{01} : There is no significant awareness among school teachers of Jamia Millia Islamia regarding the DIKSHA app.
2. H_{02} : School teachers do not use the DIKSHA app on a regular basis.
3. H_{03} : School teachers do not show interest in using the DIKSHA app.

Methodology

This study adopted a descriptive survey design, which was considered appropriate because the primary aim was to assess and describe the existing

level of awareness among school teachers regarding the DIKSHA app, rather than to establish causal relationships between variables. The descriptive survey method allows for the systematic collection of data from a defined population through standardised instruments, and is widely used in educational research when the objective is to capture the current state of knowledge, attitudes or practices among a target group.

Sample and Sampling Technique

The sample for the study consisted of forty-three school teachers associated with Jamia Millia Islamia, New Delhi. Respondents were selected through a convenience sampling technique, whereby teachers who were accessible to the investigator and willing to participate were invited to respond to the questionnaire. While convenience sampling does not allow for statistical generalisation to the wider population of school teachers, it was considered suitable for this exploratory study given the constraints of time and resources within which the research was conducted as part of a doctoral term paper.

Tool for Data Collection

Data were collected through a self constructed questionnaire administered electronically in the form of a Google Form. The questionnaire was designed by the investigator to capture two broad categories of information. The first category consisted of factual, multiple choice items intended to assess the respondents' objective knowledge

of DIKSHA, including its full form, the year and authority of its launch, its intended scope and its principal features. The second category consisted of perception based items intended to capture teachers' attitudes towards the platform, including how they came to know about it, how they evaluate it as a government initiative, and how they perceive its purpose and functions. The questionnaire was reviewed for clarity and relevance prior to administration, and items were framed in simple language to ensure accessibility for respondents across different levels of digital familiarity.

Procedure for Data Collection and Analysis

The questionnaire link was shared electronically with the identified respondents, who completed it at their own convenience. Responses were automatically compiled by the Google Forms platform and subsequently exported for analysis. Given the descriptive nature of the study, data were analysed using simple percentage analysis, with responses to each item tabulated and converted into percentages to facilitate interpretation. The analysis focuses on identifying patterns of correct and incorrect responses across items, thereby providing an indication of the overall level of awareness among the sample.

Delimitations of the Study

- The study is delimited to a sample of forty three school teachers associated with Jamia Millia Islamia,

New Delhi, and the findings cannot be generalised to school teachers in other regions or institutions.

- The data collection was conducted within a limited time frame, owing to the constraints associated with a doctoral term paper, and therefore the scope of the investigation remains exploratory in nature.
- The study is limited to teachers' self-reported awareness as captured through a questionnaire, and does not include observational or interview-based verification of actual app usage.

Analysis and Interpretation of Data

The data collected through the questionnaire were analysed item by item using simple percentage analysis. The findings are presented below under three broad headings corresponding to the objectives of the study, namely the general profile of respondents, factual awareness regarding DIKSHA, and perceptions

regarding the platform's purpose and performance. Each set of findings is followed by an interpretation that situates the results within the broader literature on teacher awareness of digital initiatives.

Profile of Respondents

The respondents were first asked to indicate their length of teaching experience. The largest proportion of respondents, approximately thirty three percent, reported one year of teaching experience, followed by approximately nineteen percent who reported two years and fourteen percent who reported three years. The remaining respondents were distributed across a range of other durations. This profile suggests that the sample was weighted towards relatively early career teachers, a finding that is relevant to the interpretation of subsequent results, since early career teachers may differ from more experienced colleagues in their exposure to digital initiatives introduced during their training period.

Table 1
Teaching Experience of Respondents (N = 43)

Years of Experience	Percentage of Respondents
One year	32.6%
Two years	18.6%
Three years	14.0%
Other durations	34.8%

Source of Awareness about DIKSHA

Respondents were also asked to indicate the source through which they first became aware of the DIKSHA app. Approximately forty seven percent of

respondents reported that they first heard or saw information about DIKSHA through friends, while approximately thirty percent identified social media as their source of information. Family members and other

sources accounted for the remaining responses. This pattern indicates that informal social networks and digital media currently play a more prominent role in disseminating information about DIKSHA

than formal institutional channels such as schools, a finding that has implications for how future awareness campaigns might be designed.

Table 2
Source of First Information about DIKSHA (N = 43)

Source	Percentage of Respondents
Friends	46.5%
Social media	30.2%
Family	11.6%
Other sources	11.7%

Factual Knowledge about DIKSHA

A series of items examined respondents' factual knowledge of DIKSHA, including the year of its launch, the ministry responsible for the initiative, the dignitary associated with its launch, its full form and its intended scope of operation. With respect to the year of launch, approximately 40% of respondents correctly identified 5 September 2017 as the launch date, while the remaining 60% selected incorrect options. With respect to the ministry responsible for the initiative, approximately seventy percent correctly identified the Ministry of Education, while approximately twenty eight percent incorrectly attributed the initiative to other ministries.

Regarding the dignitary associated with the launch, approximately fifty one percent of respondents correctly identified Shri M. Venkaiah Naidu, while the remainder selected other public figures. With respect to the full form of DIKSHA, approximately sixty seven percent of respondents correctly identified it as Digital Infrastructure for Knowledge Sharing, while approximately thirty three percent selected an incorrect expansion of the acronym. Finally, with respect to the scope of the platform, approximately seventy one percent of respondents correctly indicated that DIKSHA functions across the nation rather than being restricted to a particular state or level of government.

Table 3
Factual Knowledge Items: Percentage of Correct Responses (N = 40 to 43)

Item	Correct Responses
Year of launch (5 September 2017)	40.0%
Initiating ministry (Ministry of Education)	69.8%
Dignitary associated with launch (Shri M. Venkaiah Naidu)	51.2%
Full form of DIKSHA	67.4%
Scope of operation (across the nation)	71.4%

Taken together, these findings suggest a pattern in which teachers demonstrate relatively strong awareness of the broad institutional framing of DIKSHA, particularly its national scope and its association with the Ministry of Education and the National Council of Educational Research and Training, while showing comparatively weaker recall of specific historical details such as the exact date of launch and the dignitary associated with its inauguration. This pattern is consistent with the literature on public awareness of government initiatives more broadly, which suggests that citizens and stakeholders tend to retain information about the function and purpose of an initiative more readily than specific factual details such as dates and names, since the former is directly relevant to their practical engagement with the initiative while the latter is largely incidental.

Perceptions of Purpose, Features and Performance

Respondents were also asked about their perceptions of the purpose and features of DIKSHA. When asked about

the purpose of the app, approximately sixty three percent of respondents correctly identified that DIKSHA serves multiple purposes simultaneously, including courses for continuous learning, classroom resources and dashboards for progress and assessment, rather than any single function in isolation. Similarly, when asked about the features of the app, approximately seventy percent of respondents correctly identified that DIKSHA offers a combination of in class resources, teacher training content and assessment aids.

When asked to characterise DIKSHA as an initiative of the Government of India, approximately forty four percent of respondents described it as a good initiative, while approximately forty percent described it as a unique initiative, and a smaller proportion offered more critical characterisations. None of the respondents characterised the initiative in entirely negative terms, suggesting a generally favourable disposition towards the platform among the sample, even where factual knowledge of specific details remained incomplete.

Table 4
Perceptions of Purpose and Features of DIKSHA (N = 43)

Item	Percentage Selecting Comprehensive or Favourable Option
Purpose of DIKSHA (multiple functions / all of the above)	62.8%
Features of DIKSHA (multiple features / all of the above)	69.8%
Characterisation as a good or unique initiative	83.7%

The finding that a majority of respondents recognised DIKSHA as serving multiple, integrated functions rather than a single narrow purpose is significant, since it suggests that teachers who are aware of the platform tend to hold a reasonably accurate, holistic understanding of its design as a comprehensive teacher support ecosystem rather than as a single-purpose tool. This is consistent with the platform's own stated objectives, which explicitly position it as combining training, resources and assessment within a single infrastructure. The largely favourable characterisation of the initiative further suggests that, where awareness exists, it tends to be accompanied by positive attitudes, which is an encouraging finding for the sustainability of the initiative, although it also raises the question of whether positive attitudes can be translated into more consistent and informed use of the platform among teachers who currently fall within the less-aware segment of the sample.

Discussion

The findings of this study indicate that awareness of the DIKSHA app among the sampled school teachers is moderate to substantial, with the majority of respondents demonstrating accurate knowledge of the platform's broad purpose, its national scope and its association with the Ministry of Education, while a notable minority remained uninformed about specific historical details such as the exact date of launch. This pattern aligns with earlier exploratory work on DIKSHA conducted in the Delhi region, which similarly found variation in teachers' familiarity with the

platform's instructional applications despite general recognition of its existence.

The finding that informal sources such as friends and social media were the most commonly cited channels through which teachers first learned about DIKSHA is particularly noteworthy. It suggests that, at present, peer networks function as a more effective conduit for information about the platform than formal institutional announcements from schools or administrative bodies. While peer based dissemination has the advantage of being organic and trusted, it also carries the risk of transmitting incomplete or inaccurate information, which may partly explain the gaps observed in factual knowledge regarding the platform's launch and history. This suggests a potential role for schools and teacher education institutions in complementing informal channels with structured orientation sessions that ensure accurate and comprehensive information reaches all teachers, including those who may not be part of active informal networks.

The generally favourable attitudes expressed by respondents towards DIKSHA as a government initiative, even among those whose factual knowledge was incomplete, suggest that the platform enjoys a degree of goodwill that could be leveraged to support further awareness building efforts. At the same time, the gap between favourable attitudes and complete factual awareness points to an opportunity for targeted interventions, such as short orientation modules embedded within existing teacher training programmes, that could help convert generalised goodwill into informed and confident use of the platform's specific features.

It is also important to situate these findings within the broader context of the PM eVidya initiative, of which DIKSHA forms a part. PM eVidya represents an effort to unify multiple digital, online and on-air education initiatives under a single umbrella, with DIKSHA serving as the central content and training repository. Teachers' awareness of DIKSHA therefore has implications not only for their individual professional development but also for the effectiveness of this wider unified framework, since DIKSHA functions as the access point through which several other components of PM eVidya, including energised textbooks and the VidyaDaan content contribution programme, are made available to teachers and students.

Conclusion and Recommendations

This study set out to examine the level of awareness of school teachers towards the DIKSHA app, with particular reference to a sample of forty-three teachers associated with Jamia Millia Islamia. The findings indicate that the majority of respondents possess a reasonably accurate understanding of the platform's broad purpose, scope and features, and hold favourable attitudes towards it as a government initiative. At the same time, a substantial minority of respondents lack precise factual knowledge regarding the platform's origin and history, and informal social networks currently play a larger role than formal institutional channels in disseminating information about the platform.

On the basis of these findings, the study offers the following recommendations. First, schools and teacher education

institutions should consider incorporating structured orientation sessions on DIKSHA within existing in service training calendars, ensuring that all teachers receive accurate and comprehensive information regardless of their access to informal networks. Second, given the generally favourable attitudes observed among respondents, awareness campaigns could build on this existing goodwill by emphasising specific, practical features of the platform, such as course enrolment, certificate completion and the use of energised textbooks, rather than focusing solely on general promotional messaging. Third, future research could extend this exploratory study by employing probability based sampling across a larger and more diverse population of school teachers, and could incorporate qualitative methods such as interviews to explore not only awareness but also the barriers that prevent aware teachers from translating their knowledge into sustained use of the platform.

In conclusion, while the DIKSHA app has succeeded in establishing a notable presence among the school teachers sampled in this study, there remains scope for strengthening both the depth and the channels of awareness, so that the platform's potential as the national digital infrastructure for teachers can be more fully realised in practice.

References

- Aziz, K. (2021). A study of DIKSHA app: An exploratory study. Jamia Millia Islamia. Department of School Education and Literacy. (n.d.). DIKSHA: National platform for school education. Government of India. <https://diksha.gov.in/>
- Finger, G., Russell, G., Jamieson-Proctor, R., & Russell, N. (2007). Transforming learning with ICT: Making IT happen. Pearson Education Australia.
- Ministry of Education, Government of India. (n.d.). PM eVidya. <https://pmevidya.education.gov.in/diksha.html>
- National Council of Educational Research and Training, Central Institute of Educational Technology. (n.d.). Web DIKSHA. https://ciet.ncert.gov.in/activity/web_diksha
- Popli, M. (2020). DIKSHA app and instructional strategies applied by teachers: An exploratory study. University of Delhi.

An Analytical Study of Gendered Interaction in Mathematics Classrooms

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Abstract

Mathematical skills are crucial in the present age of artificial intelligence and machine learning, as they form the foundation for logical reasoning and problem-solving. Developing these skills requires teaching practices that ensure equal and meaningful participation of all students in mathematics classrooms. Although efforts have been made to make mathematics enjoyable, fear of mathematics remains a persistent challenge. Mathematics anxiety disproportionately affects girls, particularly when it is combined with gender-biased behaviours of teachers. For instance, classroom practices such as giving more attention, time, or opportunity to boys can unintentionally marginalise girls, leading to unequal learning opportunities. Such gendered interactions not only reinforce stereotypes but also risk creating long-term disparities in mathematical competence. This paper attempts to analyse classroom interactions of teachers and students in mathematics classrooms from a gender lens. A total of eight classes of four mathematics teachers were observed. The classroom observation was done after getting consent from the teachers. Two teachers agreed to videotape, and the remaining two teachers' classes were observed with the help of an observation schedule. Two classes of each participating teacher were observed.

Keywords: Mathematics, classroom interaction, gender

Introduction

Mathematics is not just about doing arithmetic effectively. It involves problem-solving, use of heuristics, estimation and approximation, visualisation, making connections, systematic reasoning, and mathematical communication. All these processes, which are central to mathematics, lead to the mathematization of thinking. (NCERT, 2006a; NCERT, 2023). It not only makes individuals efficient in dealing with numbers, but it also develops critical thinking and creative problem-solving skills in individuals. Mathematics also plays a crucial role in understanding concepts of different subjects. The National Curriculum Framework for School Education 2023 has highlighted the strong association of

mathematics with science, technology, and artificial intelligence, which further acts as a deciding factor for achieving future success. But the way teachers, parents, and society perceive mathematics has created a sense of fear among students. Fear and anxiety about mathematics at the school level restrict any further advancement of individuals. Labelling mathematics as a tough subject or a subject more suitable for boys creates unnecessary fear among students, especially among girls (NCERT, 2023). It was found that all over the world, the participation of women in STEM fields is very low in comparison to men. Only 29.3 per cent of females are involved in scientific research in the world. For the

Asia-Pacific region, there is a further decline in this percentage. Only 18.5 per cent of women are in research positions in South and West Asia (UNESCO, 2020).

According to the All India Survey on Higher Education (AISHE), 2020-21, female enrolment in Engineering and Technology (in UG, PG, MPhil and PhD) is just 29.3 per cent (Ministry of Education, n.d.). Fewer women in STEM fields result in a waste of talent and ideas, and can also lead to severe economic drawbacks. The gender gap in STEM education has its roots in teaching and learning practices used in schools. Among other factors that impede girls from pursuing STEM education, the two most prominent are gender-discriminatory practices in classrooms and the way subjects such as mathematics are taught in schools (UNESCO, 2020).

Studies have shown that classroom interactions are not equally distributed among boys and girls (Hassaskhah & Roshan Zamir, 2013; Mundelsee & Reschke, 2025; Sadker, 2000; Sadker & Sadker, 1985, 1986, 1995). Grace and Gravestock (2009) mentioned that teachers unconsciously give more time and attention to male students than female students. Some of the teachers do not even realise when they endorse gender stereotypes (UNESCO, 2019). Other studies also found that teachers were unaware of their own gender bias in classrooms (Mougharbel & Bahous, 2010; Shmurak & Ratliff, 1994).

Teachers are often seen as role models by boys and girls. Girls and boys are perceived and treated differently from the moment they enter school. Teachers interact differently with boys and girls (Bhattacharjee, 2021; UNESCO, 2019). Several studies confirm that boys and girls are treated differently in classrooms; some get more time and attention from teachers

while others are deprived of it (Bassi et al., 2016; Bhattacharjee, 2021; Hassaskhah & Roshan Zamir, 2013; Kumar, 2017; Mundelsee & Reschke, 2025; Sadker, 2000; Sadker & Sadker, 1985, 1986, 1995).

Girls and boys learn what is expected of them and behave accordingly. How teachers treat girls and boys may be the most important factor in the creation of gender stereotypes. In a study, it was found that teachers place different expectations on boys and girls (Kushwaha & Gautam, 2014). Teachers often consider that girls cannot excel in mathematics even after scoring good marks in mathematics (NCERT, 2006b). Gendered expectations from students affect the motivation of students. Mathematics is an important subject that plays a key role in the future success of individuals; gender biased behaviour of teachers will hamper the progress of individuals. It was found in a research that an 'active learning methodology for teaching mathematics', which involved balanced student participation in classroom discussion (like sharing ideas, students' engagement, problem posing, and problem-solving), reduces the gender gap in mathematics (Tommaso et al., 2021) therefore researcher felt that it is pertinent to analyse the interaction between teachers and students in mathematics classrooms from a gender lens.

Objective

Analyses of teacher-student interaction from a gender lens in mathematics classrooms.

Method and Procedure

Sample description:

In the present study, teachers were selected through purposive sampling to achieve maximum variation with respect

to the type of schools, grade levels taught, years of teaching experience, gender and age. The mathematics teaching methods and practices of four teachers were observed, of which three teachers were male and one was female. People of different age groups were included; the youngest was 32 years old, having 8 years of experience, and the oldest was 48 years old, with 20 years of experience. The data were collected from four teachers teaching in Grades 4 to 8 in four schools, including central government, state government, and private schools, affiliated to the Central Board of Secondary Education (CBSE) and Uttar Pradesh Madhyamik Shiksha Parishad (UP Board). Classroom observations were conducted in three English and one Hindi-medium school. This study has a slightly greater number of girls than boys. In this study, there were 134 boys and 140 girls (48.91 per cent boys and 51.09 per cent girls).

Research procedure:

The present paper is based on classroom observation of four teachers teaching in Grades 4 to 8. Schools and teachers were contacted to participate in the study to capture the maximum variation based on the types of schools and to capture variation in terms of Grades 4 to 8. Among the schools and teachers who gave consent for the videotaping/classroom observation, they were selected for the present study. A total of eight classes, with two classes per teacher, were observed. Two teachers gave consent for videotaping, so out of the eight classes, four were videotaped, and the remaining four were observed using an observation schedule. The researcher sat at the back of the classroom and observed/recorded classroom proceedings.

To ensure that classroom interactions

were observed as naturally as possible, teachers were informed about the study in general terms rather than being told its specific focus. The researcher also spent time building rapport with both teachers and students before the observations began. These steps helped participants feel more comfortable and reduced the likelihood that they would alter their usual classroom behaviour during the observation period. To ensure the confidentiality and anonymity of the participating schools, teachers, and students, their real names have not been used in this paper. Also, codes were assigned and used for schools and teachers during data analysis.

The analysis of classroom observation was done both quantitatively and qualitatively; the teacher's classroom time was measured in terms of how much the teacher's time was spent, on whom, and for what purpose(s). For the qualitative analysis of classroom interaction, thematic analysis was done with reference to two dimensions of classroom teaching:

- a. Who gets teachers' time in the mathematics classroom?
- b. Who was allowed to participate in the mathematics classroom ?

The coding process used to identify themes in this study was guided by the coding scheme originally developed by Sadker and Sadker (1995) and subsequently adapted by Bassi et al. (2016). This coding framework provided the basis for systematically identifying, categorising, and analysing patterns of teacher-student interaction observed in the classroom data. Through the systematic analysis of these codes, broader themes were generated to capture recurring gendered patterns in classroom practices.

Results

Thematic Analysis: The following themes emerged when videotapes and observation schedules were analysed with reference to the above-mentioned dimensions of classroom teaching:

A. Boys received a larger share of teachers' time

The time duration of every class is limited. Therefore, the teacher's available time is also limited in the classroom. Thus, it is important to analyse who gets the teacher's time in the classroom and for what purpose. For this, "called out" and "called on" behaviours were considered.

Bassi et al. (2016) used variables developed by Sadker and Sadker (1995) along with three more variables: first is 'calling on by name', second is 'Time spent', and third is 'students call out'. Bassi et al. (2016) also divided their entire coding scheme into 'teacher-initiated behaviour' and 'student-initiated behaviour'. However, initially Sadker and Sadker (1985) mentioned the calling-out behaviour of students, which was student-initiated. Bassi et al. (2016) used the 'time spent' category to analyse the time spent by teachers with boys and girls in total. In

this theme, the coding scheme of Bassi et al. (2016) and Sadker and Sadker (1985), for 'call on' and 'call out', was used in the modified form; details of the modified codes are given below:

'Called on' is a teacher-initiated behaviour to engage students in classroom activities. It includes the time when a teacher asked questions, invited students to solve questions on a blackboard, did behaviour correction, and called the students for any activity.

'Called out' is a student-initiated behaviour that results in classroom engagement. It is the situation when students get involved in a classroom activity that is not initiated by the teacher but is initiated by the students themselves. It includes responding to the teacher's question without waiting for the teacher's permission and going on the blackboard/whiteboard to solve questions without the teacher's permission. However, only those behaviours are kept in the 'called out' category when they are followed by a teacher's response or approval. Less than one second was not recorded. The collective responses of students were also not recorded.

Table 1
Time spent by teachers with students in classrooms

	Classes observed	Time spent with boys (in seconds)	Time spent with girls (in seconds)
Called on	8	2248 (281.00)	1532 (191.50)
Called out	8	563 (70.38)	166 (20.75)
Total time		2811	1698

Note: Numbers given in parentheses are the mean time spent by teachers with students per class in seconds.

Figure 1
Time spent by teachers with students in classrooms

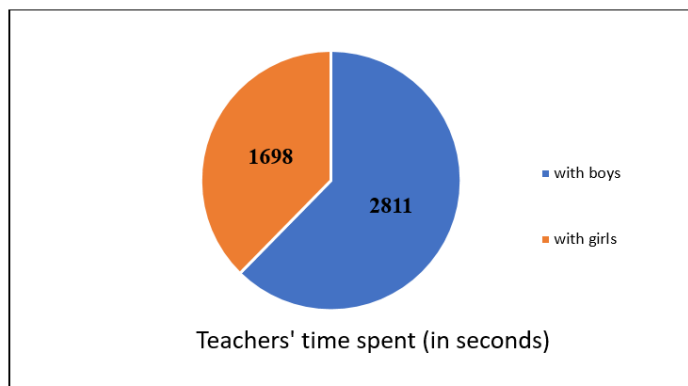


Table 1 shows that when students were called on, teachers spent 2248 seconds with boys and 1532 seconds with girls. This means teachers spent 716 seconds (11 minutes 56 seconds) more time interacting with boys than with girls when students were called on. Similarly, in the 'called out' category, teachers spent 563 seconds with boys and 166 seconds with girls. This indicates that teachers spent 397 seconds (6 minutes 37 seconds) more time with boys than with girls when students called out.

Table 1 further indicates that the mean time spent with boys per class in the 'called on' category was 281.00 seconds, compared to 191.50 seconds for girls. This suggests that teachers engaged with boys for an extended period when boys were provided with opportunities to respond or solve problems on the blackboard in classrooms. A similar pattern is evident in the 'called out' category, where the mean time spent with boys (70.38 seconds per class) was more than three times the mean time spent with girls (20.75 seconds per class). This indicates that boys were considerably more likely than girls to attract teachers' attention by calling out.

Overall, teachers spent a total of 2,811 seconds interacting with boys, compared to 1,698 seconds with girls. Thus, boys received 1,113 seconds (18 minutes 33 seconds) more of teachers' interaction time than girls. These findings suggest a gendered pattern of classroom interaction in which boys received substantially greater teacher attention and engagement. Similar findings have been reported by Bassi et al. (2016), who analysed 237 videotaped classroom observations in low-performing Grade 4 classrooms in Chile and found that boys received more teacher time and attention than girls.

The process through which students learn and understand concepts is influenced by several factors, many of which depend on the support and conducive learning environment provided by teachers (Vygotsky, 1978, as cited in Monteiro et al., 2019). Consequently, teachers' interactions with students play a crucial role in shaping students' learning experiences and understanding. In the present study, the difference in the total amount of teachers' time received by boys and girls was approximately 18 minutes.

It is important to note that girls not only received less teacher time overall, but they also had fewer opportunities to engage in high-quality instructional interactions with teachers. In the observed classrooms, girls rarely initiated interactions or behaviours that would enable their active participation in classroom activities.

The qualitative findings revealed that although teachers called on both boys and girls, boys received more probing questions. Boys were often asked to provide reasons or justifications for their answers. Additionally, when boys called out during the lesson, teachers were more likely to respond to them, giving them greater opportunities to ask questions and clarify their doubts. As a result, a larger share of the teachers' time and attention was directed toward boys.

In an English-medium government school, one of the male teachers was discussing the tools/instruments of the geometry box in Grade 6. The teacher asked a boy and a girl to estimate the length of a line segment simply by observation. The girl was not asked any further questions, while the boy was asked to mention the disadvantages of measuring a line segment simply by observation. In another incident, the teacher asked students to recall the names of instruments kept in the geometry box. In doing so the teacher asked both a boy and a girl to identify the ruler and a divider but more probing was done with the boy like the teacher asked the boy that which instrument will be helpful in measuring the length of line segment more accurately, when the boy replied that divider will be helpful to measure accurate length of a line segment the teacher further

asked the boy the reason for his answer but in this class no probing was done with girls and girls were neither asked reasons and justifications for their answers. These incidents show that boys were encouraged to think, explain and engage more deeply, whereas girls' participation was limited to surface-level responses rather than deeper conceptual understanding.

In another government school, while teaching rational numbers in Grade 7, a male teacher called on both boys and girls to answer questions and solve problems. However, when the classroom interactions were analysed, it was found that when boys were given the opportunity to solve questions on the blackboard, the teacher gave tough questions to the boys. The teacher also closely supervised the boys' steps, offered feedback, and encouraged them to continue even when they made mistakes. These kinds of challenges and support allowed boys extended interaction with the teacher and more of the teacher's time. But girls were often given simpler questions, and the teacher showed little concern about how they solved them; as a result, girls received less time, minimal guidance, and fewer opportunities for meaningful interaction.

Furthermore, allowing boys to make mistakes as part of the learning process may have contributed to the development of their cognitive abilities. Opportunities to explore ideas, make errors, and receive feedback are considered important for promoting deeper understanding and intellectual growth (Alexander, 2004, 2006, as cited in Monteiro et al., 2019).

Among the eight classes observed, only in one class, taught by a male teacher

in a private English-medium school, did girls receive more of the teacher's time than boys. However, in that class, the teacher asked girls mostly recall-type questions or definitions.

When teachers ask routine or simple recall-based questions, students tend to engage in lower-order thinking. In contrast, intellectually challenging questions provide opportunities for students to reason, analyse, and justify their responses. When students are required to explain the rationale behind their answers, it promotes deeper cognitive engagement and strengthens their problem-solving skills (Smart & Marshall, 2013). Overall, it was found that boys received more meaningful engagement and instructional attention from the teacher, which effectively gave them a larger share of the teacher's time.

In the observed classrooms, boys were more frequently engaged in cognitively demanding interactions. Consequently, they were provided with greater opportunities to clarify and consolidate their understanding, develop reasoning skills, and strengthen

their cognitive abilities. Girls, on the other hand, were more often asked fewer challenging questions and received fewer opportunities to participate in intellectually demanding exchanges. These findings are consistent with the observations of Sadker and Sadker (1995), who argued that when girls receive less teacher time and are presented with fewer academic challenges, they are encouraged to remain passive and such instances may further negatively affect their self-esteem and academic confidence.

B. Boys' participation was the norm in mathematics classrooms

This theme is about when the teacher gave the opportunity to students to participate in classroom activities by calling on students or when the students themselves called out, which followed the teacher's response or attention. In our study, eight classes were analysed. Table 2 gives us the actual number of times teachers called on students as well as the number of times students called out.

Table 2
Called on and called out frequency for boys and girls

	Classes observed	Boys	Girls	Total
Called on	8	92 (50.55)	90 (49.45)	182
Called out	8	86 (78.18)	24 (21.82)	110
Gender-wise total frequency		178 (60.96)	114 (39.04)	292

Note: Numbers given in parentheses are in percentages.

Figure 2
Called on and called out frequency for boys and girls

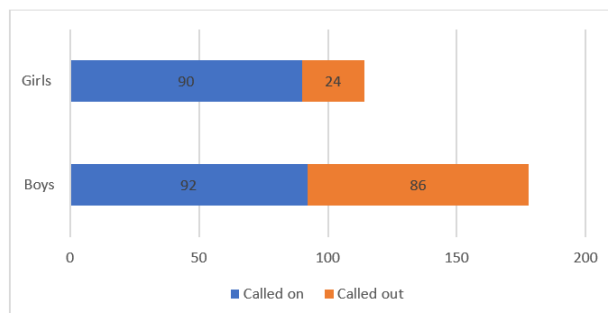


Table 2 shows that the difference in the 'called on' category between boys and girls was only 1.1 percentage points. However, a substantial difference was observed in the 'called out' frequency. Boys called out more frequently ($n = 86$) than girls ($n = 24$) in the classrooms, resulting in a difference of 56.36 percentage points. Similar patterns have been reported in previous research, which found that boys tend to call out more frequently than girls during classroom interactions (Bassi et al., 2016; Sadker & Sadker, 1995).

Figure 2 further shows that when the frequencies of 'called on' and 'called out' interactions were combined, the overall frequency of teacher–student interactions was lower for girls ($n = 114$) than for boys ($n = 178$). That is, teachers interacted with girls 114 times compared to 178 interactions with boys. Consequently, girls received only approximately 39 per cent of the total teacher–student interactions in the observed classrooms. This finding suggests that boys were engaged in classroom interactions more frequently than girls. Similar patterns of gender disparity in classroom interactions have been reported by Hassaskhah and

Roshan Zamir (2013), Bassi et al. (2016), and Sadker and Sadker (1995).

Qualitative findings indicated that, in the observed classes, boys' participation had become the norm regardless of the situation. Whether teachers called on girls or boys, boys were more likely to participate actively. Teachers were also found to give preference to boys when they called out, whether to seize an opportunity to solve a question or to provide an answer.

For example, in a Hindi-medium government school, a Grade 6 Mathematics teacher used an activity involving sex-segregated groups to teach preceding and succeeding numbers. Five girls were arranged by height and numbered from 5 to 1 to demonstrate that subtracting one gives the preceding number, while five boys were similarly arranged and numbered from 15 to 11 to illustrate succeeding numbers. Although the activities were structurally identical, boys called out seven times during the girls' activity, whereas no girls called out during the boys' activity. Moreover, the teacher neither intervened to curb the interruptions nor encouraged girls to participate. Instead, he praised a boy for

calling out the correct answer.

This interactional pattern suggests that girls' participation, although formally permitted, occurred within a classroom environment where boys exercised greater vocal dominance. By failing to address boys' interruptions, the teacher implicitly legitimised their assertive participation and reinforced unequal access to classroom discourse. The fact that boys repeatedly called out during girls' activity, while girls remained silent during boys' activity, indicates a gendered pattern of interaction in which boys occupied a more visible and authoritative position within the learning space. Similar patterns were observed across other classrooms, where boys' calling-out behaviour frequently remained unchecked.

These findings are consistent with Sadker and Sadker's (1995) observation that boys' calling-out behaviour is often tolerated by teachers and that boys consequently receive greater visibility and participation opportunities in classroom interactions. Such patterns can marginalise girls' participation and contribute to the development of gendered dispositions towards learning. Sadker and Sadker (1995) further argued that such patterns of classroom interaction can have long-term consequences for girls. Over time, girls may learn to participate less assertively, remain silent in public learning spaces, and perceive subjects such as mathematics as masculine domains, thereby reinforcing traditional gender stereotypes and limiting their confidence, engagement, and academic aspirations.

A similar pattern was observed in an English-medium school, where a female teacher who taught in Grade 4 gave questions based on the BODMAS rule. During the lesson, one of the boys was so determined to solve a question on the whiteboard that he went up to the board and began solving it without the teacher's permission. When the teacher noticed him, she said, "Okay, solve it," allowing him to continue. In another instance in the same class, when the teacher asked who would like to solve the question, she noticed one of the boys already standing near the board, ready to attempt it. The teacher then said, "Yes, come", inviting him to solve the question. In both instances, participation opportunities were effectively claimed by boys through assertive behaviour rather than being equitably distributed by the teacher.

Notably, the teacher made no deliberate effort to involve the girls in classroom activities or encourage them to solve the questions or give answers. Instead, she simply allowed whichever student called out or approached the board to attempt the solution. Her choice and discretion regarding who should solve the question or answer in class appeared to be based on convenience rather than a deliberate or rational decision. Boys who volunteered assertively or physically positioned themselves near the board were readily permitted to solve problems, whereas comparable efforts were not made to invite, encourage, or support girls' participation. Although the teacher did not explicitly favour boys, the teacher's passive

approach to classroom management disadvantaged girls. This finding is consistent with the work of Sadker and Sadker (1995), who reported that boys received a greater share of teachers' time and attention and were frequently rewarded with attention for assertive behaviours such as calling out and volunteering responses. Such interactional patterns can contribute to the normalisation of boys' visibility and participation in classrooms while rendering girls less visible in the learning process.

Conclusion

The results and discussion demonstrate that the interactions observed across all eight classrooms were gendered, and subtle gender bias was found in teachers' behaviour. Although there was no major difference in the number of times boys and girls were called on by teachers, boys consistently received greater amounts of teachers' time, attention, and instructional support. The findings suggest that teachers, either consciously or unconsciously, allowed boys greater opportunities for participation by acknowledging and engaging with their calling-out behaviour. As a result, boys occupied a more visible position in classroom interactions, while girls' participation remained comparatively restricted. Ultimately, teachers play a crucial role in determining whose voices are heard, whose responses are recognised, and who gains access to meaningful participation opportunities within the classroom. The use of sex-segregated activities, coupled with gendered patterns of teacher–student interaction, points to pedagogical practices

that inadvertently privileged boys over girls and contributed to unequal participation in mathematics classrooms.

Bassi et al. (2016) found that gender bias in classroom interactions negatively affects girls' achievement in mathematics. Similarly, Sadker and Sadker (1995) argued that gendered patterns of classroom interaction gradually undermine girls' self-confidence in mathematics, making them less likely to attempt challenging problems or engage with new mathematical tasks. As a result, girls may have fewer opportunities to develop and strengthen their mathematical competencies. Consistent with these observations, Singhal and Das (2023) reported that girls lag behind boys in basic mathematics. Furthermore, data from the All India Survey on Higher Education (AISHE) 2020–21 indicate that women remain underrepresented in Engineering and Technology programmes (Ministry of Education, n.d.). Taken together, these findings suggest that gender disparities in mathematics and mathematics-intensive fields cannot be explained solely by differences in ability or individual choice. Rather, they should be understood as the cumulative outcome of everyday educational experiences and classroom interactions that differentially encourage, recognise, and support the participation of boys and girls.

Thus, there is a need for greater awareness of gendered classroom interactions in teacher education and professional development programmes. Teachers need to reflect on how they distribute their attention, feedback, and

participation opportunities so that both boys and girls are equally encouraged to engage in mathematics learning. Although the findings are based on a small purposive sample and cannot be generalised to all schools, they shed light on the subtle ways in which gender inequalities can be reproduced in mathematics classrooms through everyday classroom practices. Addressing these classroom interaction patterns is essential for helping girls develop confidence in mathematics and participate more actively in learning. When girls are given equal learning opportunities in mathematics, they may be more likely to see themselves as capable of pursuing mathematically intensive fields

Recommendations for Further Research

In the present study, a small purposive sample was used so future research could involve a larger and more diverse group of schools and participants. Exploring students' experiences of classroom participation and teacher behaviour would also provide valuable insights into how gendered interactions are perceived by boys and girls. Finally, more intervention-based studies are needed to examine whether gender-sensitive teaching practices and teacher training programmes can help create more equitable classroom environments.

References

- Alexander, R. J. (2004). Still no pedagogy? Principles, pragmatism and compliance in primary education. *Cambridge Journal of Education*, 34(1), 7–33. <https://doi.org/10.1080/0305764042000183106>
- Alexander, R. J. (2006). Dichotomous pedagogies and the promise of cross-cultural comparison. In A. H. Halsey, P. Brown, H. Lauder, & J. Dilabough (Eds.), *Education: Globalisation and social change* (pp. 722–733). Oxford University Press.
- Bassi, M., Blumberg, R. L., & Mateo-Berganza Díaz, M. M. (2016). Under the "cloak of invisibility": Gender bias in teaching practices and learning outcomes. Inter-American Development Bank. <https://doi.org/10.18235/0011737>
- Bhattacharjee, N. (2021). Through the looking glass: Gender socialisation in a primary school. In M. Manjrekar (Ed.), *Gender and education in India: A reader* (pp. 40–51). Routledge.
- Franke, M. L., Webb, N. M., Chan, A. G., Ing, M., Freund, D., & Battey, D. (2009). Teacher questioning to elicit students' mathematical thinking in elementary school classrooms. *Journal of Teacher Education*, 60(4), 380–392. <https://doi.org/10.1177/0022487109339906>
- Grace, S., & Gravestock, P. (2009). *Inclusion and diversity: Meeting the needs of all students*. Routledge.
- Hassaskhah, J., & Roshan Zamir, S. (2013). Gendered teacher–student interactions in English language classrooms: A case of Iranian college context. *Sage Open*,

- 3(3). <https://doi.org/10.1177/2158244013502986>
- Kushwaha, M. (2017). Gender issues in education. Varanasi: Ganga Saran & Grand Sons
- Kushwaha, M., & Gautam, M. (2014). Do mathematics teachers have gendered opinion? [Unpublished M.Ed. dissertation]. Faculty of Education, Banaras Hindu University, Varanasi.
- Ministry of Education. (n.d.). All India survey on higher education (AISHE) 2020-21. <https://aishe.gov.in/aishe-final-report/>
- Monteiro, V., Mata, L., Santos, N. N., Sanches, C., & Gomes, M. (2019). Classroom talk: The ubiquity of feedback. *Frontiers in Education*, 4, Article 140. <https://doi.org/10.3389/feduc.2019.00140>
- Mougharbel, G. M., & Bahous, R. (2010). Gender bias in Lebanese language classes. *The Educational Forum*, 74(3), 198–212. <https://doi.org/10.1080/00131725.2010.483901>
- Mundelsee, L., & Reschke, K. (2025). Classroom interactions: The role of students' gender, classroom subject, and social relations for student hand raising, teacher calls, and student talk time. *International Journal of Educational Research*, 133, Article 102711. <https://doi.org/10.1016/j.ijer.2025.102711>
- NCERT (2023). National curriculum framework for school education 2023. NCERT. https://ncert.nic.in/pdf/focus-group/NCF-SE_2023EN.pdf
- NCERT. (2006a). Position paper: National focus group on teaching of mathematics. NCERT.
- NCERT. (2006b). Position paper: National focus group on gender issues in education. NCERT.
- Sadker, D. (2000). Gender Equity: Still Knocking at the Classroom Door. *Equity & Excellence in Education*, 33(1), 80–83. <https://doi.org/10.1080/1066568000330112>
- Sadker, D., & Sadker, M. (1985). Is the O.K. Classroom O.K.? *The Phi Delta Kappan*, 66(5), 358–361. <http://www.jstor.org/stable/20387346>
- Sadker, M., & Sadker, D. (1986). Sexism in the Classroom: From Grade School to Graduate School. *The Phi Delta Kappan*, 67(7), 512–515. <http://www.jstor.org/stable/20403143>
- Sadker, M., & Sadker, D. (1995). *Failing at fairness: How our schools cheat girls*. New York: Touchstone
- Shmurak, C. B., & Ratliff, T. M. (1994). Gender equity and gender bias in the middle school classroom. *Research in Middle Level Education*, 17(2), 47–66. <https://doi.org/10.1080/10825541.1994.11670031>
- Singhal, K., & Das, U. (2023, March 2). Phasing out the line, 'math is not for a girl'. *The Hindu*.
- Smart, J. B., & Marshall, J. C. (2013). Interactions between classroom discourse, teacher questioning, and student cognitive engagement in middle school science. *Journal of Science Teacher Education*, 24(2), 249–267. <https://doi.org/10.1007/s10972-012-9297-9>
- Tommaso, M. L. D., Contini, D., Rosa, D. D., Ferrara, F., Piazzalunga, D., & Robutti, O. (2021). Tackling the gender gap in mathematics with active learning methodologies

- (IZA Discussion Paper No. 14572). Institute of Labor Economics (IZA). <https://docs.iza.org/dp14572.pdf>
- UNESCO. (2019). From access to empowerment UNESCO strategy for gender equality in and through education 2019-2025. UNESCO. <https://unesdoc.unesco.org/ark:/48223/pf0000369000/PDF/369000eng.pdf.multi>
- UNESCO. (2020). STEM Education for girls and women breaking barriers and exploring gender inequality in Asia. UNESCO.<https://unesdoc.unesco.org/ark:/48223/pf0000375106>
- Vygotsky, L. S. (1978). Mind in society: The development of higher psychological processes. Harvard University Press.

Promotion of Girls' Education: A Literature Review of Kasturba Gandhi Balika Vidyalayas (KGBV) in India and an Empirical Study in the Bodoland Territorial Region (BTR) of Assam

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Abstract

Education is a powerful tool for social change, gender equality and inclusive development. However, girls from marginalised areas across India continue to encounter substantial barriers to schooling. To address this identified gap, the KGBV scheme was created in 2004 as part of the Sarva Shiksha Abhiyan to set up free residential schools for girls at upper-primary level in Educationally Backward Blocks. This paper reviews the current body of literature on the contribution of KGBVs in promoting girls' education with reference to India, Assam (BTR), where ethnic diversity, rural isolation and socio-economic disadvantage either overlap or reinforce one another to increase the possibility of educational exclusion for girls belonging to ST, SC, Other Backward Classes, tea-tribe communities and minority groups. Based on conceptual and experiential investigations, the review describes the ways in which KGBVs contribute in four dimensions – access, academic support, holistic development, and safe and supportive environment – for promoting enrolment, retention and completion of school education of disadvantaged girls. The article further analyses statistics of Board Examination of KGBVs in BTR, from 2021-2026 and compares their performance with all KGBVs of Assam, schools in BTR as a whole, and the state average. The results demonstrate that KGBVs in BTR, have maintained or exceeded the performance of comparison groups, with increasing pass percentage. Besides, number of girls, appeared in the examination also increased in the years. The research concluded that KGBVs have emerged as an effective institutional mechanism for educational inclusion and social empowerment. However, persistent obstacles are still predominant, relating to infrastructure, teacher shortages, digital access and socio-cultural impediments. The study ends with policy recommendations for increasing institutional capacity and sustaining the long-term impact of the initiative towards girls' education nationwide.

Keywords: *Kasturba Gandhi Balika Vidyalaya (KGBV); Girl Education; Marginalised Communities; Assam; BTR; Gender Equity; Residential Schooling; Educational Empowerment.*

Introduction

Education is commonly recognised as a crucial tool for social change, empowerment and inclusive development. Though there have been significant gains in educational expansion in India, gender

disparity in literacy and school participation still persist, particularly among the girls from marginalised communities, such as Scheduled Castes (SC), Scheduled Tribes (ST), Other Backward Classes (OBC),

minority groups, and among the girls from economically weaker sections. Girls' access to quality education is sometimes stalled by social discrimination, poverty, early marriage, child labour, geographical isolation and patriarchal social systems, particularly in rural and educationally backward areas. Similar educational issues are also prevalent in Assam, with its ethnic variety, rural settlements, flood-prone areas and socio-economic inequality, where girls from marginalised communities are still vulnerable to educational exclusion.

In view of the above issues, the Government of India launched the Kasturba Gandhi Balika Vidyalaya (KGBV) scheme in 2004 under Sarva Shiksha Abhiyan (SSA). The scheme aimed to establish residential schools for girls at the upper elementary level in Educationally Backward Blocks (EBBs) where the level of female literacy was much lower than that of the national average and the gender gaps in education were high. The main aim of the KGBV Scheme is to give free residential schooling to girls from poor areas so that they can access, retain and complete schooling (Anand & Das, 2017). The scheme targets out of school girls including school dropouts and never enrolled girls and girls from challenging socio-economic backgrounds.

KGBVs are an important intervention for boosting girls' education and gender equity in India. They offer a secured place to stay, free education, uniforms, textbooks, nutrition and a supportive learning environment to contribute in removing barriers that prevent marginalised girls from attending school. Studies have revealed that KGBVs have been crucial in

increasing enrolment, decreasing dropout rates and empowering girls both socially and educationally (Shah, 2011). The residential character of KGBVs is particularly useful for girls in distant tribal and rural areas where access to secondary schools is limited whereas KGBVs provide secure spaces for girls to pursue education without the pressure of domestic responsibilities or social limitations.

The role of KGBVs is quite important in Assam considering the socio-cultural variety and educational gaps among tribal and minority people in the state. Many districts in Assam still have low female literacy rates, poor educational facilities and significant dropout rates of girls. The populations living in char areas, tea garden areas and distant tribal belts are generally marginalised and suffer many challenges such as poverty, transportation issues, language barriers and lack of information on girls' education. KGBVs, here are not just educational institutions but also centres of social empowerment, building confidence, leadership, life skills and aspirations among girls from disadvantaged families. The material available emphasises the transformative significance of KGBVs in increasing educational participation and empowerment of marginalised girls. KGBVs play a crucial role in bridging educational disparities by creating inclusive and enabling learning spaces for marginalised females (Anand and Das, 2017). Similarly, Varalakshmi (2023) underlined the role of KGBVs in mobilising and retaining girls from disadvantaged socio-economic backgrounds, while noting that issues remain with regard to infrastructure, staffing and management.

Studies on education of tribal females also suggest that KGBVs play a role in bridging the gender gap and promoting educational opportunities in socially excluded tribes (Kumar, 2024). Studies on KGBVs in Assam have pointed out their beneficial effects on girls' enrolment and educational management, along with concerns about administration and infrastructural limitations (Gogoi, 2015).

But even with these contributions, there are significant challenges in ensuring the effectiveness of KGBVs in Assam. Many KGBVs continue to face the challenge of inadequate infrastructure, shortage of trained teachers, lack of digital facilities, diversity of languages, socio-cultural obstacles and limited community participation, affecting the quality of education. There is therefore a need to critically investigate the role of KGBVs in promoting girls' education among marginalised populations in Assam and to determine the extent to which these institutions have succeeded in achieving educational inclusion and empowerment.

Theoretical Framework:

The conceptual framework outlines the relationship between Kasturba Gandhi Balika Vidyalaya (KGBV) and the educational empowerment of girls from marginalised areas in Assam. The concept assumes that socio-economic disadvantages and gender barriers negatively influence girls' educational involvement, and that interventions through KGBV serve to improve the outcomes of educational access, retention, and empowerment.

The framework begins with the background of marginalised populations

in Assam, including Scheduled Tribes (ST), Scheduled Castes (SC), Tea Tribe clans, minority groups, Other Backward Classes (OBC), Below Poverty Line (BPL) households and girls from rural and remote locations. These groups are frequently denied access to education due to poverty, social discrimination, geographical isolation and lack of educational resources, and girls from these communities are more likely to endure irregular schooling, early dropout and low educational attainment.

The second part of the framework outlines the key constraints affecting girls' education, which include poverty and economic hardship, patriarchal social norms, gender discrimination, early marriage, domestic responsibilities, low parental literacy, lengthy journey to school, safety concerns, inadequate infrastructure and social marginalisation. These constraints limit girls' enrolment, attendance and continuation in school education, especially in rural areas of Assam.

The final component addresses KGBV interventions as the key independent variable in the framework. KGBVs are residential schools set up to give free and quality education to girls from impoverished regions. The intervention has four main components, namely access and provision, academic support, holistic development and a safe and supportive environment.

KGBVs under access and provision provide free residential education, hostel accommodations, uniforms, textbooks, nutrition and health care support. These facilities ease the financial strain on poor households and motivate parents to send girls to school. Academic support is

given through frequent teaching–learning activities, remedial classes, bridging courses, monitoring and learning resources that help girls improve to improve academic performance and educational continuity.

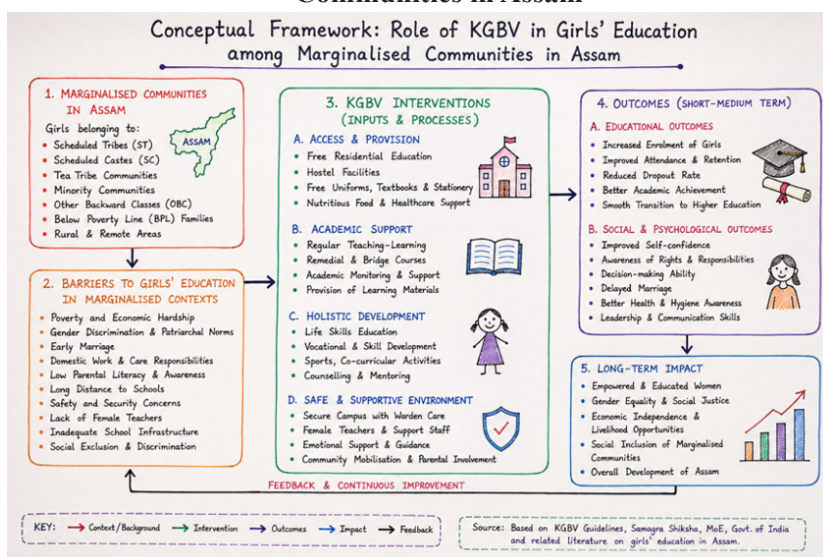
The holistic development component comprises life skills education, vocational training, sports, co-curricular activities, counselling and mentoring that together enhance confidence, communication skills, leadership traits and self-awareness among girls. The framework also stresses the significance of a safe and supportive environment through female teachers, wardens, emotional support, secure campuses and community participation – support structures that promote trust among parents and create a supportive educational climate for females.

The fourth component discusses the educational, social and psychological outcomes of the KGBV scheme. Educational outcomes include increased

enrolment, improved attendance and retention, reduction in dropout, enhanced academic performance and successful progression to higher education. The social and psychological effects are strong self-confidence, a better sense of rights and responsibilities, decision-making capacity, avoiding early marriage, better health awareness and the leadership development.

Finally, the framework refers the long-term impacts such as women empowerment, gender equality, economic independence, social inclusion and community development etc. Educated girls are more likely to contribute to family welfare, societal progress and economic development. Thus, the framework clearly shows that KGBV is an efficient institutional mechanism for promotion of girls' education and empowerment among the marginalised populations in Assam through educational assistance, social protection and holistic development.

Figure 1
Conceptual Framework – Role of KGBV in Girls' Education in Marginalised Communities in Assam



The above framework is explained in Figure 1, which links the pathway from the socio-economic environment of marginalised communities and the challenges faced by girls, to the four-dimensional KGBV intervention, to educational and psychosocial outcomes in the short- and medium-term, and to the long-term impact of women's empowerment and community development. The feedback loop at the bottom of the figure represents the iterative, continual nature of institutional reform associated with effective KGBV functioning in the literature.

Review of Related Literature

a) Education of Girls in Assam:

Scholarly interest is growing in the value of girls' education in Assam for social development, gender equality and women's empowerment. The study evaluated the historical evolution, socio-economic impediments, educational participation and government interventions in girls' education in the state.

Hussain (2021) studied the status of women's education in Assam and noted that education is an important tool for social change as well as for women empowerment and found that female literacy plays a significant role in decreasing poverty, unemployment, and social disparity. However, rural girls in Assam are deprived of these opportunities due to poverty, early marriage, and lack of awareness about education.

In a study of the status of women in higher education in Assam, Borgohain (2021) observed that the participation of women has increased significantly in urban areas with the expansion of universities and colleges, but rural and economically

backward girls still lack access to higher education due to financial constraints and social barriers.

Saha (2021) explored the female participation in higher education in Assam with special reference to Gauhati University. He pointed out that though there has been an improvement in the participation of women in higher education over the years, the enrolment in technical and professional courses is comparatively low among girls. He pointed out the urban-rural divide as a major educational challenge.

Dahal (2021) traced the historical development of women's education in colonial Assam and highlighted the role of missionaries, social reformers, and Assamese intellectuals in its development, but at the same time, social conservatism and patriarchal attitudes restricted women's educational opportunities in the early period.

An empirical study by Laskar (2022) in the Hailakandi district of Southern Assam found that household income, parental education, residential location and socio-economic conditions have a significant effect on girls' enrolment and continuation of education with rural girls lagging behind urban girls in educational achievement.

Joshi (2022) studied the problems faced by Bodo women of Assam and the role of education in empowering them. It was found that low female literacy, gender discrimination and limited investment in education were the factors that hindered social progress. It was argued that education has a transformative role in improving the social status, self-confidence and participation in decision-making among women.

Borah (2023) in a sociological study

on the educational status of Muslim women in Golaghat district of Assam, found that socio-economic backwardness, parental illiteracy and conservative social attitudes have a negative effect on the participation of girls in education. She recommended awareness programmes and community-based educational initiatives to increase the female literacy.

Dowarah (2020) examined the role of KGBVs in the Tinsukia district of Assam and found that residential schooling improved educational access and retention among girls from marginalised communities such as tea-garden workers, tribal groups, and economically weaker families, although infrastructural deficiencies and a lack of qualified teachers affected institutional functioning.

b) Education of Girls Belonging to Marginalised Communities:

Nambissan (2000) studied the educational deprivation faced by girls belonging to Scheduled Castes, Scheduled Tribes and other marginalised communities in India. She argued that poverty, caste discrimination and gender biasness act as barriers for girls accessing quality education and claimed that social exclusion and unequal opportunity continue to marginalise girls in rural India.

Govinda (2002) in his study on the educational inequality in India, observed that tribal girls encounter numerous problems such as geographical isolation, non-availability of schools, poor infrastructure and non-availability of female teachers. Socio-cultural practices and economic hardship were also found to be major factors responsible for dropout among the marginalised girls.

Shah (2011) investigated the

KGBV initiative in Gujarat and noted that residential schools give opportunities for empowerment among marginalised girls; she opined that education increases the self-confidence, leadership characteristics and decision-making ability of girls coming from disadvantaged homes.

Anand and Das (2017) evaluated the significance of KGBVs in promoting education of girls among SC, ST, OBC and minority populations and observed that KGBVs have a significant impact on enrolment, retention and educational involvement of girls in educationally backward areas.

Thamminaina, Kanungo and Mohanty (2020) conducted a systematic review on educational experiences of girls belonging to Particularly Vulnerable Tribal Groups (PVTGs). The study found that poverty, language problems, lack of female teachers, cultural restrictions and poor infrastructure act as barriers to education. The study highlighted the need for formulating culturally inclusive educational policy, with community participation.

Nayak and Kumar (2022) examined the reasons why some tribal girls continue education while others drop out in rural India, and found that parental support, local-language instruction, female teachers, and economic stability are positively associated with continuation, and early marriage, household work, and poverty are associated with dropout.

Kumar and Kushwaha (2023) investigated the issues related to education among tribal girls and evaluated the success of the KGBV scheme, concluding that residential schools provide a safer environment for education of marginalised girls, improve academic

continuity and provide opportunities for empowerment, but infrastructural gaps and administrative limitations continue to affect implementation.

Tiwari (2025) explored the educational experiences of marginalised girls in rural India through an intersectional lens, demonstrating that caste, class, religion and gender collectively determine girls' sense of belonging in schools. Girls in KGBVs reported feeling more confident and participating more socially, but they still experienced discrimination and exclusion.

c) KGBV and Girls' Education:

In her analysis of the KGBV programme in Gujarat, Shah (2011) pointed to its contribution to girls' empowerment by noting that KGBVs not only provide access to education but also help girls develop self-confidence, leadership qualities and decision-making abilities and that curriculum and pedagogical practices create discursive spaces for empowerment among rural girls.

Roy (2015) studied the effect of the Right to Education (RTE) Act on girl-child education in India and found that KGBVs became an important intervention under the RTE framework by providing educational access for girls from marginalised communities in educationally backward regions, with residential schooling reducing dropout rates and promoting continuation of education.

Gogoi (2015) in a detailed evaluation of curricular and co-curricular activities in KGBVs of Assam found that the KGBVs played a significant role in the educational development of girls from marginalised communities by enhancing academic participation, confidence, and

extracurricular engagement. However, challenges like inadequate infrastructure, lack of trained teachers, and absence of proper hostel facilities impacted institutional functioning. Gogoi (2015) in a related study examined the management system of KGBVs in Assam and observed that the effective functioning of institutions was influenced by the coordination among administrators, teachers and community members. The study also brought to light the problems related to financial management, monitoring mechanisms and lack of administrative support.

Shah (2016) further explored the process of translating educational access into social change through KGBVs and identified that KGBVs provide the opportunity for marginalised girls to challenge traditional gender norms and social inequalities and argued that educational empowerment needs to be accompanied by institutional support, culturally relevant practices, and community participation for sustainable impact.

In India, the role of KGBVs in promoting girls' education among marginalised communities was studied by Anand and Das (2017). They found that KGBVs substantially improved enrolment, retention and participation of girls from SC, ST, OBC and minority communities in educationally backward blocks, with the residential schooling model creating a safe and supportive environment for girls who had been previously denied educational opportunities.

Ghosh and Yadav (2020) studied the status of KGBV girls hostel scheme in Assam, under Samagra Shiksha and found that the provision of hostel facilities helped girls from remote and disadvantaged

communities to continue their secondary education by reducing the drop-out rates. It was observed that residential schooling created safer learning environments for girls who otherwise faced socio-economic barriers to education.

Dowarah (2020) studied KGBVs in the Tinsukia district of Upper Assam and found that the scheme improved access to education among girls belonging to economically weaker and socially backward communities and reported increased enrolment and retention rates, especially among girls from tea-garden and tribal communities, however infrastructural inadequacies and lack of educational resources remained major concerns.

Thamminaina, Kanungo, and Mohanty (2020) conducted a systematic review on the education of PVTG girls. They identified that the absence of female teachers, language barriers, poor infrastructure, and social insecurity are factors affecting participation of the girls in education. The authors recommended that KGBVs and residential schooling can be instrumental in overcoming these challenges.

Pooja and Yadav (2023) studied the role of KGBVs in Haryana and found that the scheme played a vital role in skill development, vocational learning and empowerment of girls by imparting life skills, educational opportunities and social awareness among the girls belonging to economically and socially deprived sections.

Kumar and Kushwaha (2023) studied the challenges faced by tribal girls in getting education. They assessed the effectiveness of KGBV scheme and discovered that poverty, geographical isolation, early

marriage and household responsibilities were major hurdles which were tackled by KGBVs through free residential education, hostel facilities and academic support.

Parray and Najar (2023) examined the role of KGBVs in empowering the girls through education. They found that girls studying in KGBVs had better educational achievement, cultural participation and social confidence than girls studying in ordinary government schools. They concluded that KGBVs play a transformative role in empowering the girls of weaker sections in the society.

The role of KGBVs in fostering gender equity among tribal girls in India was assessed by Kumar (2024). In his study, the researcher found that the residential schools enhanced educational participation, literacy and retention rates among tribal girls residing in remote and deprived regions. The study found that KGBVs were significant institutions for reducing gender disparities in tribal education.

d) KGBVs in BTR of Assam: Recent trends

Although several studies have examined the role of Kasturba Gandhi Balika Vidyalayas (KGBVs) in improving educational access, retention, and girls' empowerment in India and Assam, there is limited empirical evidence on their academic outcomes in the Bodoland Territorial Region (BTR). The BTR, comprising of 11 Educationally Backward Blocks (13.58% of Assam's total EBBs), was therefore selected as the study area because it represents one of the largest concentrations of KGBVs serving girls from marginalised communities.

The present study adopted a purposive sampling method to select the

Bodoland Territorial Region (BTR) of Assam as the study area. The BTR was purposively chosen because it contains 11 Kasturba Gandhi Balika Vidyalyayas (KGBVs) located in 11 Educationally Backward Blocks (EBBs) and also due to its ethnically diverse population.

The analysis was based on secondary board examination data (2021–2026) obtained from the official records of the Assam State School Education Board (ASSEB) and records maintained by the concerned KGBVs. Descriptive statistics, including the number of students appearing, number passing and annual pass percentages were used to analyse academic performance. A year-wise comparative analysis was carried out by benchmarking the pass percentages of KGBVs against those of other schools in the BTR and the overall Assam state average. Board examination pass percentage was used as the primary indicator, which is considered as a standardized and comparable measure of academic performance across schools and years.

Unlike earlier studies that primarily focused on educational access and empowerment, the present study benchmarks KGBVs' performance against

other schools in the BTR and the Assam state average. This study addresses the gap of the earlier studies, as reflected in various reviews towards academic performance, by providing the longitudinal quantitative assessment of students from all 11 KGBVs in the BTR using Secondary Board Examination data from 2021 to 2026. The analysis demonstrates the performance of KGBV students both in BTR and the state averages of Assam, in several years. This provides new empirical evidence on the academic performance of KGBVs in an educationally backward region and offers a measurable basis for assessing the educational outcomes of KGBVs among girls from marginalised communities.

However, it does not capture other educational outcomes such as learning gains, dropout, empowerment, self-confidence, or leadership. Therefore, the findings should be interpreted as evidence of academic performance in board examinations rather than the overall impact of KGBVs.

Table 1: Number of Girls Appeared and Passed in Board Examination under KGBV programme in BTR Area from 2021 to 2026 (Year-wise)

Table 1
Year wise status of Board examination result, KGBV (BTR)

Year	2021	2022	2023	2024	2025	2026
Appeared	122	177	145	156	184	208
Passed	122	129	129	148	166	192
Pass %	100%	73%	89%	95%	90%	92%

Source: Data collected from KGBV (BTR) Board Examination Records, 2021-2026

The table reveals that the participation of girls in education has been increasing over the period under consideration and their academic achievement has been improving as well. In 2021, all 122 girls who appeared in the Board Examination achieved a 100% pass percentage, which is indicative of a good academic base and institutional assistance in that year. In 2022, the number of girls appearing in the board examination increased to 177, showing a rise in enrolment and participation in secondary education. However, the pass percentage decreased to 73% (129 passing), a decline that could be attributed to issues related to rapid expansion, learning gaps, or academic disruption post-pandemic.

Performance of Girls in KGBVs increased further in 2023 with 145 girls appearing of whom 129 passed, bringing the pass percentage to 89 per cent. This suggests that corrective actions and academic support programmes had become

more successful. In 2024, the results were even better with 156 appearing and 148 passing with a pass rate of 95% as a result of improved educational quality and higher learning outcomes. Highest number of participants so far has been in 2025 with 184 girls appearing and 166 passing. The pass percentage has come down a little to 90 percent but generally the performance has been good. The number of girls appearing peaked at 208 in 2026 – the highest in the six-year span — of which 192 passed, a pass percentage of 92 per cent. In short, the data point to an expansion of educational access and steady academic achievement among females in KGBV BTR schools with pass percentages maintaining high but fluctuating from year to year. In Table 2, the results of KGBV BTR is compared with three institutional groups: all KGBVs in Assam; BTR schools overall; and all schools in Assam over the same six-year period.

Table 2
Consolidation of Board Examination Results, 2021–2026 (Comparative)

Year	KGBV (BTR)	All KGBVs, Assam	BTR Schools (overall)	All Schools, Assam
2021	100%	92%	96%	93.1%
2022	73%	61%	50%	56.5%
2023	89%	87%	74%	72.7%
2024	95%	92%	74%	75.7%
2025	90%	82%	64%	66.1%
2026	92%	86%	71%	65.63%

Source: Records of KGBV and Assam State School Education Board exams, 2021-26.

The comparative data further validate the continuously strong performance of the KGBVs in BTR vis-a-vis all comparison groups. KGBVs in BTR achieved a 100% pass rate in 2021 and outperformed the results of all KGBVs in Assam (92%), the schools in BTR in general (96%) and all schools in Assam as a whole (93.1%). The score of KGBVs in BTR has come down to 73% in 2022 but was still far higher than the other schools in BTR with overall pass rate of 50% and the Assam-wide figure of 56.5%. It reveals that the girls in KGBVs continued to perform better than the general student population even in a challenging year. KGBV (BTR) recorded pass percentage of 89% in 2023, which is slightly above the overall KGBV result of 87% for the state of Assam and much above the other schools in BTR (74%) and state average for schools in Assam (72.7%).

KGBV (BTR) obtained an achievement of 95% girls passed out in 2024, beating all the comparing groups mentioned above, including average result of BTR Schools with only 74%. This trend of outperformance maintained in 2025 and 2026 with KGBV, BTR recording pass rates of 90% and 92% respectively, both consistently higher than the results for other schools in BTR as a whole and state average in the schools of Assam. The six-year trend shows that the specialised educational policies, residential facilities, academic assistance and social support offered through the KGBV model, result in far better examination performance of the marginalised girls than in normal school situations.

Results

The evaluation of literature and analysis of board examination results seem to suggest that KGBVs have played an important role in boosting girls' education amongst marginalised populations in Assam, notably in the BTR region. The project has proved to be a significant educational intervention for girls belonging to Scheduled Tribes, Scheduled Castes, minority communities, tea-tribe populations, economically poorer households and rural backward regions.

One of the major conclusions is that KGBVs have significantly enhanced access and engagement in schooling of marginalised girls. The residential nature of the schools has helped overcome barriers such as poverty, distance from schools, safety concerns, domestic responsibilities and social restrictions. The provision of free education, hostel facilities, textbooks, uniforms, nutrition and healthcare support has encouraged parents from disadvantaged communities to send their daughters to school.

Board examination data from the schools in BTR shows that the participation of girls has been consistently increasing over the years. The number of girls appearing in board examinations, increasing from 122 in 2021 to 208 in 2026 – indicates better enrolment, retention and continuation in school. While the pass rates varied, the overall academic performance has been seen strong, ranging from 73% to 100%, demonstrating that KGBVs are not only enhancing access to education but also providing the quality of learning with

remarkable results.

The second major finding was that KGBV students in BTR consistently performed at or above the level of the other schools in BTR as a whole and often outperformed the average result across Assam. Take the example of KGBV BTR, which in 2024 recorded a pass percentage of 95 per cent as compared to 74 per cent in other schools in BTR and 75.7 per cent for the Assam state average. This illustrates how focused residential education initiatives for marginalised girls have succeeded.

These results may be viewed in the context of earlier studies on girls' education in Assam. Hussain (2021), Borgohain (2021), Saha (2021), Dahal (2021), Laskar (2022), Joshi (2022), and Borah (2023) collectively observed that girls' education in Assam has been expanded over the years, but continues to face challenges arising from poverty, gender discrimination, early marriage, parental illiteracy, socio-economic disadvantage, and the rural–urban divide. These studies suggest that such barriers continue to influence educational participation and progression, particularly among girls from disadvantaged communities.

The encouraging board examination performance observed in the present study is consistent with previous researches, highlighting the contribution of KGBVs to girls' education in Assam. Dowarah (2020) reported that KGBVs improved educational access and retention among girls from tea-garden, tribal, and economically weaker communities, although infrastructural and staffing challenges remained.

Despite these well-documented challenges, the board examination results of the 11 KGBVs in the Bodoland Territorial Region (BTR) displays an encouraging picture. Located in educationally backward blocks and catering primarily the girls from disadvantaged backgrounds, these schools recorded consistently high pass percentages ranging from 73% to 100% during the study period. In several years, the KGBVs also achieved pass percentages comparable to or higher than those of other schools in BTR and the Assam state average. While the present study does not establish the reasons for this performance, the findings demonstrate that girls enrolled in these KGBVs have achieved strong academic outcomes in board examinations despite the broader educational challenges identified in the literature.

The literature also stresses the significant role of KGBVs in the social and psychological empowerment of girls. The girls studying in the KGBVs develop self-confidence, leadership skills, decision making ability and awareness on health, hygiene and social rights. The schools create a supportive and safe learning environment so that girls continue to study and aim for higher studies and better livelihood.

The assessment also reveals some continuing problems that hinder the successful operation of KGBVs in Assam. Some institutions still face infrastructural challenges, lack of skilled teachers, lack of digital facilities, language difference, limitation in skill education and administrative problems.

While the present study provides

valuable evidence on the board examination performance of KGBVs in the Bodoland Territorial Region (BTR), it is limited to academic outcomes measured through pass percentages, access, enrolment and empowerment. It also does not examine other important dimensions such as school infrastructure, residential and learning facilities, teacher availability, digital resources, progression to higher education, or psychosocial outcomes including self-confidence, leadership and life skills. Future research should address these gaps by adopting a more comprehensive approach to provide a holistic assessment of the educational outcomes of girls from marginalised communities studying in KGBVs.

Overall, the findings indicate that KGBVs have emerged as transformative institutions in the promotion of educational inclusion, gender equity and empowerment of marginalised girls in Assam including the Bodoland Territorial Region (BTR).

Conclusions and Policy Implications

The analysis concludes that Kasturba Gandhi Balika Vidyalayas have been a major contributor in promoting girls' education among the marginalised populations in Assam, especially in the BTR. The scheme has successfully addressed many of the socio-economic and gender barriers that traditionally prevented girls from accessing education. KGBVs have significantly improved enrolment, retention, participation and academic achievement among disadvantaged girls by providing free residential schooling,

academic support and a safe and secure educational environment.

Students of KGBVs have shown greater performance in the Board Examinations, compared to numerous general schools in BTR and Assam as a whole. Constant increase in number of girls appearing for Board Examinations along with the consistently high pass percentage indicates that KGBVs are playing an important role in ensuring educational continuity and reducing dropout rates, and thereby established to be an important instrument for educational inclusion and social empowerment of girls from marginalised communities.

The KGBVs not only enhance the academic performance of girls but also bring self-confidence, leadership qualities, Social awareness and life skills among the adolescent girls, leading to their empowerment and gender equality in Assam, in the long run. Educated girls are more likely to take part in decision making, restrict early marriage, help in the welfare of the family and contribute towards community development, signifying that KGBVs are playing a transformative role in advancing education and social change among disadvantaged communities.

But there are certain problems of structure and administration. Some KGBVs still have problems of poor infrastructure, inadequate faculty, restricted facilities for use of technology, poor vocational training and socio-cultural barriers which influence the overall quality of education. It is consequently vital to improve institutional support and policy execution for sustainable

success in education.

Recommendations for Policy

Infrastructure

Government authorities should improve facilities in KGBV dormitories and classrooms including sanitation, electricity, libraries and digital learning resources, particularly in remote and tribal areas.

Recruitment of Qualified Instructors:

To increase the quality of teaching and establish a conducive learning environment for girls, trained and specialised female instructors in relevant subjects should be appointed.

Digital and Skill-Based Education:

Introduction of computer education, digital literacy, vocational training and career guidance programmes in KGBVs should be made to equip girls for further education and employment prospects.

Development:

Community Awareness Programmes:

Awareness programmes should be launched to motivate parents and communities to promote girls' education and to curb practices such as early marriage and gender discrimination.

Strengthening Monitoring and

Administration: Institutional functionaries should regularly monitor, maintain transparent financial management and community participation.

To conclude, KGBVs have proved to be a beneficial educational intervention for the marginalised girls of Assam. With continued government support, infrastructure enhancement and inclusive educational techniques, these institutions may further enhance girls' empowerment, eliminate educational disparity and contribute considerably to social and economic growth in the region.

References

- Das, M., & Anand, S. (2017). "Promoting Girls' Education in India's Marginalised Communities: The Case of Kasturba Gandhi Balika Vidyalaya." *International Journal of Educational Development* 54 (2): 45-52.
- R. Borah (2023). A Sociological Study of Educational Status of Muslim Women in Golaghat District of Assam. *Journal of Gender Studies and Social Development*, 11(1), pp. 66-74.
- Borgohain, P. 2021. Women in Higher Education in Assam: Status and Challenges *International Journal of Research in Social Sciences*, 9(4), 115-123.
- Dahal N. (2021). Women's Education in Colonial Assam: A Historical Perspective *Indian Journal of Historical Studies*, 58(3), 201-214.
- Dowarah, M . (2020). The Role of Kasturba Gandhi Balika Vidyalaya in Promoting Girls' Education in Tinsukia District of Assam *Journal of North East Educational Research*, 5(2), 39-47.
- Ghosh, S. and Yadav, R. (2020). Samagra Shiksha: Where is the Assam government on KGBV girls' hostel scheme? *Educational Quest*, 11(3), 215-223.
- Gogoi, M. (2017). (2015). Curriculum and co-curricular activities in Kasturba Gandhi Balika Vidyalayas of Assam *International Journal of Educational Planning and*

- Administration, 5(1), 27-35.
- Gogoi, M. 2018. (2015). Management System of Assam's Kasturba Gandhi Balika Vidyalayas. *Journal of Educational Administration and Policy Studies*, 7(4), 61–69.
- R. Govinda. (2002). *India education report: Profile of elementary education* Oxford University Press.
- A. Husain, (2021). Education of women in Assam: Challenges and opportunities. *International Journal of Humanities and Social Science Research*, 7(5), 88-94.
- B. Joshi. (2022). Education for Empowerment of Bodo Women in Assam. *Journal of Tribal Studies and Development*, 14(2), 51-60.
- Kumar, P., (2024). KGBVs as a Tool for Gender Equality among Tribal Girls in India *Journal of Educational Change and Development*, 12(1), 90-101.
- Kumar, R. and S. Kushwaha. (2023). Issues of Tribal Girls Education and Role of KGBV Scheme in India. *International Journal of Social Science and Education Research*, 8(3), 120-129.
- R. Laskar (2022). Factors influencing educational attainment of girls in Hailakandi district of Assam. *Assam Journal of Educational Studies*, 6(1), 72-81.
- G. B. Nambissan. (2000). Coping with deprivation. *Seminar*, 493, 54-61.
- Nayak, S. & Kumar, A. (2022). Continuity and discontinuity of education for tribal girls in rural India. *Journal of Rural Education and Development*, 10(2), 98–109.
- Najar, I. A. and Parray, T. A. (2023). KGBV schools role in empowering girls via education. *International Journal of Research in Education and Society*, 4(1), 33-41.
- Pooja, K. & Yadav, S. (2023). Skill Development and Empowerment through KGBVs in Haryana *Journal of Women and Education Studies*, 15(2), 77-85.
- Roy, S. (2015). Right to Education Act and education of girl kid in India. *Indian Journal of Educational Policy*, 9(1), 14-22.
- Saha, D.D. (2021). Women's Participation in Higher Education in Assam with Special Reference to Gauhati University *Journal of Higher Education Studies*, 13(2), 40–49.
- Shah, P. (2011). Empowering Girls through Education: A Study of Kasturba Gandhi Balika Vidyalayas in Gujarat. *Contemporary Education Dialogue*, 8(2), 191-215.
- Shah, P. (2016). Access to education and social change through KGBVs in India. *Journal of Gender and Education*, 28(5), 623-638.
- Thamminaina A, Kanungo P, Mohanty A. (2020). Educational experiences of females from Particularly Vulnerable Tribal Groups in India: A systematic review. *International Journal of Inclusive Education*, 24(11), 1187–1203.
- S. Tiwari. (2025). Intersectionality and the educational experiences of marginalised girls in rural India *Journal of Educational Equity and Inclusion*, 3(1), 25-37.
- Varalakshmi, R , (2023). Kasturba Gandhi Balika Vidyalayas for mobilisation and retention of marginalised girls. *Journal of Educational Development and Practice*, 17(2), 55-64.

PM e-VIDYA and Its Impact on School Education in Assam: Promoting Accessibility and Inclusivity.

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Abstract

Education has the power to transform society. In a developing country like India, it is essential that education is inclusive and accessible to all children, including those with disabilities. Without universal access to education, social and economic development cannot be sustained. Education and economic growth are closely interlinked, as literacy and skills directly influence employment, productivity, and societal progress. Recognising this, the Government of India has implemented several initiatives to improve governance in education, one of the most notable being PM e-VIDYA. Launched in May 2020 under the Atmanirbhar Bharat Abhiyan, PM e-VIDYA aims to provide multi-mode digital learning opportunities, ensuring continuity of education during disruptions such as the COVID-19 pandemic. In Assam, a key state in the North-East with diverse geographical and socio-economic challenges, PM e-VIDYA has played a crucial role in enhancing access to education through platforms like DIKSHA, QR-coded “Energized Textbooks,” DTH channels and radio programmes. This paper examines the PM e-VIDYA initiative and its impact on the education system, with a special focus on Assam, highlighting both achievements and areas for further development.

Keywords: PM e-VIDYA, Digital Education, Inclusive Learning, Assam, Educational Equity.

1.1 Introduction:

In a diverse and developing country like India, ensuring access to quality education for all children—including those from rural areas, marginalised communities and children with disabilities—is critical for fostering inclusive growth. Despite significant progress in the education sector, challenges such as limited infrastructure, uneven teacher availability, socio-economic disparities, and geographic isolation continue to affect learning outcomes, particularly in North-Eastern states like

Assam. To address these challenges and maintain continuity of education during disruptions such as the COVID-19 pandemic, the Government of India launched PM e-VIDYA in May 2020 under the Atmanirbhar Bharat Abhiyan. This flagship initiative integrates digital, online, and broadcast-based learning platforms to ensure equitable access to education across the country. In Assam, where a significant portion of the population resides in rural and remote areas, PM e-VIDYA has played a pivotal role in bridging educational gaps,

supporting differently-abled learners, and reducing socio-economic disparities in learning. This paper explores the implementation, impact, and challenges of PM e-VIDYA in Assam, highlighting its contribution to building a resilient, inclusive, and digitally empowered education system.

1.2. Research Methodology

This study uses a qualitative and descriptive approach to examine the implementation and impact of PM e-VIDYA in Assam. Data is collected from government reports, SCERT Assam publications, PM e-VIDYA guidelines, scholarly articles, and digital platforms like DIKSHA and DTH channels. The analysis focuses on accessibility, inclusivity for differently-abled and multilingual students, teacher capacity-building, and socio-economic impacts. Although limited to school education in Assam and primarily based on secondary sources, the study provides insights into the effectiveness, challenges, and contribution of PM e-VIDYA towards a more inclusive and digitally empowered education system in the state.

1.3. Objectives of the Study

1. Examine the implementation of PM e-VIDYA in Assam.
2. Assess accessibility and inclusivity for all learners, including differently-abled and multilingual students.
3. Analyse the socio-economic and educational impact on students, teachers, and households.
4. Identify challenges and suggest improvements for digital education

in the state.

1.4. Discussion

PM e-VIDYA (Prime Minister's Education through Virtual/Digital & Interactive Access) is a flagship initiative launched on 17 May 2020 under the Atmanirbhar Bharat Abhiyan by the Ministry of Education. The programme was introduced in response to the COVID-19 pandemic to ensure continuity of learning and has since become a long-term digital education strategy. Its main goal is to unify digital, online, and broadcast-based education and provide multi-mode access to school children and teachers. The initiative is designed to benefit nearly 25 crore school-going children across India. The objective of PM e-VIDYA is to bridge the digital divide and make education accessible to every child, irrespective of geography, language, or socio-economic background. By using a blend of internet platforms, television, and radio, the programme ensures that children with limited or no internet connectivity can continue their education. It also focuses on creating inclusive content for Children with Special Needs (CWSN) and aligning all efforts with the vision of Digital India and the National Education Policy (NEP) 2020.

1.4.1. Key Components of PM e-VIDYA

Pradhan Mantri e-VIDYA (PM e-VIDYA) initiative aims to ensure continuity of school education in India through multiple digital and broadcast platforms. It is a comprehensive programme that brings together various key components. The key components are discussed below:

The DIKSHA (Digital Infrastructure for Knowledge Sharing) platform serves as

the “One Nation, One Digital Platform” for school education. It hosts e-content created by NCERT and States/UTs in multiple Indian languages and includes “Energized Textbooks” with QR codes that link to digital resources. Students can access videos, interactive exercises, and reading materials directly through the DIKSHA app or web portal.

The SWAYAM portal provides free Massive Open Online Courses (MOOCs) for learners ranging from Classes 9 - 12 and higher education. It enables flexible, self-paced learning and also supports teacher training. In addition, the SWAYAM Prabha initiative delivers curriculum-based content through 200 dedicated DTH television channels under the model of “One Class–One Channel.” These channels operate 24×7 and ensure that students without internet connectivity can still access quality education.

To expand reach beyond internet and television, PM e-VIDYA also includes radio, community radio, and podcasts such as “Shiksha Vani.” This ensures learning continuity in remote and rural areas where digital penetration is limited. Moreover, the initiative emphasises inclusivity by developing special e-content for Children with Special Needs (CWSN). Materials are made available in Indian Sign Language, DAISY format, and audio formats so that visually impaired and hearing-impaired learners are not left behind.

Additionally, the programme incorporates online coaching and digital initiatives such as IITPAL (IIT Professor Assisted Learning) for science subjects and e-Abhyas practice modules by NTA for competitive examinations. The

Union Budget 2022-23 also announced the creation of 750 virtual labs and 75 skilling e-labs under PM e-VIDYA to enhance experiential learning in science, mathematics, and vocational education for classes 6–12.

PM e-VIDYA has transformed India’s approach to education by bringing together multiple modes of learning—online, offline, and on-air—under a single umbrella. It has played an important role in reducing learning disruptions during COVID-19 and continues to support remote and blended learning models. The initiative not only empowers students but also equips teachers with digital tools and resources. By promoting inclusive, equitable, and technology-enabled education, PM e-VIDYA represents a major step towards achieving the goals of NEP 2020 and the larger vision of a Digital India.

1.4.2. PM e-VIDYA in Assam

Assam, a North-Eastern state, faces developmental challenges and faces numerous challenges such as poor communication networks, inadequate infrastructure, and limited employment opportunities. As a largely rural state, Assam also faces challenges in the education sector, where many students are unable to pursue schooling or access quality education. Education is important for both individual well-being and broader social and economic development. In this context, under the Atmanirbhar Bharat initiative, PM e-VIDYA has played a significant role in improving the education landscape in Assam, helping students gain access to learning despite various obstacles. Its impact is discussed here:

1. DIKSHA in Assam

Assam has its own state page on the national DIKSHA portal, developed under the Elementary Education Department, Government of Assam. On this platform, teachers, teacher educators, and the State Council of Educational Research and Training (SCERT), Assam upload e-content in multiple formats such as audio, video, interactive lessons, and practice resources. Special efforts are also made to include content for Children with Special Needs (CWSN), including materials in sign language and audio-based lessons for visually impaired learners.

2. Energized Textbooks (QR-Coded Textbooks)

Assam has introduced Energized Textbooks (ETBs), which are printed books integrated with QR codes. These QR codes, when scanned through the DIKSHA mobile app or a QR scanner, give students access to digital learning materials such as videos, interactive modules, and audio resources linked to each chapter. As of the 2021 academic session, 152 textbooks in Assam were energised, with around 2,564 QR codes embedded. These cover both elementary and secondary levels across subjects such as Assamese, English, Science, Mathematics, Social Science, and Environmental Studies. Textbooks are made available in multiple languages—Assamese, English, Bodo, Bengali, and Hindi—to ensure inclusivity for all learners.

3. Synchronous and Asynchronous Learning Modes

Under PM e-VIDYA, Assam provides both synchronous (live/broadcast)

and asynchronous (on-demand) learning opportunities. Educational content is telecast through Swayam Prabha DTH TV channels and All India Radio (AIR), and is later uploaded to DIKSHA for students to access at any time. During the COVID-19 pandemic, Assam strengthened this model by creating both QR-coded and non-QR-coded digital textbooks and e-content to ensure continuity of education during lockdowns.

4. Capacity Building and Content Creation

SCERT, Assam has actively conducted workshops and training programmes to build teachers' capacities in developing e-content. These include training in interactive content design, use of open-source software, storyboarding, translation, and content curation. The VidyaDaan programme, launched in Assam on 7 June 2020, further encouraged teachers and experts to contribute digital content aligned with the state's curriculum, thereby enriching the pool of resources available on DIKSHA.

5. Recent Developments and Data

According to the Annual Report 2023–24 of SCERT, Assam, around 180 textbooks have been energised and linked with e-content on DIKSHA. Special emphasis has been placed on multilingual content development. For example, a rhyme book has been created in 15 regional languages, with 76 rhymes recorded in 11 languages and made available on DIKSHA. Additionally, descriptive audiobooks have been prepared for visually impaired students for Environmental Studies (EVS)

for Classes 3, 4 and 5 in Assamese and Hindi medium schools.

6. DTH/PM e-VIDYA Channels in Assam

Assam also benefits from five dedicated DTH television channels under PM e-VIDYA. These channels broadcast curriculum-based video classes 24×7, catering to different class ranges and teacher education. For example, Channel 2058 (DD PM e-Vidya 58) covers Classes I-V, Channel 2059 covers Classes VI-VIII, Channel 2060 is for Classes IX-X, while higher secondary and teacher education are covered through Channels 2061 and 2062 respectively. These channels ensure that children in areas with poor internet connectivity can continue learning.

1.4.3. Socio-economic Impact of PM e-VIDYA:

The PM e-VIDYA initiative has been highly relevant in Assam, a state with diverse geography and socio-economic conditions. With large rural and riverine populations, many children in Assam face barriers to internet access and modern infrastructure. Through the “One Class, One Channel” scheme and DIKSHA portal, PM e-VIDYA created alternative avenues for continuity of learning during COVID-19, ensuring that students in remote areas, tea-garden areas and flood-affected regions could still access some form of education. At the 26th Children's Educational Audio-Video Festival and ICT Mela in 2021, organised by CIET, NCERT, New Delhi, Assam's Education Department received the "Best Video Programme Award" for its outstanding videos: "World of Kahaar",

"Rangsapara" and "Magh Bihu".

One of the most important socio-economic effects in Assam has been the expansion of access and equity. In many villages, where internet penetration remains limited, television and All India Radio broadcasts under PM e-VIDYA played a crucial role. The initiative also supported children with disabilities in Assam through sign language and audio-visual content, reducing the exclusion of differently-abled students. This helped bridge the digital divide between urban centres like Guwahati and rural districts such as Dhemaji, Kokrajhar and Karimganj.

The scheme also reduced economic pressure on families in Assam, many of whom depend on agriculture, daily-wage labour or the tea industry. With free content available via TV, radio, and QR-coded textbooks, households did not have to spend on private tuition or costly internet packages. For families hit by pandemic-related income losses, this was a significant relief that allowed children to continue their education without dropping out.

PM e-VIDYA in Assam also promoted innovation in teaching and learning. The SCERT Assam actively uploaded e-content on the DIKSHA portal, covering lessons in Assamese, Bodo, Bengali, and other languages spoken in the state. Energized Textbooks with QR codes became useful for both students and teachers, encouraging blended learning. Teachers in Assam received training to use digital pedagogy, gradually building capacity for future hybrid education models.

The scheme also enhances future employability and skill development, which

is an economic impact often overlooked. By promoting digital literacy among students and teachers, PM e-VIDYA equips them with skills that are increasingly demanded in the labour market. For Assam, which has limited industrialisation but growing IT and services sectors in urban centres like Guwahati, this exposure can improve long-term economic opportunities.

Furthermore, PM e-VIDYA reduces regional economic disparities in education. Students from remote districts of Assam, like Karbi Anglong, Dhemaji and Barpeta, now have access to similar educational content as students in Guwahati or Dibrugarh. Over time, this can help reduce the income and opportunity gaps between rural and urban populations, improving economic mobility.

Socially, the programme helped reduce inequalities. In Assam, where socio-economic disparities are high between urban and rural areas and among communities such as tea tribe communities, Scheduled Tribes, and flood-affected populations, PM e-VIDYA ensured that these groups were not left completely disconnected from formal education. Its inclusivity aligned with Assam's multilingual and multicultural character, strengthening the principle of equal opportunity in schooling.

Lastly, by reducing reliance on private tuition and expensive study aids, PM e-VIDYA indirectly contributes to more efficient household budgets. Families can redirect limited resources towards essentials like nutrition, health, or savings, which may broader economic benefits in reducing vulnerability and improving overall welfare.

1.5. Limitations:

One major limitation of PM e-VIDYA is the digital divide. Although the initiative provides content through TV, radio, and online platforms, many students, especially in rural Assam or flood-prone areas, lack access to smartphones, computers, or stable internet connections. Without these devices, students cannot fully utilise the DIKSHA portal or virtual labs, limiting the effectiveness of the programme.

Another key limitation is the quality of learning outcomes. Access to digital content does not automatically ensure comprehension or retention. Students learning at home often lack guidance, peer interaction, or teacher support, which can result in gaps in understanding. This is particularly relevant in Assam's remote districts, where parental literacy may be low and home-based supervision limited.

Language and localisation barriers also reduce effectiveness. While PM e-VIDYA content is available in multiple languages, Assam's linguistic diversity—including Assamese, Bodo, Bengali, and tribal languages—means that not all students can access lessons in their mother tongue. This can hinder engagement and learning, especially for younger children.

Teacher preparedness is another limitation. Not all teachers are trained or comfortable with digital pedagogy. In Assam, many rural educators may lack the experience or infrastructure to effectively supplement online lessons, which can reduce the quality of education delivered.

Environmental and infrastructural challenges further limit impact. Frequent floods, electricity outages, and TV or

radio disruptions in remote areas can prevent students from accessing lessons consistently. This makes continuity of learning unpredictable in certain regions.

There is also a risk of social and emotional impacts. Prolonged home-based learning can lead to reduced peer interaction, digital fatigue, and limited socio-emotional development, aspects that are harder to measure but critical for holistic education.

1.6. Suggestions

To enhance the effectiveness of PM e-VIDYA in Assam, it is essential to address its current limitations and adapt the programme to local needs. While the initiative has expanded access to education and reduced costs for households, challenges such as limited digital infrastructure, language diversity, teacher preparedness, and socio-emotional challenges remain. Implementing targeted improvements can ensure that all students, especially those in rural, remote, and flood-prone areas, benefit fully from digital learning opportunities.

To achieve this, digital infrastructure should be strengthened by improving internet connectivity, electricity supply, and access to TVs or devices in remote regions. Learning content must be expanded in regional languages, including Assamese, Bodo, Bengali, and tribal languages, with culturally relevant examples to enhance comprehension and engagement. Teachers should receive regular training in digital pedagogy to effectively guide students and supplement online lessons. For areas with

poor connectivity, offline learning options such as downloadable content, USB drives, or community learning centres should be provided. In addition, parents and local communities should be actively involved to support home-based learning, while regular assessments and monitoring can help track student progress and address learning gaps. Finally, incorporating interactive sessions and socio-emotional learning activities can reduce isolation and digital fatigue, making online education more holistic and effective.

1.7. Conclusion

In conclusion, PM e-VIDYA has played an important role in maintaining educational continuity in Assam, reaching an estimated 25 crore school children nationwide through multi-mode platforms like DIKSHA, DTH TV channels, and radio. In Assam, it has particularly benefited students in rural, flood-prone, and remote areas, including areas such as Dhemaji, Karbi Anglong and char regions, while also supporting differently-abled learners through sign language and audio-visual content. The initiative has reduced household expenditure on education, promoted digital literacy, and supported long-term human capital development. However, limitations such as gaps in digital infrastructure, linguistic diversity, uneven teacher preparedness, and socio-emotional challenges persist. Strengthening connectivity, providing regional-language content, enhancing teacher training, enabling offline access, and promoting community engagement

can improve its effectiveness. Overall, Assam and building a resilient, inclusive, PM e-VIDYA represents a significant step and digitally empowered education system. towards bridging educational disparities in

References:

- Government of India. Information on PM eVIDYA. 2025. India.gov.in, <https://www.india.gov.in/information-pm-evidya>.
- Ministry of Education, Government of India. PM e-Vidya: Digital Education For Inclusive Learning 2020. 2025. IMPRI India, <https://www.impriindia.com/insights/pm-e-vidya-digital-education-for-2020/>.
- Ministry of Education, Government of India. PM eVidya Programme for Digital Education in India. 2025. Hindustan Times, <https://www.hindustantimes.com/education/pm-evidya-programme-for-digital-education-in-india-everything-you-need-to-know/story-15SmSAyTEckgx6gcYIJNYO.html>.
- Sarma, H. S. "School Education in Rural and Urban Assam." Indian Journal of Educational Technology, vol. 15, no. 2, 2025, <https://journals.ncert.gov.in/IJET/article/view/1419/377>.
- UNICEF Regional Office for South Asia. Disability-Inclusive Education Practices in India. 2021, <https://www.unicef.org/rosa/media/16996/file/Country%20Profile%20-%20India.pdf>.
- Utilization of 200 PM eVidya DTH TV Channels: A Critical Review. National Council of Educational Research and Training (NCERT), 2024, https://ciet.ncert.gov.in/storage/app/public/files/19/Transmission_Schedule/Utilization_of_200_PM_eVidya_DTH_TV_Channels-A_Critical_Review.pdf.

Technological Pedagogical Content Knowledge (TPACK) among B.Ed. Trainees: A Comparative Study of Pre-Service and In-Service Teachers

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Abstract

Digital technologies have transformed educational practices, making it essential for teachers to effectively integrate technology with pedagogy and subject content. However, many B.Ed. trainees experience difficulties in integrating technological knowledge meaningfully into classroom instruction. The TPACK framework provides a comprehensive view of the pedagogical, technological and content knowledge needed for successful instruction in technology-supported learning environments. The study examined the Technological Pedagogical Content Knowledge (TPACK) of B.Ed. trainees and compared TPACK with respect to programme status and gender.

The study employed a descriptive survey method. Data were collected from 118 B.Ed. trainees studying in Government Teacher Education Institutions affiliated with Gauhati University using the TPACK Scale developed by Lata and Sharma (2017). Mean, standard deviation and independent-samples t-test were used for data analysis.

The findings revealed that the mean TPACK score of B.Ed. trainees was 192.99 with a standard deviation of 15.96, indicating an average level of TPACK competency according to the interpretation criteria of Lata and Sharma (2017). The study further revealed no significant difference in TPACK with respect to gender ($t = -0.712, p > 0.05$) and programme status ($t = 0.063, p > 0.05$). The study highlights the need to strengthen technology-integrated teacher education programmes through greater practical exposure to digital tools and technology-supported instructional practices. The findings may contribute to curriculum improvement and the development of effective training programmes for preparing future teachers for technology-rich classrooms.

Keywords: TPACK, Teacher Education, B.Ed. Trainees, Technology Integration, Pedagogical Knowledge.

Introduction

The rapid advancement of digital technologies has transformed educational practices and instructional processes across the world (Koehler et al., 2013; Voogt et al., 2013). Educational institutions increasingly

utilise online learning platforms, virtual classrooms, robotics, educational software, and artificial intelligence-based applications to improve teaching effectiveness and student engagement (Casler-Failing, 2021; Celik, 2023). Consequently, teachers

are expected to possess technological competences along with pedagogical and content knowledge for effective classroom instruction (Mishra & Koehler, 2006).

In this context, the Technological Pedagogical Content Knowledge (TPACK) framework has emerged as one of the most influential models for understanding technology integration in education (Koehler et al., 2013). The framework conceptualizes TPACK as the interaction among Technological Knowledge (TK), Pedagogical Knowledge (PK), and Content Knowledge (CK) (Mishra & Koehler, 2006). Effective technology integration therefore requires teachers to understand how technology, pedagogy, and content interact within teaching-learning environments (Voogt et al., 2013).

Several studies have emphasised the importance of teacher education programmes in developing TPACK competencies among pre-service teachers (Schmidt et al., 2009; Graham et al., 2012). Research findings indicate that TPACK-based instructional courses, collaborative learning experiences, and practical exposure to digital technologies positively contribute to the development of teachers' technological competencies (Durdu & Dag, 2017; Bueno-Alastuey et al., 2018; Wetzel et al., 2014; Tondeur et al., 2020).

Recent literature has expanded the scope of TPACK by integrating emerging technologies such as robotics and artificial intelligence into educational practices (Casler-Failing, 2021; Celik, 2023). Choi and Young (2021) proposed the TPACK-L framework emphasizing pedagogical design thinking for meaningful technology integration. Studies have additionally

shown that contextual factors such as institutional support, ICT barriers, and professional development opportunities significantly influence teachers' TPACK competencies (Rosenberg & Koehler, 2015; de Freitas & Spangenberg, 2019; Willermark, 2018). Dewi et al. (2021) and Zhang and Tang (2021) further reported the growing research interest in TPACK and digital pedagogies during the last decade.

Although several studies have examined TPACK in relation to technology integration and instructional effectiveness, limited studies have comparatively investigated TPACK competencies among pre-service and in-service B.Ed. trainees. Therefore, the present study aims to examine the level of Technological Pedagogical Content Knowledge (TPACK) among B.Ed. trainees and compare TPACK competencies with respect to gender and programme status.

Review of related Literature

The Technological Pedagogical Content Knowledge (TPACK) framework has emerged as one of the most influential frameworks for understanding technology integration in educational settings. Mishra and Koehler (2006) conceptualized TPACK as the interaction among technological, pedagogical, and content knowledge required for effective technology-supported instruction. Expanding this perspective, Koehler et al. (2013) explained that teachers need to understand the complex relationship among technology, pedagogy, and subject matter to facilitate meaningful learning experiences. Similarly, Voogt et al. (2013), through a comprehensive review of TPACK literature, highlighted

the framework's significance in guiding technology integration practices and teacher education programmes.

Several studies have examined the development of TPACK competencies among pre-service teachers. Schmidt et al. (2009) developed and validated a TPACK assessment instrument and reported that technological pedagogical competencies are essential components of teacher preparation. Graham et al. (2012) found that TPACK significantly influences teacher candidates' technology integration decisions and instructional planning processes. Likewise, Durdu and Dag (2017) reported that participation in TPACK-based courses positively improves pre-service teachers' technological understanding and pedagogical competencies.

Research has further highlighted the importance of collaborative and technology-rich learning experiences in enhancing TPACK competencies. Bueno-Alastuey et al. (2018) found that telecollaborative learning activities significantly contributed to the development of TPACK among pre-service teachers by providing authentic opportunities for technology-supported interaction and learning. Similarly, Wetzel et al. (2014) observed that the integration of educational technology into teacher education courses improved teachers' confidence, instructional skills, and technology integration practices. Tondeur et al. (2020) further emphasised that practical ICT experiences and collaborative learning opportunities positively influence the development of TPACK competencies among teacher trainees.

Contextual and environmental factors have also been identified as

important determinants of TPACK development. Rosenberg and Koehler (2015), in their systematic review, reported that institutional support, access to technological resources, and classroom contexts significantly affect teachers' technology integration practices. Similarly, de Freitas and Spangenberg (2019) found that ICT-related barriers, limited technological resources, and inadequate support systems hinder the effective implementation of TPACK in classroom instruction. Willermark (2018) further concluded that professional development opportunities and technological exposure play critical roles in enhancing teachers' TPACK competencies.

Recent studies have extended the TPACK framework to emerging technological domains such as robotics and artificial intelligence. Casler-Failing (2021) demonstrated that robotics-based instructional activities contribute to the development of technological knowledge and innovative teaching practices among teachers. Choi and Young (2021) proposed the TPACK-L framework, emphasizing pedagogical design thinking as an important element for effective technology integration. Furthermore, Celik (2023) introduced the concept of Intelligent-TPACK, highlighting the necessity of integrating artificial intelligence competencies into teachers' professional knowledge for effective AI-supported pedagogy.

The growing interest in TPACK research is evident from recent review studies. Dewi et al. (2021), through a systematic review of publications between 2010 and 2020, reported a substantial increase in TPACK-related research

focusing on technology integration, teacher education, and digital pedagogy. Similarly, Zhang and Tang (2021) reviewed the literature on TPACK development and concluded that technological competencies have become an essential component of teacher education in the digital era.

The reviewed studies collectively indicate that TPACK is a crucial determinant of effective technology integration, instructional effectiveness, and professional competence among teachers. Previous research has focused on conceptualizing TPACK, developing assessment instruments, examining teacher education programmes, exploring contextual factors, and integrating emerging technologies such as artificial intelligence and robotics. However, despite the growing body of literature, limited studies have specifically compared the TPACK competencies of pre-service and in-service B.Ed. trainees. Therefore, the present study seeks to examine the level of Technological Pedagogical Content Knowledge (TPACK) among B.Ed. trainees and compare TPACK competencies with respect to gender and programme status.

Objectives

1. To examine the level of Technological Pedagogical Content Knowledge (TPACK) among B.Ed. trainees.
2. To compare the Technological Pedagogical Content Knowledge (TPACK) of B.Ed. trainees with respect to:
 - a. Gender (Male and Female)

- b. Program Status (In-Service and Pre-Service)

Hypotheses

H₀₁: There is no significant difference in the Technological Pedagogical Content Knowledge (TPACK) between male and female B.Ed. trainees.

H₀₂: There is no significant difference in the Technological Pedagogical Content Knowledge (TPACK) between in-service and pre-service B.Ed. trainees.

Delimitation of the Study

1. The study is limited to Government Teacher Education Institutions affiliated with Gauhati University only.
2. The study includes only B.Ed. trainees studying in the second semester of the current academic batch.

Methodology

Research Design

The present study seeks to investigate the core knowledge domains of the TPACK framework and assess the level of technological pedagogical content knowledge among B.Ed. trainees. The present study adopts a descriptive survey method to examine the level of Technological Pedagogical Content Knowledge (TPACK) among B.Ed. trainees and analyse the different knowledge domains within the TPACK framework. The descriptive survey method is appropriate for this investigation as it allows the researcher to collect

information regarding the existing level of technological, pedagogical and content-related competencies of the respondents. This method helps in describing and interpreting the current status of TPACK among the participants in a systematic manner.

Population of the Study

The population of the present study consists of B.Ed. trainees studying in the

second semester in Government Teacher Education Institutions affiliated to Gauhati University. These trainees are undergoing professional teacher education and are being prepared to integrate subject knowledge, pedagogical strategies and technological tools in classroom teaching. Therefore, they represent an appropriate population for examining the level of Technological Pedagogical Content Knowledge (TPACK).

Table 1

Distribution of Govt. Teacher Education Institutions and Intake Capacity under Gauhati University

Sl. No	Type of Institution	Approved Intake
1	DIET, Sonitpur	50
2	DIET, Goalpara	50
3	DIET, Mirza	50
4	CTE, Nagaon	50
5	CTE, Mangaldoi	50
6	IASE, Guwahati	50
7	CTE, Tezpur	100
8	CTE, Goalpara	100
Total:		500

Thus, the total population of the study will be 500

Sample and Sampling Technique of the Study

A sample of 118 B.Ed. trainees studying in Government Teacher Education Institutions under Gauhati University was selected for the present study using the Stratified Random Sampling Technique. The population was stratified on the basis of gender and programme status (In-service and Pre-service) to ensure

proper representation of different groups. Thereafter, respondents were selected randomly from each stratum considering the feasibility of data collection, time constraints and accessibility of respondents.

Tools Used for Data Collection

The present study was conducted using the Technological Pedagogical Content Knowledge Scale developed by

Lata and Sharma (2017) to collect data. The scale is developed to measure technological pedagogical content knowledge among B.Ed. trainees. It consists of 55 items that address seven dimensions of the TPACK framework, including Technological Knowledge (TK), Pedagogical Knowledge (PK), Content Knowledge (CK),

Technological Pedagogical Knowledge (TPK), Technological Content Knowledge (TCK), Pedagogical Content Knowledge (PCK) and Technological Pedagogical Content Knowledge (TPACK). Responses were collected on a five-point Likert scale ranging from Strongly Agree to Strongly Disagree.

Table 2
Scoring Procedure for the TPACK Scale

S. No.	Responses	Scores
1	Strongly Agree	5
2	Agree	4
3	Undecided	3
4	Disagree	2
5	Strongly Disagree	1

(Source: Lata & Sharma, 2017)

Table 3
Interpretation and Classification of Raw Scores for Total TPACK

Sl. No.	TPACK Raw Score Range	z-Score Range	Grade	Level of TPACK
1	270 & above	+2.01 & above	A	Extremely High
2	232 - 269	+1.26 to +2.00	B	High
3	195 - 231	+0.51 to +1.25	C	Above Average
4	144 - 194	-0.50 to +0.50	D	Average
5	107 - 143	-1.25 to -0.51	E	Below Average
6	69 - 106	-2.00 to -1.26	F	Low
7	68 & below	-2.01 & below	G	Extremely Low

(Source: Lata & Sharma, 2017)

Procedure of Data Collection

The data were collected from B.Ed. trainees studying in Government Teacher Education Institutions affiliated to Gauhati University. The TPACK scale was administered to the selected respondents after explaining the purpose of the study. The participants were requested to read each statement carefully and respond honestly. Adequate time was provided for completing the questionnaire. After completion, the filled-in questionnaires were collected and organised for further analysis.

Statistical Techniques Used for Data Analysis

In order to achieve the objectives of the study and to test the formulated hypotheses, appropriate statistical techniques were used for the analysis of the collected data. Both descriptive and inferential statistics were applied to interpret the responses obtained from the B.Ed. trainees.

The following statistical techniques were used:

1. **Frequency and Percentage:** Used to present the demographic characteristics of the respondents such as gender, stream, and programme status.
2. **Mean:** Used to determine the average

level of Technological Pedagogical Content Knowledge (TPACK) among B.Ed. trainees.

3. **Standard Deviation (SD):** Used to measure the variability of the scores around the mean.
4. **Independent Sample t-test:** Used to compare TPACK scores with respect to gender (male and female) and programme status (in-service and pre-service).
5. **Level of Significance:** All hypotheses were tested at the 0.05 level of significance.

Analysis and interpretation of data

Objective.1: To examine the level of Technological Pedagogical Content Knowledge (TPACK) among B.Ed. trainees.

Descriptive statistical techniques such as mean and standard deviation were employed to analyse the total scores gained by the respondents to study the level of Technological Pedagogical Content Knowledge (TPACK) among B.Ed. trainees. This analysis allows us to know the overall level of TPACK competency of the trainees.

The results of the analysis are presented in Table 4.

Table 4
Descriptive Statistics of TPACK Scores

N	Mean	Standard Deviation
118	192.99	15.96

Interpretation

The analysis of TPACK scores of B.Ed. trainees shows that the mean score is 192.99 with a standard deviation of 15.96. Based on the classification criteria, this score falls within the 144-194 range, indicating an Average level of Technological Pedagogical Content Knowledge. This suggests that the trainees possess a moderate level of

competence in integrating technology with pedagogy and content.

Objective 2(a): To compare TPACK with Respect to Gender

H₀₁: There is no significant difference in the Technological Pedagogical Content Knowledge (TPACK) between male and female B.Ed. trainees.

Table 5
Group Statistics of TPACK by Gender

Gender	N	Mean	SD
Male	77	192.19	15.21
Female	41	194.49	17.38

Table 6
t-test for Comparison by Gender

Variable	t-value	df	Sig. (2-tailed)	Result
TPACK (Gender)	-0.712	72.87	0.479	Not Significant

Interpretation

The data presented in Table 5 and Table 6 indicate that the mean TPACK score of female trainees (Mean = 194.49) is slightly higher than that of male trainees (Mean = 192.19). However, the calculated t-value (-0.712) with a p-value of 0.479 is greater than 0.05, indicating that the difference is not statistically significant. Therefore, the null hypothesis (H₀₁) is not rejected,

indicating that there is no significant difference in TPACK between male and female B.Ed. trainees.

Objective 2(b): To Compare TPACK by Programme Status

H₀₂: There is no significant difference in the Technological Pedagogical Content Knowledge (TPACK) between in-service and pre-service B.Ed. trainees.

Table 7
Group Statistics of TPACK by Program Status

Program Status	N	Mean	SD
In-Service	58	193.09	14.47
Pre-Service	60	192.90	17.41

Table 8
Programme Status Comparison

Variable	t-value	df	Sig. (2-tailed)	Result
TPACK (Program Status)	0.063	113.47	0.950	Not Significant

Interpretation

Table 7 and Table 8 show that the mean TPACK scores of In-service (Mean = 193.09) and pre-service trainees (Mean = 192.90) are nearly equal. The calculated t-value (0.063) with a p-value of 0.950 is greater than 0.05, indicating that the difference is not statistically significant. Hence, the null hypothesis (H_0) is accepted, revealing that there is no significant difference in TPACK between in-service and pre-service B.Ed. trainees.

Based on the objective-wise and hypothesis-wise analysis, it can be concluded that B.Ed. trainees possess an average level of TPACK and no significant differences exist with respect to gender and programme status. This indicates a relatively uniform distribution of technological pedagogical competencies among the trainees.

This may be because both groups were studying under a similar teacher education curriculum and were exposed to comparable technological resources, instructional practices and digital learning experiences during their training programme. Furthermore, the increased use of digital technologies and online learning

platforms may have provided both groups with similar opportunities to develop technological pedagogical competencies.

Major Findings

The major findings of the study based on the analysis and interpretation of data are as follows:

1. The mean score of TPACK of B.Ed. trainees was found average as indicated by the mean score of 192.99. This indicates that the trainees have a moderate competency in the integration of technology with pedagogy and content in the teaching learning process.
2. The analysis of TPACK based on gender showed that there is no significant difference between male and female B.Ed. trainees. The female trainees had a slightly higher mean score than the male trainees, but the difference was not statistically significant.
3. Comparison of TPACK with respect to programme status (in-service and pre-service) shows that there was no significant difference between the two groups. The levels of TPACK

- of in-service and pre-service trainees were almost similar.
4. The findings further indicate that TPACK competency is uniformly distributed among B.Ed. trainees irrespective of their gender and programme status.
 5. Overall, the results highlight that while trainees possess a moderate level of technological pedagogical competence, there is a need for further enhancement through training, exposure and integration of digital tools in teacher education programmes.

Educational Implications

The findings of the present study have several important implications for teacher education, curriculum planning, and classroom practices:

1. The finding that B.Ed. trainees possess an average level of TPACK indicates the need to strengthen technological integration in teacher education programmes. Teacher training institutions should place greater emphasis on developing digital pedagogical competencies among trainees.
2. Since no significant differences were found with respect to gender and programme status, it implies that TPACK development is not influenced by these variables. Therefore, training programmes can be designed uniformly while ensuring equal opportunities for all

trainees.

3. The moderate level of TPACK suggests that trainees require more hands-on experience with digital tools, such as Learning Management Systems (LMS), smart classrooms and educational software to enhance their teaching effectiveness.
4. Teacher educators should encourage the use of learner-centred and technology-integrated teaching strategies to promote effective application of TPACK in classroom instruction.
5. The findings highlight the importance of incorporating TPACK-based training modules into the B.Ed. curriculum to prepare future teachers for technology-rich learning environments.
6. Continuous professional development programmes and workshops should be organised for both pre-service and in-service teachers to update their technological knowledge and pedagogical practices.

Recommendations

Based on the findings, the following recommendations are suggested:

1. Teacher education institutions should introduce structured training programmes on TPACK, focusing on the integration of technology with pedagogy and subject content.
2. The B.Ed. curriculum should be revised to include more practical components, such as ICT-based

lesson planning, digital content creation and the use of interactive teaching tools.

3. Institutions should ensure the availability of adequate technological infrastructure, including computers, internet facilities, smart boards and digital resources.
4. Regular workshops, seminars and training sessions should be conducted to enhance the technological competencies of teacher trainees.
5. Teacher educators should encourage trainees to use technology in micro-teaching and practice teaching sessions, thereby bridging the gap between theory and practice.
6. Collaboration with schools and educational organizations should be promoted to provide real-life exposure to technology-integrated teaching environments.
7. Further research may be conducted by including additional variables such as teaching experience, digital literacy, attitude towards technology and institutional support to gain deeper insights into TPACK development.

Conclusion

The present study was conducted to determine the level of Technological Pedagogical Content Knowledge (TPACK) among B.Ed. Trainees and to compare it on the basis of Gender and Program Status. The findings of the study revealed that the level of TPACK of B.Ed. trainees

is average. It indicates that B.Ed. trainees have a moderate level of competence in integrating technology into pedagogy and their respective subject content.

The comparative analysis showed that there is no significant difference in TPACK with respect to gender, suggesting that both male and female trainees have comparable levels of technological pedagogical competencies. Similarly, no significant difference was found between in-service and pre-service trainees, indicating that programme status does not significantly influence TPACK levels. These findings suggest that TPACK is uniformly distributed among B.Ed. trainees, irrespective of their demographic and professional background. However, the average level of TPACK highlights the need for further improvement in integrating technology effectively into teaching practices.

In the context of the rapidly evolving digital era, it is essential for teacher education programmes to focus on enhancing the technological, pedagogical and content knowledge of trainees. Strengthening TPACK competencies will enable future teachers to create more engaging, effective, and technology-rich learning environments.

Overall, the study underscores the importance of continuous training, curriculum enhancement, and practical exposure to digital tools in order to prepare competent teachers who can meet the demands of 21st-century education.

References

- Bueno-Alastuey, M. C., Villarreal, I., & García Esteban, S. (2018). Can telecollaboration contribute to the TPACK development of pre-service teachers? *Technology, Pedagogy and Education*, 27(3), 367–380. <https://doi.org/10.1080/1475939X.2018.1471000>
- Casler-Failing, S. (2021). Learning to teach mathematics with robots: Developing the “T” in TPACK. *Research in Learning Technology*, 29. <https://doi.org/10.25304/rlt.v29.2555>
- Celik, I. (2023). Towards Intelligent-TPACK: An empirical study on teachers’ professional knowledge for AI integration in education. *Computers in Human Behavior*, 138, 107468. <https://doi.org/10.1016/j.chb.2022.107468>
- Choi, B., & Young, M. F. (2021). TPACK-L: Teachers’ pedagogical design thinking for the wise integration of technology. *Technology, Pedagogy and Education*, 30(2), 217–234. <https://doi.org/10.1080/1475939X.2021.1906312>
- de Freitas, G., & Spangenberg, E. D. (2019). Mathematics teachers’ levels of technological pedagogical content knowledge and ICT integration barriers. *Pythagoras*, 40(1), 1–13. <https://doi.org/10.4102/pythagoras.v40i1.431>
- Dewi, N. R., Rusilowati, A., Saptono, S., Haryani, S., Wiyanto, W., Ridlo, S., Listiaji, P., & Atunnisa, R. (2021). Technological, pedagogical, content knowledge (TPACK) research trends: A systematic literature review of publications between 2010–2020. *Journal of Turkish Science Education*, 18(4), 589–604. <https://doi.org/10.36681/tused.2021.92>
- Durdu, L., & Dag, F. (2017). Pre-service teachers’ TPACK development and conceptions through a TPACK-based course. *Australian Journal of Teacher Education*, 42(11), 150–171. <https://doi.org/10.14221/ajte.2017v42n11.10>
- Graham, C. R., Borup, J., & Smith, N. B. (2012). Using TPACK as a framework to understand teacher candidates’ technology integration decisions. *Journal of Computer Assisted Learning*, 28(6), 530–546. <https://doi.org/10.1111/j.1365-2729.2011.00472.x>
- Sharma, H. (2017). Construction of tool for measuring technological, pedagogical and content knowledge (TPACK) of Indian pre-service teacher educators (Doctoral dissertation, Maharshi Dayanand University). Shodhganga. <https://shodhganga.inflibnet.ac.in/>
- Koehler, M. J., Mishra, P., & Cain, W. (2013). What is technological pedagogical content knowledge (TPACK)? *Journal of Education*, 193(3), 13–19. <https://doi.org/10.1177/002205741319300303>
- Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record*, 108(6), 1017–1054. <https://doi.org/10.1111/j.1467-9620.2006.00684.x>
- Rosenberg, J. M., & Koehler, M. J. (2015). Context and technological pedagogical content knowledge (TPACK): A systematic review. *Journal of Research on Technology in Education*, 47(3), 186–210. <https://doi.org/10.1080/15391523.2015.1052663>
- Schmidt, D. A., Baran, E., Thompson, A. D., Mishra, P., Koehler, M. J., & Shin, T. S.

- (2009). Technological pedagogical content knowledge (TPACK): The development and validation of an assessment instrument for preservice teachers. *Journal of Research on Technology in Education*, 42(2), 123–149. <https://doi.org/10.1080/15391523.2009.10782544>
- Tondeur, J., Scherer, R., Siddiq, F., & Baran, E. (2020). A comprehensive investigation of TPACK within pre-service teachers' ICT profiles. *Australasian Journal of Educational Technology*, 36(1), 37–53. <https://doi.org/10.14742/ajet.3504>
- Voogt, J., Fisser, P., Pareja Roblin, N., Tondeur, J., & van Braak, J. (2013). Technological pedagogical content knowledge – A review of the literature. *Journal of Computer Assisted Learning*, 29(2), 109–121. <https://doi.org/10.1111/j.1365-2729.2012.00487.x>
- Wetzel, K., Buss, R., Foulger, T. S., & Lindsey, L. (2014). Infusing educational technology in teaching methods courses: Successes and dilemmas. *Journal of Digital Learning in Teacher Education*, 30(3), 89–103. <https://doi.org/10.1080/21532974.2014.891877>
- Willermark, S. (2018). Technological pedagogical and content knowledge: A review of empirical studies published from 2011 to 2016. *Journal of Educational Computing Research*, 56(3), 315–343. <https://doi.org/10.1177/0735633117713114>
- Zhang, W., & Tang, J. (2021). Teachers' TPACK development: A review of literature. *Open Journal of Social Sciences*, 9(7), 367–380. <https://doi.org/10.4236/jss.2021.97027>

Attitude towards Artificial Intelligence among College Teachers affiliated to Gauhati University

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Abstract

Artificial Intelligence (AI) is one of the most transformative technological developments of the twenty-first century. In education, AI is increasingly recognised as a powerful tool capable of transforming the teaching–learning process. This study aimed to find the level of attitude towards artificial intelligence and differences in attitude towards Artificial Intelligence among College teachers with respect to gender, disciplines and teaching experiences. The study used a descriptive survey method, and a total of 80 participants, 40 (50%) males and 40 (50%) females, were selected using simple random sampling. The investigator used the Attitude towards Artificial Intelligence Scale developed by Aktay et al. (2024) to assess the college teachers' attitude towards Artificial Intelligence. Descriptive statistics, such as mean, and Z-scores and inferential statistics, such as a t-test, one-way ANOVA, were used to analyse the data. The data analysed showed that the majority of the participants, i.e., 43.8%, fall under the moderate level in overall attitude towards artificial intelligence. No significant difference was found with respect to gender ($p=.920$), no significant differences were found with respect to disciplines - arts, science, and commerce ($p=.527$) and no significant difference was found with respect to years of teaching experience ($p=.052$). In order to enhance the attitude towards AI, it is important to give proper training and professional development programmes focusing on the ethical use of AI, awareness of its limitations and using it in the right direction.

Keywords: *Attitude towards Artificial Intelligence, Artificial Intelligence, College Teachers, Gender, Disciplines, Teaching Experiences*

Introduction

Artificial Intelligence (AI) is one of the most transformative technological developments of the twenty-first century. It is a computer system or machine that is capable of performing tasks of human intelligence, such as learning, reasoning, problem-solving, and decision-making. The concept of AI was first introduced by John

McCarthy in 1956 during the Dartmouth Summer Research Project on Artificial Intelligence, where it was proposed that machines could be developed to simulate aspects of human intelligence. Since then, AI technologies have rapidly evolved and are now integrated across multiple sectors, including healthcare, finance, business, transportation, and, increasingly,

the education sector (Zawacki-Richter et al., 2019). In education, AI is increasingly recognised as a powerful tool capable of transforming the teaching–learning process. Educational institutions worldwide are integrating AI-based technologies such as intelligent tutoring systems, adaptive learning platforms, automated grading systems, and learning analytics to enhance the quality of teaching and learning. These technologies enable educators to monitor students’ progress, provide personalized feedback, and identify learning gaps effectively. AI-driven educational tools also facilitate individualized instruction by adapting learning materials to students’ needs, abilities, and learning pace, making learning more efficient, engaging, and accessible (Holmes et al., 2019; Zawacki-Richter et al., 2019).

In the Indian context, the use of AI in education has gained a generous amount of attention in recent years. The Indian Government focused on the usefulness of emerging technologies in preparing a future-ready workforce and has initiated several policies to promote digital transformation in education. The National Education Policy (2020) underscores the significance of integrating technology and digital tools in teaching and learning processes, while the National Curriculum Framework (2023) highlights the role of technology-enabled learning in improving educational quality and accessibility. Organisations such as the Central Board of Secondary Education (CBSE) and the National Council of Educational Research

and Training (NCERT) have introduced AI-related modules and digital learning platforms in colleges and universities to promote technological literacy and innovation.

The application of AI in education offers numerous opportunities to enhance the leveraging of existing knowledge. One of the major advantages of AI is that it can provide personalised learning which helps in catering students’ individual needs and learning pace. AI-based systems can analyse students’ learning patterns and offer customized content, feedback, and assessments (Holmes et al., 2019; Zawacki-Richter et al., 2019). Students can revisit difficult concepts, ask questions, and receive immediate responses through AI-supported learning platforms. Additionally, AI can assist teachers by automating routine tasks such as grading assignments, maintaining attendance records, and generating performance reports, thereby allowing educators to devote more time to instructional planning and student support (Holmes et al., 2019; Zawacki-Richter et al., 2019). Again, AI technologies have the potential to promote inclusive education that supports diverse learners like students with special needs, through adaptive learning systems and AI-enhanced assistive tools (Melo-López et al., 2025; Koranteng, 2025; Jumle, 2025). Despite these potential benefits, the use of AI in education has several challenges like data privacy, ethical issues, and algorithmic bias have raised questions about the responsible application of AI technologies in educational settings.

In many developing regions, including rural areas, the digital divide caused by a lack of internet connectivity, cyber infrastructure and inaccessibility of digital devices can hinder effective AI adoption. Moreover, insufficient professional development and teacher training opportunities can limit their ability to utilise AI tools efficiently. Some educators also express concerns regarding job security, academic integrity, and the potential of over dependence on AI may reduce students' critical thinking and independent learning skills (Zawacki-Richter et al., 2019; Halaweh, 2023).

Teachers play an important part in the successful adoption and application of AI in education. Their attitudes toward technological innovations significantly influence whether such tools are accepted and effectively integrated into teaching practices. According to Allport (1935), attitude can be understood as a learned predisposition to respond positively or negatively toward a particular object, person, or idea. Attitudes generally comprise three components: cognitive (beliefs and knowledge), affective (feelings and emotions), and behavioural (actions or intentions). Similarly, the Technology Acceptance Model developed by Davis (1989) emphasises that individuals' perceptions and attitudes toward technology strongly influence their willingness to adopt and use technological systems. Therefore, teachers' attitudes toward AI have a critical role in determining the usefulness of AI implementation in educational institutions (Chiu & Chai, 2020; Zawacki-Richter

et al., 2019). Although research on AI in education has grown in recent times, most of the studies have primarily focused on technological applications and how it influences student learning outcomes. Fewer studies have explored teachers' perceptions and attitudes toward AI, particularly in colleges and universities in Assam. Understanding college teachers' attitudes is essential, as their acceptance, readiness, and willingness to use AI technologies can significantly influence the successful implementation of AI-based educational innovations.

In light of the growing importance of AI and the crucial role that teachers have in the adoption of technology, the present study aims to examine the attitude of college teachers toward Artificial Intelligence. The findings found from this study are expected to provide insights into teachers' perceptions of AI and guide policymakers and educational institutions in designing effective strategies for the responsible use of AI in higher education.

Review of Related Literature

Salameh & Qadery (2026) explored the secondary school teachers' readiness towards integrating artificial intelligence tools in the learning process, especially their attitudes, present usage, and challenges the teachers faced while implementing artificial intelligence. The findings showed that the majority of the participants, i.e., towards AI, 91.67%, have a positive attitude towards artificial intelligence, and the tools such as Gemini and ChatGPT were mostly

used among them for planning lessons, efficient for administrative tasks, and assessing students' learning outcomes. The challenges pointed out by the participants were insufficient skills for utilizing AI, the absence of adequate infrastructure, limited support from institutions, and insufficient training in specialized and discipline-specific use.

Sakshi & Kaur (2025) investigated a study on Secondary School Teachers' attitude towards artificial intelligence and its use. The sample comprised of 100 school teachers, both from government and private schools from Ambala district. In this study, it was found that the school teachers are ready to utilise Artificial Intelligence into their daily teaching practices. The study found that the attitude of Secondary School teachers towards use of AI has no significant difference with respect to gender, stream and type of school.

Maier & Ghiocanu (2025) conducted a study on students' overall attitude towards AI and its relation to age, gender, university year, level of familiarity with technology, and the social group's attitude. The data were collected from 87 student participants from three faculties in Bucharest. The findings revealed a significantly high correlation between the overall attitude towards AI and social demographic variables, such as age, university year, and the social group's attitude. In contrast, gender and level of technology familiarity do not correlate significantly with students' overall attitude towards AI.

In a comparative study by Khuraijam

et al. (2025) on attitudes of the B.Ed. student- teachers of Manipur towards AI and in relation to their age, gender, locality, and subject streams. The findings showed that the attitude towards AI of the young student-teachers is more positive than that of their older peers, and the respondents from urban areas have more scores than the rural respondents. In terms of discipline-wise, science students have shown more acceptance towards AI than the students from the arts discipline. Whereas, in the case of gender differences, the study found no statistically significant difference among B. Ed student-teachers.

Tovar & Ocegueda (2025) conducted a study to find the overall attitude of the teachers towards AI, its use in teaching-learning processes, and the components that influenced the attitude of the teachers towards AI. A Convenience sampling technique was used to collect the data from 632 teacher participants at the University of Western Mexico. And it was found that the attitude of the teachers towards Artificial Intelligence has a significant association with teaching experiences and Training in AI, whereas the variables such as sex, age group, type of teachers, area of knowledge, and level of teachers' training have no correlation.

Lamanauskas (2025) conducted a qualitative informative-descriptive study to investigate the readiness of pre-service and primary school teachers' attitudes on the utilization of AI in the educational process and the challenging factors associated with the utilization of AI. Open-ended questions

were used to collect the data from 112 university students. The findings showed that 57.7% of primary school teachers reported that they were not sufficiently skilled in using AI.

Bhagat (2024) conducted a study on the attitude of B. Ed. Teacher Trainees towards the usage of AI in Education. Convenience sampling was used as THE sampling method; the scale was a self-prepared 3-point Likert scale. The study area was in Nagpur, and the result exhibited a highly positive incline of B. Ed. Teacher Trainees towards the usage of Artificial Intelligence in Education.

Aghaziarati et al. (2023) investigated teachers' attitudes towards Artificial Intelligence in Education. The study used a qualitative method to gather data from 28 teachers from different educational levels and disciplines. The major themes that emerged from the study were pedagogical impacts, ethical and social considerations, technological challenges and opportunities, and perceptions of AI in Education

Sütçü & Sütçü (2023) in their study on English Teachers' Attitudes and Opinions Towards Artificial Intelligence, this study tried to find out the attitude and opinions of English teachers in Turkey, the findings shed light that teachers are generally optimistic about the acceptance and adoption of AI applications in language instruction and they perceived that their use could contribute to language learning, but they have some reservations though.

Research Gap

From the related literature, it can be identified that most of the research conducted on AI focused on the attitude of college teachers towards AI in different educational contexts, but there is a limited study on the general attitude of college teachers of Assam towards Artificial Intelligence, especially affiliated to Gauhati University, and its relation to gender, discipline, and teaching experience. Therefore, the present study aims to fill this research gap by investigating "Attitude towards Artificial Intelligence among College Teachers affiliated to Gauhati University".

Objectives of the study

The following are the objectives of the study:

- To find the level of attitude towards artificial intelligence among college teachers affiliated to Gauhati University.
- To find the differences in attitude towards artificial intelligence among college teachers affiliated to Gauhati University with respect to gender.
- To find the differences in attitude towards artificial intelligence among college teachers affiliated to Gauhati University with respect to disciplines.
- To find the differences in attitude towards artificial intelligence among college teachers affiliated to Gauhati

University with respect to teaching experiences.

Hypothesis

The null hypothesis formulated for the study, based on the objectives (2), (3), and (4) -

- H_{01} : There exists no statistically significant difference in attitude towards artificial intelligence among college teachers with respect to gender.
- H_{02} : There exists no statistically significant difference in attitude towards artificial intelligence among college teachers with respect to disciplines.
- H_{03} : There exists no statistically significant difference in attitude towards artificial intelligence among college teachers with respect to teaching experiences.

Significance of the study

The present study, A Study on Attitude towards Artificial Intelligence among College Teachers affiliated to Gauhati University, holds considerable significance in the context of contemporary higher education. As Artificial Intelligence (AI) continues to transform multiple sectors globally, its integration into the education sector presents both opportunities and challenges. Understanding teachers' attitudes toward AI is critical, as educators play a pivotal role in determining the success of AI adoption. By assessing the level of attitude and gender-based

differences, discipline, and teaching experience in attitudes toward AI among college teachers. This study is important as it provides insights into teachers' readiness, and their perceptions towards AI that may influence the effective implementation of AI technologies in higher education. The findings can help policymakers, educational administrators, and teacher training programmes in fostering positive attitudes, enhancing technological literacy, and supporting teachers in integrating AI into their pedagogical practices. Again, the study contributes to bridging the research gap regarding teacher attitudes towards AI in the Indian higher education context, particularly within institutions affiliated with Gauhati University. By highlighting differences in attitudes across gender, disciplines, and the experience of college teachers.

Delimitation of the study

The study area was delimited to the colleges affiliated to Gauhati University situated in the Kamrup Metropolitan District of Assam.

Operational Definitions

Attitude

Attitude in this study is the tendency to respond positively or negatively toward a particular object, person, or idea.

Artificial Intelligence (AI)

In this study, Artificial intelligence refers to a Machine or a system that is capable of doing complex tasks like reasoning,

problem-solving, perception, and learning that generally require human intelligence.

College Teachers

College teachers refer to the faculty members teaching in undergraduate colleges affiliated to Gauhati University situated in the Kamrup Metropolitan District of Assam.

Methodology

Research Design

In this study, a quantitative research design was used, and a descriptive survey method was used to find the college teachers' attitude towards Artificial Intelligence.

Study Respondents

All the colleges of the Kamrup Metropolitan district affiliated to Gauhati University are

the population of the study. Altogether, there are 12 provincialized colleges affiliated with Gauhati University. Using a simple random sampling technique, 30% of the colleges were selected, i.e., 3.6, approx. But for better representation, four provincialized colleges affiliated to Gauhati University were selected for the study. As the total college teachers' population is unknown to the investigators, the convenient sampling technique was used for data collection. The sample comprised 80 college teachers, and data were collected from 20 participants from each of the four colleges. The gender, discipline, and years of teaching experience distribution of the sample for the study is presented in Table 1.

Table 1
Frequency and percentages of demographic variables

Variables	Sub-Variables	N	%
Gender	Male	40	50%
	Female	40	50%
Disciplines	Arts	27	33.8%
	Science	28	35%
	Commerce	25	31.3%
Years of Teaching Experience	1-10	24	30%
	11-21	27	33.8%
	More than 21	29	36.3%

Instrument

The Artificial Intelligence Scale developed by Aktay et al. (2024) was employed to assess the attitude towards Artificial Intelligence

among college teachers affiliated to Gauhati University. The scale consisted of 13 item statements with three sub-dimensions –

Benefits of Artificial Intelligence, Risks of Artificial Intelligence, and Use of Artificial Intelligence. The Cronbach alpha value of the reliability of the scale is 0.802. The items were rated on a five-point Likert scale, organised in a range from Strongly Agree=5, Agree=4, Neutral=3, Disagree=2, Strongly Disagree=1 for nine positive items and reverse coding for four negative items, Strongly Agree=1, Agree=2, Neutral=3, Disagree=4, Strongly Disagree=5.

Statistical Analysis

The Shapiro-Wilk test of normality was used to measure the normality, and the value found ($W=0.983$, $p=.184$) showed that the data were normally distributed. The descriptive statistics, such as Z-scores and percentages, were used to analyse the level of attitude towards artificial intelligence among college teachers. Additionally, mean and standard deviation scores were

calculated for gender, disciplines, and teaching experience of college teachers on attitude towards artificial intelligence. Inferential statistics, such as a t-test and one-way ANOVA, were used to analyse the differences in attitude towards artificial intelligence among college teachers with respect to their gender, disciplines, and teaching experiences.

Analysis & Interpretation

Objective 1: To find the level of attitude towards artificial intelligence among college teachers affiliated to Gauhati University.

The level of attitude towards artificial intelligence among college teachers was determined using Z-scores, and the level of attitude towards artificial intelligence is presented in Table 1.

Table 2
Dimension-wise level of attitude towards Artificial Intelligence among college teachers

Variable	Sub-Variables	Range of Raw Scores	Range of Z-scores	Percentage	Levels
Attitude towards Artificial Intelligence	Benefits of AI	14 and above	0.59 and above	31.3%	High
		13 to 10	0.58 to -0.58	63.7%	Moderate
		9 and below	-0.59 and below	5%	Low
	Risk of AI	13 and above	0.73 and above	17.5%	High
		12 to 7	0.72 to -0.72	62.5%	Moderate
		6 and below	-0.73 and below	20%	Low
	Use of AI	24 and above	0.98 and above	16.3%	High
		23 to 16	0.97 to -0.97	75%	Moderate
		15 and below	-0.98 and below	8.8%	Low

Table 2 shows the dimension-wise level of attitude towards Artificial Intelligence among college teachers. The level of attitude was categorised into three levels for each dimension. In the dimension of benefits of AI, the analysis showed that 31.3% out of 80 participants have a high level, i.e., a positive attitude towards artificial intelligence, 63.7% out of 80 participants have a moderate level of attitude towards artificial intelligence, and 5% out of 80 participants have a low level, i.e., a negative attitude towards artificial intelligence. For the dimension risks of AI, the data revealed that 17.5% out of the 80 participants have a high level, i.e., a positive attitude towards artificial intelligence, 62.5% out of the

80 participants have a moderate level of attitude towards artificial intelligence, and 20% out of the 80 participants have a low level, i.e., a negative attitude towards artificial intelligence. For the dimension Use of AI, the data revealed that 16.3% out of the 80 participants have a high level i.e., a positive attitude towards artificial intelligence, 75% out of the 80 participants have a moderate level of attitude towards artificial intelligence, and 8.8% out of the 80 participants have a low level i.e., a negative attitude towards artificial intelligence. The analysis of the data found that the majority of the college teachers' participants have a moderate level of attitude towards artificial intelligence on all the dimensions- benefits of AI, risks of AI, and Use of AI.

Table 3
Overall level of attitude towards Artificial Intelligence among college teachers

Variable	Range of Raw Scores	Range of Z-scores	Percentage	Levels
Attitude towards Artificial Intelligence	51 and above	0.64 and above	26.3%	High
	50 to 42	0.63 to -0.63	43.8%	Moderate
	41 and below	-0.64 and below	30%	Low

Table 3 shows the overall level of attitude towards Artificial Intelligence among college teachers. The analysis revealed that 26.3% out of the 80 participants have a high level i.e., positive attitude towards artificial intelligence, 43.8% out of the 80 participants have a moderate level of attitude towards artificial intelligence, and 30 % out of the 80 participants have a low level i.e., negative attitude towards artificial intelligence among college teachers. The analysis of the data found that the majority of the participants have a moderate level of attitude towards artificial intelligence.

Objective 2: To find differences in attitude towards Artificial Intelligence among college teachers affiliated to Gauhati University with respect to gender.

H₀₁: There exists no statistically significant difference in attitude towards artificial intelligence among college teachers with respect to gender.

To find out the difference in attitude towards Artificial Intelligence among college teachers affiliated to Gauhati University with respect to gender, a t-test was calculated.

Table 4
Mean and Standard Deviation of Male and Female on Attitude towards Artificial Intelligence

Gender	N	Mean ($\bar{X}$)	Standard Deviation (σ)
Male	40	45.88	7.19
Female	40	45.72	6.03

Table 4 shows the descriptive statistics of the male and female college teachers on their attitude towards Artificial Intelligence. The analysis of descriptive statistics

showed the mean score ($M = 45.88$) and standard deviation ($\sigma = 7.19$) of males and the mean score of ($M = 45.72$) and standard deviation ($\sigma = 6.03$) of females.

Table 5
Independent sample t-test of the attitude towards Artificial Intelligence with respect to gender

Variable	Gender	t- value	df	Mean Difference	P value
Attitude towards AI	Male				
	Female	.101	78	0.150	.920

Not significant at the 0.05 level of significance

The data in Table 5 shows the analysis of an independent sample t-test of the difference in attitude towards Artificial Intelligence with respect to their gender. The data found showed the score of the calculated t-value, $t = .101$, Mean Difference = 0.150, and P-value = .920. Here, as the $p > 0.05$; therefore, the null hypothesis (H_0) - There exists no statistically significant difference in attitude towards Artificial Intelligence among college teachers with respect to gender, was not rejected. The result of the analysis showed that there was no difference in attitude towards Artificial Intelligence

between male and female college teachers.

Objective 3: To find the differences in attitude towards artificial intelligence among college teachers affiliated to Gauhati University with respect to disciplines.

H_{02} - There exists no statistically significant difference in attitude towards artificial intelligence among college teachers with respect to disciplines.

One-way ANOVA was calculated to find the differences in attitude towards artificial intelligence among college teachers affiliated to Gauhati University with respect to disciplines.

Table 6
Mean and SD scores of college teachers' Attitude towards Artificial Intelligence with respect to disciplines

Disciplines	N	Mean ($\bar{X}$)	Standard Deviation (σ)
Arts	27	45.85	6.98
Science	28	46.75	5.12
Commerce	25	44.68	7.67

Table 6 demonstrates the mean and SD scores of college teachers' attitudes towards Artificial Intelligence with respect to their disciplines. The summary of the analysis showed the college teachers' attitude

towards Artificial Intelligence from the arts discipline ($M = 45.85$, $\sigma = 6.98$), science discipline ($M = 46.75$, $\sigma = 5.12$), and commerce discipline ($M = 44.68$, $\sigma = 7.67$).

Table 7
Levene's test of Homogeneity of Variances

Variable	F	df1	df2	Sig.
Artificial Intelligence	1.673	2	77	.194

Table 7 shows Levene's test of homogeneity of variances of artificial intelligence with respect to disciplines. The result found was $F(2,77) = 1.673$, $P = .194$, which means

that the assumption of homogeneity of variances was not violated, and one-way ANOVA can be used for the analysis.

Table 8
One-way ANOVA of attitude towards artificial intelligence among college teachers with respect to disciplines

	Sum of square	df	Mean square	F	Sig.
Between Groups	.707	2	.354	.616	.543
Within Groups	44.180	77	.574		
Total	44.887	79			

Not significant at the 0.05 level of significance

The data in Table 8 shows the analysis of the One-way ANOVA of the difference in attitude towards Artificial Intelligence with respect to disciplines. The analysis of the data showed the score ($F = .616$, $P\text{-value} = .543$). Here, the $p > 0.05$; therefore, the null hypothesis (H_0)- There exists no statistically significant difference in attitude towards artificial intelligence among college teachers with respect to disciplines, was not rejected. Thus, it was found that there was no significant difference in attitude towards artificial intelligence among college teachers from arts, science, and commerce disciplines.

Objective 4: To find the differences in attitude towards artificial intelligence among college teachers affiliated to Gauhati University with respect to teaching experiences.

H_{03} - There exists no statistically significant difference in attitude towards artificial intelligence among college teachers with respect to teaching experiences.

One-way ANOVA was calculated to find the differences in attitude towards artificial intelligence among college teachers affiliated to Gauhati University with respect to teaching experiences.

Table 9
Mean and Standard Deviation of College Teachers' Attitudes towards Artificial Intelligence by teaching experience

Years of Teaching Experience	N	Mean ($\bar{X}$)	Standard Deviation (σ)
1-10 years	24	48.45	5.84
11-21 years	27	44.18	6.73
More than 21 years	29	45.10	6.60

Table 9 illustrates the mean and SD scores of college teachers' attitudes towards Artificial Intelligence with respect to teaching experiences. The summary of the analysis showed that the mean and SD scores of college teachers having 1-10 years of teaching experience ($M = 48.45$, $\sigma = 5.84$), 11-21 years of teaching experience ($M = 44.18$, $\sigma = 6.73$) and more than 21 years of teaching experience ($M = 45.10$, $\sigma = 6.60$).

Table 10
Levene's Test of Homogeneity of Variances

Variable	F	df1	df2	Sig.
Artificial Intelligence	1.476	2	77	.235

Table 10 shows Levene's test of homogeneity of variances of artificial intelligence with respect to teaching experiences. The result found was $F(2,77) = 1.476$, $p = .235$, which means that the assumption of homogeneity of variances was not violated, and one-way ANOVA can be used for the analysis.

Table 11
One-way ANOVA of attitude towards artificial intelligence among college teachers with respect to disciplines

	Sum of square	df	Mean square	F	Sig.
Between Groups	1.922	2	.961	1.722	.185
Within Groups	42.966	77	.558		
Total	44.887	79			

Not significant at the 0.05 level of significance

The data in Table 11. shows the analysis of the One-way ANOVA of the difference in attitude towards Artificial Intelligence

with respect to disciplines. The analysis of the data showed the score ($F = 1.722$, $P\text{-value} = .185$), $p > 0.05$; therefore, the

null hypothesis (H_0)- There exists no statistically significant difference in attitude towards artificial intelligence among college teachers with respect to teaching experiences, was not rejected. Thus, it was found that there was no significant difference in attitude towards artificial intelligence among college teachers, irrespective of their year of teaching experience.

Findings & Discussions

This study examined the level of attitude towards artificial intelligence among college teachers affiliated to Gauhati University. The findings of the analysis of Objective 1 showed that the majority of the participants, i.e., 43.8%, fall under the moderate level of attitude towards artificial intelligence. This result supports the findings of Ozden et al. (2025) study on correlation between attitude towards artificial intelligence and AI literacy of pre-service teachers, where the result reflected a moderate level of attitude towards artificial intelligence and the majority of college teachers affiliated with Gauhati University possess a moderate level of attitude towards Artificial Intelligence (AI) across all dimension's benefits, risks, and use suggesting a balanced perspective that acknowledges both the potential and challenges of AI in education.

The t-test analysis of Objective 2 showed that the null hypothesis (H_0)- "There exists no statistically significant difference in attitude towards Artificial Intelligence among college teachers with respect to gender" was not significant at the 0.05 level and thus, the null hypothesis was not rejected. This indicated that there exists no significant difference in attitude

towards Artificial Intelligence between male and female college teachers. This finding showed a similar result to the study that found no statistically significant difference in attitude among the secondary school teachers in the use of AI with respect to gender, indicating that both male and female college teachers have a similar perception towards artificial intelligence. (Sakshi & Kaur, 2025; Cayak, 2024; Teo, 2011).

Again, in the One-way ANOVA analysis of Objective 3, the null hypothesis (H_0)- There exists no statistically significant difference in attitude towards artificial intelligence among college teachers with respect to disciplines, was not significant at the 0.05 level. Thus, the null hypothesis was not rejected. The analysis revealed that there were no significant differences among teachers from different disciplines, such as arts, science, and commerce, suggesting that AI was used equally across all disciplines. This result is supported by the findings of Mutlu Cukurova et al. (2021) highlighted that teachers' attitudes towards Artificial Intelligence are generally consistent and influenced by factors like trust, understanding, and perceived usefulness, rather than their subject domain.

Lastly, in the One-way ANOVA Objective 4, it was found that the null hypothesis (H_0)- There exists no statistically significant difference in attitude towards artificial intelligence among college teachers with respect to teaching experiences, was not significant at the 0.05 level, and therefore, the null hypothesis was not rejected. This revealed that there exists no significant difference in attitude towards artificial intelligence among

college teachers, irrespective of their year of teaching experience. This result of the study is supported by the findings of Mutlu Cukurova et al. (2021), who found that teachers' perceptions of AI are shaped more by understanding, trust, and exposure than by demographic variables like teaching experience. And also, it aligns with the result of Chiu (2021) that says teachers' readiness and perception are influenced more by professional development than years of teaching experience.

Limitations of the study

The sample was limited to 80 participants and a convenient sampling technique was used, the generalizability of study's findings to all colleges affiliated to Gauhati University under Kamrup Metropolitan Districts is limited. Therefore, attitude of teachers towards AI can be conducted with larger sample size. In the present study only the general attitude of college teachers was studied therefore, further study can be conducted with other variables such as AI literacy, Institutional support, AI related training. This study was based on the general attitude of teachers towards AI, therefore further studies can be conducted on examining the attitude of the college teachers on use of AI in education, and Generative AI tools such as ChatGPT, Copilot and others.

Conclusions

Artificial Intelligence (AI) is having a major impact on education by providing teachers and students with innovative

solutions for delivering and receiving quality education. This study examined the attitude of college teachers affiliated to Gauhati University toward Artificial intelligence and how these attitudes vary based on gender. Overall, teachers in the sample possessed a moderate level of attitude toward using AI. Indicating that they have a balanced attitude towards AI, which shows that they know about the benefits of AI and the risks of using AI. Again, in the study, it was found that there exists no significant difference in attitude towards Artificial Intelligence based on gender, discipline and teaching experience, indicating a uniform attitude towards AI irrespective of these variables. Although the overall attitude of teachers was moderate, the findings indicate the need to enhance teachers' attitude towards AI. In order to enhance the attitude towards AI, it is important to give proper training and professional development programmes focusing on the ethical use of AI, awareness of its limitations and using it in right direction. Such programmes can help teachers develop confidence, build competence, and adopt AI more effectively in their professional practices. The results of this study add to the existing literature on teachers' attitudes toward AI in colleges located in Assam while providing useful information to policymakers, educationist and institutions.

References

- Aktay, S., Gok, S., & Yildirim, A. (2024). Artificial intelligence attitude scale. *International technology and education journal*, 8(2), 14-24
- Aghaziarati, A., Nejatifar, S., & Abedi, A. (2023). Artificial Intelligence in Education: Investigating Teacher Attitudes. *AI and Tech in Behavioral and Social Sciences*, 1(1), 35-42. <https://doi.org/10.61838/kman.aitech.1.1.6>
- Bhagat, J. A. (2024). Attitude of B. Ed. teacher trainees towards use of artificial intelligence in education. *Journal of Emerging Technologies and Innovative Research (JETIR)*, 11(3).
- Çayak, S. (2024). Investigating the relationship between teachers' attitudes toward artificial intelligence and their artificial intelligence literacy. *Journal of Educational Technology and Online Learning*, 7(4 - ICETOL 2024 Special Issue), 367-383. <https://doi.org/10.31681/jetol.1490307>
- Chiu, T. K. F. (2021). A holistic approach to the design of artificial intelligence (AI) education for K-12 schools. *TechTrends*, 65(5), 796–807. <https://doi.org/10.1007/s11528-021-00637-1>
- Chiu, T. K. F., & Chai, C. S. (2020). Sustainable curriculum planning for artificial intelligence education: A self-determination theory perspective. *Education and Information Technologies*, 25(4), 2483–2504. <https://doi.org/10.1007/s10639-020-10101-3>
- Cukurova, M., Luckin, R., & Kent, C. (2021). Impact of an artificial intelligence research frame on the perceived benefits and risks of AI in education. *Computers and Education: Artificial Intelligence*, 2. <https://doi.org/10.1016/j.caeai.2021.100025>
- Holmes, W., Bialik, M., & Fadel, C. (2019). *Artificial Intelligence in Education: Promises and implications for teaching and learning*. Center for Curriculum Redesign.
- Halaweh, M. (2023). ChatGPT in education: Strategies for responsible implementation and addressing ethical concerns. *Information Systems Frontiers*. <https://doi.org/10.1007/s10796-023-10403-1>
- Jumle, S. (2025). The use of AI in developing adaptive learning technologies for disabled students. *Vidhyayana – An International Multidisciplinary Peer Reviewed E Journal*, 10. <https://j.vidhyayanaejournal.org/index.php/journal/article/view/2174>
- Khuraijam, K., Singh, C. K., & Singh, S. S. (2025). Attitudes toward artificial intelligence among B.Ed. Student-teachers in Manipur: A comparative analysis across demographic variables. *Lex Localis – Journal of Local Self-Government*, 23(S6), 3901–3908.
- Koranteng, U. (2025). AI and assistive technology in special education: Transforming learning access for students with disabilities. *Asian Journal of Education and Social Studies*, 51(9), 240–252. <https://doi.org/10.9734/ajess/2025/v51i92361>
- Lamanauskas, V. (2025). PRE-SERVICE PRESCHOOL AND PRIMARY SCHOOL

- TEACHERS' ATTITUDES ON ARTIFICIAL INTELLIGENCE: READINESS TO USE AND POTENTIAL CHALLENGES. 133-145. 10.33225/BalticSTE/2025.133.
- Maier, Roxana & Ghiocanu, Ștefania & Costin, Alina & Simion, Ioana. (2025). Students' Attitude Towards Artificial Intelligence and Its Predictive Factors. *BRAIN. Broad Research in Artificial Intelligence and Neuroscience*. 16. 264-275. 10.70594/brain/16. S1/22.
- Melo López, V. A., Basantes Andrade, A., Gudiño Mejía, C. B., & Hernández Martínez, E. (2025). The impact of artificial intelligence on inclusive education: A systematic review. *Education Sciences*, 15(5). <https://doi.org/10.3390/educsci15050539>
- ÖZDEN M, AŞAR FO, MEYDAN E. (2025) The Relationship Between Pre-service Teachers' Attitude towards Artificial Intelligence (AI) and their AI Literacy. *Pegem Journal of Education and Instruction*, 15 (3)
- Salameh, Huda & Qadery, Haytham. (2026). TEACHERS ATTITUDES TOWARD INTEGRATING ARTIFICIAL INTELLIGENCE APPLICATIONS IN EDUCATION: PRACTICAL UNDERSTANDING AND INSTITUTIONAL READINESS REQUIREMENTS. *International Journal of Advanced Research*. 14. 494-505. 10.21474/IJAR01/22561.
- Sakshi, & Kaur, M. (2025). Attitude of secondary school teachers towards the use of artificial intelligence. *International Journal for Multidisciplinary Research (IJFMR)*, 7(6).
- Shinde, S. S. (2025). The transformative role of artificial intelligence in education: Pathways to Viksit Bharat 2047. *Aksharasurya Journal*, 09(04), 166–169.
- Sütçü, S. S., & Sütçü, E. (2023). English teachers' attitudes and opinions towards artificial intelligence. *International Journal of Research in Teacher Education*, 14(3), 183–193. <https://doi.org/10.29329/ijrte.2023.598.12>
- Teo, T. (2011). Factors influencing teachers' intention to use technology: Model development and test, *Computers & Education*, Volume 57, Issue 4, 2011, Pages 2432-2440, ISSN 0360-1315, <https://doi.org/10.1016/j.compedu.2011.06.008>.
- Zamora, Ismael & Gutierrez Ocegueda, Gelacio Juan Ramon. (2025). Attitudes of University Professors towards the Use of Artificial Intelligence in Teaching and Learning. *INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH AND ANALYSIS*. 08. 10.47191/ijmra/v8-i01-46.
- Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). A systematic review of research on artificial intelligence applications in higher education. *International Journal of Educational Technology in Higher Education*, 16(39).

Integrating Assessment with School Guidance and Counselling: A Study on Supporting Secondary Stage Learners' Academic & Socio-Emotional Development

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Abstract

The shift towards holistic and competency-based assessment in Indian school education has expanded the purpose of assessment beyond academic achievement to include socio-emotional development, behavioural competencies, and learner well-being. At the secondary stage, where adolescents experience academic pressure, identity formation, emotional transitions, and career-related uncertainty, the integration of assessment with school guidance and counselling becomes increasingly significant. This review examines how holistic assessment frameworks, particularly the Holistic Progress Card (HPC), support personalised academic and socio-emotional interventions through counselling-informed practices.

Drawing upon policy documents, empirical studies, and conceptual literature published between 2020 and 2025, the review employs a thematic narrative synthesis to examine three interconnected domains: holistic counselling approaches supporting adolescent development, assessment as a basis for personalised learner support, and policy-systemic conditions enabling assessment–counselling integration. The findings indicate that assessment becomes more developmentally meaningful when multidimensional learner data is interpreted through counselling processes addressing academic anxiety, emotional well-being, behavioural adjustment, self-awareness, and career readiness. The review also identifies major implementation challenges, including inadequate counsellor availability, limited assessment literacy, fragmented institutional coordination, and the continued dominance of examination-oriented school cultures.

The study argues that counselling-informed assessment is essential for operationalising holistic and learner-centred education within secondary schooling. It concludes that the effectiveness of holistic assessment reforms depends not only on policy transformation but also on schools' institutional capacity to integrate counselling, socio-emotional support, and reflective educational practices within everyday learning environments.

Key words- *Holistic Assessment, PARAKH, Guidance and Counselling, Secondary Stage Learners, Academic Development, Socio-Emotional Development*

Introduction

Contemporary educational discourse increasingly recognises that academic achievement alone is insufficient to represent the multidimensional development of learners. Particularly at the secondary stage, adolescents experience complex cognitive, emotional, behavioural, and social transitions that significantly influence learning, identity formation, peer relationships, and future aspirations. However, traditional examination-oriented systems in many schools continue to prioritise marks, ranking, and rote memorisation, often overlooking learners' socio-emotional realities, behavioural concerns, mental well-being, and developmental needs. As a result, assessment frequently remains disconnected from the broader educational goal of supporting holistic learner development.

The National Education Policy (NEP, 2020) proposes a significant shift from content-centred and examination-driven schooling towards holistic, competency-based, and learner-centred education. Within this framework, holistic development is conceptualised as the integration of cognitive, socio-emotional, ethical, creative, and physical dimensions of learning. The policy further positions Guidance and Counselling (G&C) as an essential developmental support system rather than an auxiliary school service. Similarly, the National Curriculum Framework for School Education (NCF-SE, 2023) identifies guidance and

counselling as a cross-cutting educational process influencing curriculum, pedagogy, inclusion, assessment, learner well-being, and school culture.

The need for integrating assessment with guidance and counselling becomes particularly significant at the secondary stage, where learners encounter heightened academic pressure, emotional vulnerability, career-related uncertainty, and psychosocial adjustment challenges. Conventional assessment systems often fail to identify issues such as academic anxiety, peer distress, emotional withdrawal, low self-confidence, and behavioural difficulties because they primarily focus on measurable academic outcomes. Consequently, there is growing recognition that assessment must extend beyond examination scores to include learners' socio-emotional competencies, self-awareness, interpersonal skills, behavioural patterns, and developmental progress.

NCF-SE 2023 on Assessment: Purposes and Challenges

NCF-SE 2023 reconceptualises assessment as a continuous and competency-based process intended to support learning, reflection, self-awareness, and learner development rather than merely classify students according to performance. The framework critiques the excessive dependence on summative examinations and highlights the limitations of marks-oriented evaluation systems in addressing learners' emotional, behavioural, and developmental needs. Although schools

continue to operate within examination-centred cultures, the framework advocates multidimensional assessment practices that incorporate cognitive, behavioural, psychological, and socio-emotional indicators.

These concerns are especially relevant during adolescence, a developmental stage characterised by identity formation, emotional transitions, social negotiation, and emerging career aspirations. Academic scores alone cannot adequately capture these complex developmental experiences. Therefore, assessment at the secondary stage requires integrated support systems capable of interpreting learners' academic progress alongside their socio-emotional well-being and behavioural adjustment.

Within this reform framework, School-Based Assessment (SBA) functions as a continuous mechanism for documenting learners' academic, behavioural, and socio-emotional development. The Holistic Progress Card (HPC), operationalised through PARAKH, attempts to expand assessment beyond conventional grading by incorporating teacher observations, learner self-reflection, parental feedback, and socio-emotional indicators. At the secondary stage, the HPC emphasises competencies such as self-regulation, reflective thinking, emotional maturity, collaboration, and career readiness, thereby creating greater scope for integrating counselling processes within assessment practices.

However, despite these policy shifts, the integration of assessment and

counselling remains limited in many Indian school contexts due to insufficient counsellor availability, inadequate assessment literacy, institutional fragmentation, and the continued dominance of examination-oriented schooling practices. This gap between policy vision and school-level implementation highlights the need to critically examine how assessment and guidance systems can function together to support holistic adolescent development.

Holistic Progress Card as the Anchor of Reform

The Holistic Progress Card (HPC), introduced under NEP 2020 and operationalised through PARAKH, represents a major shift from marks-oriented evaluation towards multidimensional and developmental assessment. Unlike conventional examination systems that prioritise measurable academic outcomes, the HPC conceptualises assessment as a continuous process documenting learners' cognitive, socio-emotional, behavioural, reflective, and creative development. By incorporating inputs from teachers, parents, peers, learners, and counsellors, the HPC expands assessment beyond academic performance to include emotional well-being, interpersonal relationships, behavioural adjustment, and learner agency. This shift is particularly significant at the secondary stage, where adolescents experience identity formation, emotional vulnerability, academic pressure, and career-related uncertainty. Conventional assessment systems often fail to capture

these developmental realities because they privilege standardised academic achievement over learners' psychosocial experiences. The HPC therefore attempts to reposition assessment as a developmental support mechanism linked to personalised learner guidance rather than merely academic classification.

Within this framework, counsellors assume an interpretive role by analysing behavioural observations, reflective feedback, and socio-emotional indicators to identify concerns such as academic anxiety, emotional stress, peer difficulties, low self-confidence, and behavioural withdrawal. Counselling-informed assessment thus strengthens the developmental and inclusive orientation of holistic learner profiling.

However, despite its transformative intent, the HPC also raises important institutional concerns. In many schools, holistic assessment risks becoming documentation-oriented rather than developmentally meaningful due to limited counsellor availability, inadequate assessment literacy, weak interdisciplinary collaboration, and the persistence of examination-centred school cultures. Consequently, the effectiveness of the HPC depends not only on policy reform but also on schools' institutional capacity to operationalise reflective and learner-centred assessment practices meaningfully.

From NAS 2021 to PARAKH 2024: Repositioning Assessment and Counselling

The transition from NAS 2021 to

PARAKH Rashtriya Sarvekshan (PRS 2024) reflects a broader transformation in India's assessment philosophy from narrow academic evaluation towards competency-based and holistic learner development. Earlier national assessments primarily focused on subject-wise achievement, whereas PARAKH incorporates cognitive, socio-emotional, behavioural, contextual, and school-related dimensions of learning. This shift reflects growing recognition that learner development cannot be adequately understood through examination scores alone.

At the secondary stage, multidimensional assessment becomes particularly important because adolescents' academic experiences are closely linked to emotional regulation, peer relationships, self-awareness, and psychosocial adjustment. Consequently, PARAKH and the HPC reposition assessment as a developmental process capable of informing personalised learner support and counselling interventions.

The integration of counselling within holistic assessment broadens the educational purpose of assessment beyond performance measurement. Counsellors contribute to learner profiling through behavioural observations, reflective dialogue, and socio-emotional interpretation, thereby contextualising academic performance within adolescents' emotional and social realities. This interdisciplinary approach aligns closely with whole-child and ecological approaches to education.

Nevertheless, important implementation challenges remain. Many schools continue

to function within examination-oriented cultures where measurable academic outcomes dominate institutional priorities. In addition, counsellor shortages, excessive teacher workload, insufficient assessment literacy, and weak institutional coordination

limit the meaningful implementation of holistic assessment practices. Without sustained professional training and interdisciplinary collaboration, there is a risk that holistic assessment may remain procedural rather than developmental.

Table 1
Contrasting NAS 2021 and PARAKH Rashtriya Sarvekshan 2024

Aspect	NAS 2021	PARAKH 2024 (PRS 2024)
Framework	Traditional national assessment	NEP 2020-aligned competency-based assessment
Grades Assessed	Grades 3, 5, 8, 10	Grades 3, 6, 9
Coverage	Nationwide survey	21.15 lakh students, 74,229 schools, 781 districts
Assessment Focus	Mainly Language and Mathematics	Academic competencies + socio-emotional, contextual, and school factors
Grade 3 Mathematics Proficiency	42%	65%
Grade 3 Language Proficiency	39%	57%
Additional Dimensions	Mostly academic achievement	Inclusion, digital readiness, emotional well-being, infrastructure, school climate
Competency Insights	Limited subject-wise outcomes	Identifies strengths and learning gaps across competencies
Overall Orientation	Academic performance snapshot	Holistic and learner-centred evaluation aligned with NEP 2020

PRS 2024 demonstrates improvement in foundational competencies compared to NAS 2021, particularly in Grade 3 language and mathematics proficiency. However, these improvements should not be interpreted as sufficient indicators of holistic learner development. Although large-scale assessments provide valuable system-level insights into

learning outcomes and school contexts, they cannot fully capture adolescents' emotional experiences, identity struggles, interpersonal relationships, behavioural adjustment, or psychosocial well-being. Holistic development therefore requires assessment systems capable of integrating qualitative and contextual understanding alongside measurable competencies.

The shift from NAS to PARAKH is educationally significant because it broadens the purpose of assessment from performance measurement to developmental understanding. Nevertheless, the success of this transformation depends on whether schools can meaningfully integrate counselling processes, reflective practices, and socio-emotional support within assessment structures. Without adequate counsellor training, interdisciplinary collaboration, and institutional preparedness, the holistic vision underlying PARAKH and the HPC may remain difficult to operationalise effectively within everyday school realities.

Positioning Guidance and Counselling within Holistic Assessment

The combined vision of NEP 2020, NCF-SE 2023, and PARAKH demonstrates that Guidance and Counselling (G&C) is an integral component of contemporary assessment reform rather than a supplementary service. Counsellors

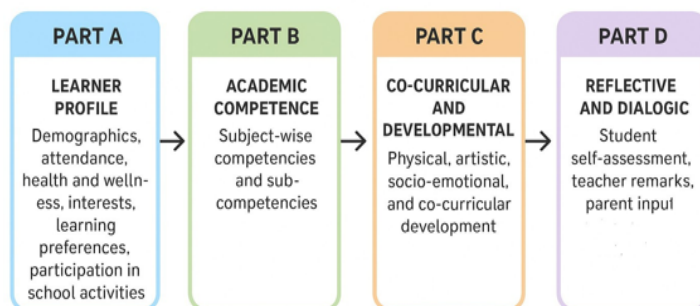
contribute to the Holistic Progress Card (HPC) through socio-emotional assessment, behavioural observations, learner reflections, and developmental profiling, ensuring that assessment captures the multidimensional nature of learner growth beyond academic scores.

The HPC process begins with the identification of academic, behavioural, and socio-emotional indicators through School-Based Assessment. Data is collected from teachers, classroom observations, peer interactions, learner self-reflection, and contextual inputs, which counsellors analyse to develop comprehensive learner profiles. These insights guide personalised counselling interventions related to academic planning, emotional support, goal-setting, and career readiness. Thus, the integration of assessment and counselling transforms the HPC into a developmental framework supporting academic progress, emotional well-being, identity formation, and holistic learner development in alignment with NEP 2020.

Structural Organisation of the Holistic Progress Card (HPC)

Figure 1

STRUCTURAL ORGANISATION OF THE HOLISTIC PROGRESS CARD (HPC) AT THE SECONDARY STAGE



The structural design of the HPC reflects a significant transition from one-dimensional academic reporting towards comprehensive learner profiling. The framework integrates academic competencies, socio-emotional development, behavioural indicators, co-curricular participation, reflective engagement, and learner well-being within a unified assessment structure. Importantly, the inclusion of student self-assessment, teacher reflections, parental inputs, and counsellor observations encourages collaborative understanding of learner development.

The educational significance of the HPC lies in its emphasis on learner voice, self-awareness, reflective learning, and socio-emotional growth. Through multidimensional documentation, the framework creates possibilities for more personalised educational support and counselling-informed interventions, particularly during adolescence where emotional regulation, identity formation, and social belonging substantially influence learning experiences.

However, the effectiveness of such multidimensional assessment depends heavily on the reliability and interpretive quality of teacher and counsellor observations. In many school contexts, limited assessment literacy, inadequate counsellor availability, and heavy teacher workload may weaken the authenticity and consistency of socio-emotional assessment practices. As a result, reflective documentation may become superficial unless schools establish strong interdisciplinary collaboration,

ethical assessment practices, and sustained professional development mechanisms.

Methodology of the Review

This section outlines the systematic procedures adopted to identify, screen, analyse, and synthesise literature related to the integration of guidance and counselling within holistic and competency-based assessment frameworks at the secondary stage. The review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) guidelines to enhance methodological transparency, systematic organisation, and analytical rigour. Given the interdisciplinary nature of the topic, the methodology was designed to integrate empirical studies, conceptual literature, and policy frameworks examining the relationship between assessment, socio-emotional development, and school counselling.

Search Strategy

A structured and comprehensive literature search was conducted across major academic databases, including:

- Scopus
- Web of Science
- Google Scholar

The search process used combinations of keywords and Boolean operators to enhance search precision and coverage. Boolean operators such as AND and OR were used to combine search terms related to counselling, holistic assessment, socio-emotional development, and secondary education.

Examples of search combinations included:

- (“school counselling” OR

“guidance services”) AND (“holistic assessment” OR “competency-based assessment”)

- (“Holistic Progress Card” OR “HPC”) AND (“secondary education” OR “adolescents”)
- (“PARAKH” OR “National Achievement Survey”) AND (“socio-emotional development” OR “learner well-being”)
- (“NEP 2020 assessment”) AND (“school counselling” OR “learner support”)

Additional keywords included:

“School guidance and counselling”, “Holistic Progress Card”, “PARAKH”, “National Achievement Survey”, “NEP 2020 assessment”, “socio-emotional assessment”, “secondary education India”, and “competency-based assessment”.

The search covered publications from 2020–2025 to capture recent educational reforms, emerging assessment frameworks, and contemporary discourse on holistic learner development.

Additional sources included:

- Government and institutional reports
- PARAKH documents
- NCERT frameworks
- OECD publications
- Reference lists of retrieved studies

The inclusion of policy documents alongside empirical studies was considered necessary because the topic is strongly situated within evolving educational reform frameworks, particularly NEP 2020, NCF-SE 2023, and PARAKH.

A total of 648 records were initially identified through database searches and supplementary sources.

Inclusion Criteria

- Studies published between 2020–2025
- Peer-reviewed articles, policy reports, and conceptual studies
- Studies related to secondary education
- Literature focusing on assessment, counselling, socio-emotional development, or holistic education

Exclusion Criteria

- Primary/higher education-focused studies
- Non-English publications
- Non-accessible full texts
- Studies unrelated to assessment–counselling integration

Screening Process

The screening process followed the sequential stages recommended under the PRISMA 2020 framework, including identification, screening, eligibility assessment, and final inclusion. The PRISMA flow process is presented in Figure 1.

Identification Stage

A total of 648 records were identified through database searches and supplementary sources. Duplicate entries were removed prior to screening.

Title and Abstract Screening

After preliminary screening, 483 studies were excluded due to lack of relevance, mismatch with the target population, or insufficient connection to assessment–counselling integration.

Eligibility Assessment

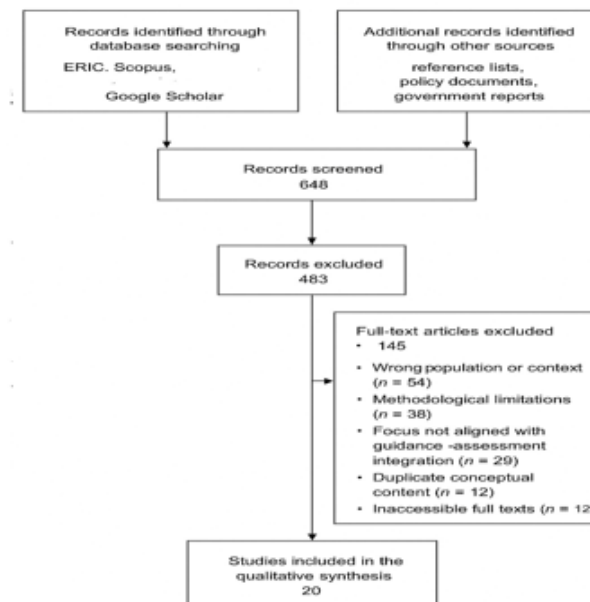
The remaining 165 studies underwent full-text review. During this stage, 145 studies were excluded for the following reasons:

- Wrong educational context (n = 54)
- Methodological limitations (n = 38)
- Limited relevance to guidance–assessment integration (n = 29)

- Duplicate conceptual content (n = 12)
- Inaccessible full texts (n = 12)
- Final Inclusion

Finally, 20 studies met all inclusion criteria and were incorporated into the qualitative synthesis.

Figure 2
PRISMA Flow Diagram of Study Selection Process



Research Questions

1. How does the integration of assessment with school guidance and counselling influence the academic and socio-emotional development of secondary stage learners?

emotional development.

2. To examine the impact of assessment processes on the academic and socio-emotional development of secondary stage learners.
3. To examine the scope of the integration of assessment with school guidance and counselling for secondary stage learner's academic and socio-emotional development.

Research Objectives

1. To study the role of guidance & counselling on the secondary stage learners' academic and socio-

Rationale of the Study

Recent reforms under NEP 2020, the Holistic Progress Card (HPC), and PARAKH have redefined assessment at the secondary stage as a continuous, competency-based, and socio-emotionally informed process. This expanded view of assessment aligns closely with the aims of school guidance and counselling, which support learners' academic progress, emotional well-being, and career readiness. However, in most Indian secondary schools, assessment practices and counselling services continue to function in isolation, resulting in fragmented support for learners. Counsellors rarely receive or utilise assessment data in systematic ways, and schools often lack structures to translate assessment insights into personalised interventions.

This study investigates how assessment can be effectively integrated with school guidance and counselling to enhance academic and socio-emotional development among secondary-stage learners. By examining existing

practices, challenges, and opportunities, the research seeks to generate evidence that can strengthen school support systems and operationalise the holistic vision of NEP 2020. The study aims to contribute to more responsive, equitable, and development-oriented schooling by positioning assessment and counselling as interconnected processes central to adolescent learning and well-being.

The present literature review examines the integration of assessment with school guidance and counselling in secondary education. The review adopts a thematic approach, drawing on empirical, theoretical, and policy-oriented studies from India and comparable global contexts. It aims to synthesise evidence on how assessment-counselling integration supports academic progress, socio-emotional well-being, and career readiness, thereby addressing gaps in operational mechanisms for embedding counsellor insights into national assessment frameworks such as the Holistic Progress Card (HPC).

Figure 3

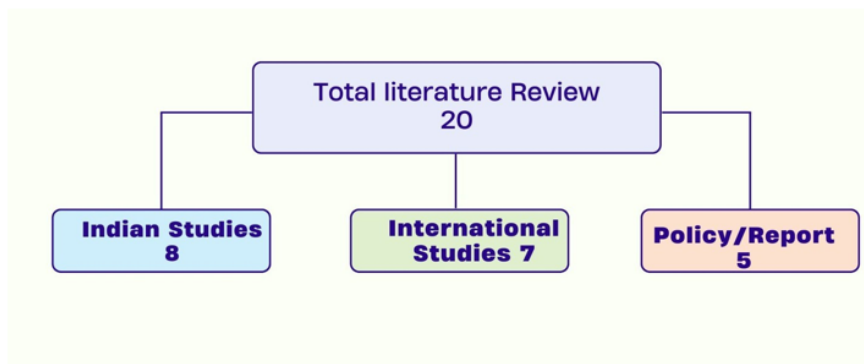


Table 2

Author(s)	Year	Type	Key Focus / Findings	Related Objectives
Firman, Neviyarni & Okti	2025	Empirical Study	Holistic counselling improves academic motivation and socio-emotional competencies.	RO1, RO3
Herlinda, Munir & Nurhasnawati	2025	Literature Review	Culturally grounded counselling enhances motivation, behaviour, and emotional regulation.	RO1
Rustianti, Putra & Hidayat	2025	Literature Review	Assessment supports learner profiling and personalised counselling interventions.	RO2, RO3
Parag R. Kawale	2024	Policy Analysis	NEP 2020 supports flexible and counselling-informed learning pathways.	RO2, RO3
Kuldeep Singh Tomar	2024	Policy Study	Inclusive reforms and teacher capacity building strengthen learner-centred systems.	RO2, RO3
P. Padmambika et al.	2024	Empirical Study	Counselling and wellness programmes improve well-being and life skills.	RO1
V. Vaithianathan et al.	2024	Policy Analysis	Curriculum reform and training are needed to institutionalise counselling.	RO1, RO3
Agatha Dianovi	2022	Review	Counselling contributes to personal, social, and academic growth.	RO1
Ishita Wadhwani	2022	Survey	Learners show positive attitudes towards counselling and mental health support.	RO1
Macario et al.	2023	Literature Review	Counselling programmes strengthen socio-emotional well-being.	RO1
Fadli, Daharnis & Yusuf	2022	Literature Review	Assessment-based evaluation improves counselling effectiveness.	RO2, RO3
Furlong et al.	2023	Empirical Study	Socio-emotional assessment tools support learner profiling and interventions.	RO2, RO3
Pellegrino	2024	Conceptual Study	Holistic assessment integrates cognitive, behavioural, and emotional indicators.	RO2, RO3
Lombardi	2024	Empirical Study	Counselling enhances reflection, goal-setting, and formative assessment.	RO2, RO3
World Bank	2023	Policy Report	Recommends socio-emotional indicators in national assessment systems.	RO2, RO3
NEP 2020	2020	Policy Document	Advocates multidimensional and competency-based assessment reforms.	RO1, RO2, RO3
NCF-SE	2023	Policy Document	Supports learner-centred and socio-emotional assessment practices.	RO2, RO3
Thomas & Dey	2020	Empirical Study	Highlights role ambiguity and structural gaps in counselling services.	RO3

Singh & Kaur	2024	Empirical Study	Counselling improves adolescent socio-emotional adjustment.	RO1
OECD Learning Compass	2020	Conceptual Framework	Promotes holistic learner development through integrated assessment and well-being.	RO1, RO2, RO3

The reviewed literature demonstrates increasing convergence around the idea that holistic assessment and school guidance and counselling are interconnected processes essential for supporting adolescents' academic, behavioural, and socio-emotional development. Across empirical studies, policy analyses, conceptual frameworks, and literature reviews, a consistent pattern emerges emphasising that learner development cannot be adequately understood through academic performance indicators alone. Instead, multidimensional assessment systems incorporating emotional well-being, behavioural competencies, learner reflection, and personalised support are increasingly viewed as necessary components of learner-centred secondary education.

A major similarity across the studies is the recognition that counselling contributes significantly to learners' socio-emotional adjustment, self-awareness, motivation, behavioural regulation, and academic engagement. Empirical studies by Firman et al. (2025), Padmambika et al. (2024), and Singh and Kaur (2024) collectively indicate that counselling interventions positively influence adolescents' emotional well-being and developmental adjustment. Similarly, studies focusing on assessment frameworks, including Pellegrino (2024), Furlong et al. (2023), and Rustianti et

al. (2025), emphasise that holistic and competency-based assessment systems become more meaningful when assessment data is interpreted for developmental support rather than merely academic classification.

Another important pattern within the literature is the growing alignment between international whole-child education frameworks and Indian educational reforms under NEP 2020, NCF-SE 2023, and PARAKH. Policy-oriented studies consistently advocate learner-centred, competency-based, and socio-emotionally responsive education systems. The OECD Learning Compass (2020), World Bank (2023), and Indian policy documents collectively reinforce the need for integrating well-being, reflection, life skills, and socio-emotional competencies within assessment structures. This reflects a broader global shift away from examination-dominated educational cultures towards developmental and inclusive educational approaches.

At the same time, the literature also reveals important structural and implementation gaps. Several studies highlight institutional limitations such as inadequate counsellor availability, limited teacher preparedness, insufficient assessment literacy, and ambiguity regarding counsellors' professional roles within school systems. Thomas and Dey (2020) particularly emphasise the

structural challenges affecting counselling services in schools, while policy studies indicate that institutional coordination between assessment and counselling systems remains underdeveloped. These findings suggest that although policy discourse strongly supports holistic learner development, practical implementation within school contexts remains uneven.

The review further indicates that the existing evidence base remains dominated by conceptual discussions, policy analyses, and literature reviews, with comparatively fewer empirical studies directly examining the operational integration of assessment and counselling within Indian secondary schools. Longitudinal research examining sustained developmental outcomes of counselling-informed assessment practices is also limited. Moreover, there is insufficient school-level implementation research exploring how teachers, counsellors, students, and administrators collaboratively engage with Holistic Progress Cards and socio-emotional assessment processes in everyday educational settings.

These gaps highlight the need for future empirical and practice-oriented research examining how holistic assessment frameworks can be meaningfully operationalised within diverse school environments. They also indicate the importance of developing institutionally coordinated, ethically grounded, and contextually responsive models linking assessment, counselling, and learner well-being within secondary education.

Thematic analyses & interpretation aligned with research objectives

The reviewed literature was

synthesised into three interconnected thematic domains that collectively explain how the integration of assessment and guidance and counselling contributes to secondary learners' academic engagement, socio-emotional well-being, behavioural development, and personalised educational support. Rather than functioning as isolated educational processes, assessment and counselling increasingly emerge within the literature as mutually reinforcing systems that support holistic learner development. The themes also reveal important tensions between progressive policy visions and the practical realities of implementation within school contexts.

Theme 1: Holistic Counselling Frameworks Supporting Academic and Socio-Emotional Development

The literature consistently demonstrates that school counselling plays a significant role in supporting adolescents' academic engagement, emotional regulation, behavioural adjustment, and socio-emotional well-being. Empirical studies by Firman, Neviyarni, and Okti (2025) indicate that holistic and assessment-informed counselling enhances learners' academic motivation, behavioural regulation, and interpersonal competencies. Similarly, Herlinda, Munir, and Nurhasnawati (2025) emphasise that culturally responsive counselling approaches improve attendance, emotional resilience, behavioural stability, and learner participation. Singh and Kaur (2024) further report that counselling interventions positively influence adolescents' emotional adjustment, peer relationships, coping strategies, and self-confidence.

These findings are developmentally significant because adolescence represents a critical stage of identity formation, emotional transition, and psychosocial negotiation. Erikson's psychosocial theory highlights adolescence as a period characterised by the conflict between identity formation and role confusion, where emotional support, self-understanding, and social acceptance become central to healthy development. Within this context, counselling functions not merely as problem resolution but as a developmental process facilitating self-awareness, emotional regulation, resilience, and academic engagement.

The literature also reflects increasing recognition that examination-oriented educational systems often fail to acknowledge learners' emotional realities and psychosocial experiences. Academic achievement alone cannot adequately represent adolescents' behavioural difficulties, emotional vulnerabilities, peer conflicts, or mental well-being. Consequently, counselling-informed educational approaches attempt to address dimensions of learner development that remain invisible within conventional assessment structures.

Macario et al. (2023) further demonstrate that counselling programmes strengthen socio-emotional well-being, particularly within culturally diverse educational environments. At the policy level, the World Bank (2023) advocates integrating socio-emotional and mental health indicators within educational assessment systems. Collectively, these studies indicate that holistic counselling frameworks contribute not only to learner well-being but also to academic readiness,

behavioural development, school participation, and long-term developmental adjustment.

At the same time, the literature reveals that socio-emotional support within schools often remains inconsistently institutionalised. In many educational settings, counselling services continue to function as peripheral or crisis-oriented interventions rather than integrated developmental systems embedded within everyday school practices. This contradiction highlights the continuing gap between holistic educational discourse and institutional realities.

Theme 2: Assessment as the Foundation for Personalised Counselling Interventions

The second thematic domain positions assessment as a critical foundation for personalised counselling interventions and learner-centred educational support. The reviewed studies collectively suggest that assessment acquires greater developmental significance when it extends beyond performance measurement to include behavioural, emotional, reflective, and contextual understanding of learners.

Rustianti, Putra, and Hidayat (2025) emphasise multidimensional learner profiling integrating academic, behavioural, and socio-emotional indicators to guide targeted counselling interventions. Similarly, Fadli, Daharnis, and Yusuf (2022) argue that evidence-based evaluation improves counselling effectiveness by enabling systematic understanding of learner needs. Furlong et al. (2023) further contribute socio-emotional assessment tools that support

learner profiling and intervention planning, while Pellegrino (2024) conceptualises holistic assessment as the integration of cognitive, behavioural, emotional, and reflective dimensions of learning.

These studies collectively indicate that assessment becomes educationally meaningful when it informs personalised developmental support rather than merely ranking learners according to academic performance. Counselling-informed assessment enables schools to identify academic anxiety, emotional withdrawal, low self-esteem, behavioural difficulties, peer-related concerns, and motivational barriers that conventional examinations frequently fail to capture.

The theme also reflects principles associated with Rogers' learner-centred theory, which emphasises empathy, self-reflection, and supportive educational relationships as conditions for healthy learner development. Reflective assessment processes, self-assessment practices, and counselling interactions create opportunities for learners to engage in self-understanding, goal-setting, emotional expression, and developmental reflection. Lombardi (2024) demonstrates that counselling enhances formative assessment by strengthening learners' capacity for reflection, self-regulation, and personal goal-setting.

However, the literature also raises important concerns regarding the increasing expansion of learner profiling systems. While multidimensional assessment creates opportunities for personalised support, there is also a risk that socio-emotional indicators may become overly standardised, reductionist, or procedurally documented

without adequate contextual interpretation. The validity and ethical interpretation of socio-emotional assessment therefore remain important concerns requiring professional expertise, confidentiality safeguards, and sensitive implementation practices.

Theme 3: Policy and Systemic Frameworks Enabling Assessment–Counselling Integration

The third thematic domain highlights the growing policy emphasis on integrating counselling within holistic and competency-based assessment frameworks. Studies by Kawale and Tomar (2024) indicate that NEP 2020 promotes learner-centred, flexible, inclusive, and multidisciplinary educational structures that create favourable conditions for assessment–counselling integration. Similarly, Padmambika et al. (2024) and Vaithianathan et al. (2024) emphasise wellness programmes, mental health initiatives, curriculum reform, and stakeholder collaboration as essential for institutionalising counselling within school systems.

Policy frameworks such as NEP 2020, NCF-SE 2023, PARAKH, and the OECD Learning Compass 2030 collectively advocate multidimensional learner development integrating academic achievement, socio-emotional well-being, behavioural competencies, reflective learning, and future readiness. These frameworks represent a significant shift from examination-centred education towards whole-child and developmental approaches to assessment.

Bronfenbrenner's ecological systems perspective is particularly relevant in

understanding this policy shift because learner development is influenced not only by classroom instruction but also by family relationships, peer interactions, school culture, institutional systems, and broader social environments. Holistic assessment frameworks such as the HPC attempt to recognise these interconnected developmental influences by incorporating multiple stakeholder perspectives and socio-emotional indicators within learner profiling systems.

Despite this progressive policy orientation, the literature simultaneously reveals major implementation challenges affecting assessment–counselling integration within schools. Studies by Dianovi (2022), Wadhvani (2022), and Thomas and Dey (2020) identify persistent structural barriers including counsellor shortages, role ambiguity, inadequate institutional regulation, insufficient professional training, and limited coordination between teachers and counsellors. In many schools, teachers remain heavily burdened with administrative and academic responsibilities, reducing their capacity to meaningfully engage with holistic assessment practices.

The literature further indicates unequal implementation across educational settings, particularly between well-resourced urban institutions and resource-constrained schools where counselling services remain minimal or absent. Institutional fragmentation, lack of interdisciplinary collaboration, inadequate assessment literacy, and limited socio-emotional assessment expertise also weaken the practical implementation of holistic learner profiling systems. These findings reveal a significant contradiction

between policy aspirations and school-level realities. Although NEP 2020 and PARAKH strongly advocate holistic and counselling-informed assessment, the institutional infrastructure required for meaningful implementation often remains underdeveloped. Policy transformation alone cannot ensure holistic assessment unless schools possess the institutional capacity to integrate counselling processes within assessment systems. Without trained counsellors, collaborative school cultures, ethical assessment practices, and sustained professional development, holistic assessment risks becoming procedural documentation rather than a meaningful developmental support mechanism.

Discussion

The illustrative counselling cases presented in Table 3 provide practical insight into how holistic assessment and counselling intersect within everyday school realities. Collectively, the cases demonstrate that adolescents' academic experiences are deeply interconnected with emotional well-being, peer relationships, behavioural adjustment, self-concept, and social belonging. Concerns such as peer distress, bullying, academic anxiety, emotional withdrawal, and low self-confidence often remain invisible within conventional examination-centred systems because such systems prioritise measurable academic outcomes over psychosocial experiences.

Table 3
Practical counselling cases demonstrate how theoretical ideas appear in real school settings.

Case	Major Issue	Theme Linked	What Counselling Achieved	HPC Domain
Peer distress	Emotional hurt due to peers	Developmental counselling	Better coping, restored confidence	Socio emotional skills; Interpersonal relationships
Bullying + low confidence	Withdrawal, sadness	Developmental counselling	Improved self-esteem	Emotional well-being; Values & behaviour
Academic anxiety	Stress, inability to identify strengths	Assessment as diagnostic tool	Goal-setting, strength identification	Approaches to learning; Self-awareness
Behavioural adjustment	Low engagement, unclear emotions	Global holistic assessment	Improved social participation	Collaboration; Behaviour & emotional expression

The cases therefore reinforce one of the central arguments emerging from this review: learner achievement cannot be understood exclusively through marks, grades, and subject performance. Instead, adolescents' educational experiences require multidimensional interpretation capable of recognising emotional vulnerability, behavioural changes, interpersonal difficulties, motivational barriers, and identity-related concerns. In this context, the Holistic Progress Card (HPC) becomes educationally significant because its socio-emotional and behavioural domains create possibilities for identifying developmental concerns

that conventional assessments frequently overlook.

Importantly, the counselling interventions reflected in these cases illustrate that assessment can function not merely as an evaluative mechanism but also as a diagnostic, preventive, and developmental process. Counsellor observations, learner reflections, behavioural indicators, and contextual interpretation enabled the identification of underlying emotional concerns before they intensified into more severe academic disengagement or psychosocial difficulties. This finding aligns closely with developmental and preventive approaches

to school counselling, which emphasise early intervention, emotional support, resilience-building, and learner well-being rather than reactive problem management alone.

The cases also provide important theoretical insight into adolescent development. For example, experiences related to bullying, withdrawal, emotional insecurity, and self-doubt reflect Erikson's psychosocial understanding of adolescence as a period shaped by tensions between identity formation and role confusion. Similarly, the emphasis on reflective dialogue, emotional validation, and supportive educational relationships aligns with Rogers' learner-centred perspective, which views empathy, acceptance, and self-understanding as central to meaningful learning and personal growth. Bronfenbrenner's ecological systems theory further helps interpret how peer interactions, school culture, emotional climate, and institutional support structures collectively influence learner adjustment and educational participation.

At the same time, the cases reveal broader institutional implications for holistic assessment reform. The effectiveness of counselling-informed assessment depends substantially on schools' ability to create collaborative systems where teachers, counsellors, parents, and learners contribute meaningfully to developmental understanding. In resource-constrained school contexts lacking trained counsellors or adequate socio-emotional support systems, many such learner concerns may

remain unidentified despite the presence of holistic assessment frameworks. Consequently, the cases illustrate that the success of the HPC depends not merely on expanding assessment domains but on developing institutional structures capable of supporting sustained counselling integration and reflective educational practice.

The cases further highlight an important tension underlying holistic assessment reforms. Although multidimensional learner profiling aims to promote inclusive and developmental education, socio-emotional interpretation remains highly context-sensitive and professionally demanding. Emotional experiences, behavioural indicators, and interpersonal difficulties cannot be reduced to standardised categories or checklist-based reporting formats. Without adequate assessment literacy and ethical sensitivity, there remains a risk that socio-emotional documentation may become superficial, inconsistent, or administratively procedural rather than developmentally meaningful.

Collectively, the counselling cases strengthen the broader argument of this review by demonstrating that holistic assessment acquires educational significance only when linked with interpretive, relational, and developmentally informed counselling practices. The integration of counselling within assessment therefore represents not merely an institutional reform but a deeper shift towards understanding education as a process concerned with learner well-being,

identity development, emotional resilience, and human growth alongside academic achievement.

Conclusion

The present review concludes that the integration of assessment with school guidance and counselling is fundamental to achieving holistic and learner-centred education at the secondary stage. The findings demonstrate that assessment becomes educationally meaningful when academic achievement is interpreted alongside learners' socio-emotional, behavioural, developmental, and contextual experiences. In this sense, assessment and counselling emerge as interdependent processes rather than separate institutional functions.

Counselling-informed assessment enables schools to identify concerns related to academic anxiety, emotional stress, peer difficulties, behavioural withdrawal, self-esteem, and adjustment challenges that frequently remain invisible within examination-oriented systems.

The review further establishes that the Holistic Progress Card (HPC), PARAKH, NEP 2020, and NCF-SE 2023 collectively represent an important conceptual shift from marks-based evaluation towards multidimensional learner development. These reforms attempt to reposition assessment as a reflective, developmental, and supportive educational process aligned with whole-child approaches to learning. However, the findings simultaneously reveal substantial tensions between policy aspirations and institutional realities.

Examination-centred school cultures, excessive teacher workload, limited assessment literacy, inadequate counsellor availability, weak interdisciplinary coordination, and unequal access to mental health support continue to constrain the meaningful implementation of holistic assessment practices across diverse school settings.

Importantly, the review suggests that the effectiveness of holistic assessment depends not merely on expanding assessment domains but on schools' institutional capacity to interpret learner experiences developmentally and ethically. Without professionally trained counsellors, collaborative school cultures, socio-emotional assessment literacy, and sustained organisational support, holistic assessment risks becoming procedural documentation rather than transformative educational practice. Thus, the success of assessment reform depends less on policy redesign alone and more on the creation of educational environments capable of integrating counselling, emotional support, reflective pedagogy, and learner well-being within everyday school practices.

The review also contributes to existing scholarship by conceptualising counselling-informed assessment as an interdisciplinary developmental framework linking learner profiling, socio-emotional support, and educational guidance within secondary education. By synthesising literature across assessment reform, counselling, learner well-being, and policy discourse, the study highlights the central role of counselling in

operationalising holistic education reforms within Indian school contexts.

Future research should therefore move beyond policy analysis towards empirical and longitudinal investigations examining how counselling-integrated assessment functions within everyday school environments. There is particular need for school-based research exploring learner experiences, institutional preparedness, assessment literacy practices, interdisciplinary collaboration models, and the long-term impact of counselling-informed assessment on adolescents' academic engagement, emotional well-being, behavioural adjustment, and career development. Further inquiry is also required into counselling policy frameworks, ethical socio-emotional assessment practices, and inclusive support systems capable of addressing educational inequalities across diverse school settings.

Ultimately, the integration of assessment with guidance and counselling represents a significant rethinking of educational purpose itself. It shifts schooling away from narrow performance measurement towards a more humane and developmentally responsive understanding of learner growth where academic achievement, emotional well-being, identity formation, and social development are recognised as interconnected dimensions of education.

List of Abbreviations:

CWSN – Children With Special Needs

G&C – Guidance and Counselling

HPC – Holistic Progress Card

MOE – Ministry of Education (India)

NAS – National Achievement Survey

NCF – National Curriculum Framework

NCF-SE – National Curriculum Framework for School Education (2023)

NCERT – National Council of Educational Research and Training

NEP 2020 – National Education Policy 2020

OECD – Organisation for Economic Co-operation and Development

PARAKH – Performance Assessment, Review, and Analysis of Knowledge for Holistic Development

PRISMA – Preferred Reporting Items for Systematic Reviews and Meta-Analyses

PRS 2024 – PARAKH Rashtriya Sarvekshan 2024

SBA – School-Based Assessment

SQAAF – School Quality Assessment and Assurance Framework

UTs – Union Territories

References

- Ansari, R. (2023). Behavioural challenges and counselling outcomes among secondary school adolescents. *Journal of School Psychology and Education*, 12(2), 45–58.
- Black, P., & Wiliam, D. (1998). Assessment and classroom learning. *Assessment in Education: Principles, Policy & Practice*, 5(1), 7–74. <https://doi.org/10.1080/0969595980050102>
- Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Harvard University Press.
- Carey, J., & Dimmitt, C. (2012). School counseling and student outcomes: Summary of six statewide studies. *Professional School Counseling*, 16(2), 146–153.
- Collaborative for Academic, Social, and Emotional Learning. (2020). What is SEL? CASEL. CASEL
- Darling-Hammond, L., Flook, L., Cook-Harvey, C., Barron, B., & Osher, D. (2020). Implications for educational practice of the science of learning and development. *Applied Developmental Science*, 24(2), 97–140. <https://doi.org/10.1080/10888691.2018.1537791>
- Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development*, 82(1), 405–432. <https://doi.org/10.1111/j.1467-8624.2010.01564.x>
- Erikson, E. H. (1968). *Identity: Youth and crisis*. W. W. Norton & Company.
- Fadli, R., Daharnis, D., & Yusuf, A. M. (2022). Assessment-based evaluation in counselling interventions and learner support systems. *Journal of Educational and Psychological Studies*, 16(3), 221–235.
- Firman, F., Neviyarni, N., & Okti, S. (2025). Holistic counselling approaches and socio-emotional competencies among adolescents. *International Journal of Guidance and Counselling Research*, 11(1), 33–48.
- Furlong, M. J., Dowdy, E., Carnazzo, K., Boverly, B., & Kim, E. (2023). Social-emotional assessment and multidimensional learner profiling in schools. *School Psychology International*, 44(2), 150–168. <https://doi.org/10.1177/01430343221124567>
- Gupta, A., & Bhatnagar, R. (2020). Career maturity and decision-making among adolescents: Impact of structured career counselling. *Indian Journal of Career Development*, 7(1), 12–25.
- Gysbers, N. C., & Henderson, P. (2012). *Developing and managing your school guidance and counseling program* (5th ed.). American Counseling Association.
- Herlinda, H., Munir, A., & Nurhasnawati, N. (2025). Culturally responsive counselling and adolescent behavioural adjustment. *Journal of Counselling and Human Development*, 9(1), 55–70.
- Kawale, P. R. (2024). National Education Policy 2020 and learner-centred educational transformation in India. *Educational Policy Review*, 18(2), 95–112.
- Lombardi, D. (2024). Counselling, learner reflection, and formative assessment practices

- in secondary education. *Assessment in Education: Principles, Policy & Practice*, 31(1), 62–80. <https://doi.org/10.1080/0969594X.2023.2284512>
- Macario, J., Flores, P., & Santos, R. (2023). School counselling programmes and socio-emotional well-being among adolescents. *International Journal for the Advancement of Counselling*, 45(3), 410–426. <https://doi.org/10.1007/s10447-023-09512-6>
- Ministry of Education. (2020). *National Education Policy 2020*. Government of India. Ministry of Education India
- National Council of Educational Research and Training. (2021). *National Achievement Survey 2021: National report*. Ministry of Education, Government of India.
- National Council of Educational Research and Training. (2023). *National Curriculum Framework for School Education*. Ministry of Education, Government of India.
- National Council of Educational Research and Training. (2024). *PARAKH Rashtriya Sarvekshan 2024: National assessment report*. Ministry of Education, Government of India.
- OECD. (2020). *OECD Learning Compass 2030*. OECD Publishing. OECD Learning Compass 2030
- Osher, D., Cantor, P., Berg, J., Steyer, L., & Rose, T. (2018). Drivers of human development: How relationships and context shape learning and development. *Applied Developmental Science*, 24(1), 6–36. <https://doi.org/10.1080/10888691.2017.1398650>
- Padmambika, P., Ramesh, S., & Devi, K. (2024). School wellness programmes and socio-emotional development among adolescents. *Journal of Educational Psychology and Wellness*, 14(2), 144–159.
- Pellegrino, J. W. (2024). Holistic assessment and competency-based education: Emerging directions for learner-centred evaluation. *Educational Assessment Review*, 29(1), 1–19.
- Rogers, C. R. (1969). *Freedom to learn*. Merrill Publishing.
- Rustianti, R., Putra, H., & Hidayat, T. (2025). Learner profiling and personalised counselling interventions within competency-based education. *Journal of Educational Development Studies*, 13(1), 88–104.
- Singh, P., & Kaur, J. (2024). Socio-emotional adjustment among adolescents across school contexts. *Journal of Indian School Psychology*, 18(1), 25–40.
- Sink, C. A., & Stroh, H. R. (2023). Comprehensive school counseling programs and student outcomes: Contemporary evidence and implications. *Professional School Counseling*, 27(1), 1–14. <https://doi.org/10.1177/2156759X231152487>
- Steinberg, L. (2017). *Adolescence* (11th ed.). McGraw-Hill Education.
- Tagat, A., Balaji, A., & Kapoor, H. (2025). The impact of life skills education on socio-emotional development and school-related outcomes among adolescents in India. *BMC Public Health*, 25, 759. <https://doi.org/10.1186/s12889-024-21195-0>
- Takizawa, Y., Bambling, M., Matsumoto, Y., Ishimoto, Y., & Edirippulige, S. (2023). Effectiveness of universal school-based social-emotional learning programs in

- promoting social-emotional skills, attitudes, positive social behaviours, and reducing emotional and conduct problems among Japanese children: A meta-analytic review. *Frontiers in Education*, 8, 1228269. <https://doi.org/10.3389/feduc.2023.1228269>
- Taylor, R. D., Oberle, E., Durlak, J. A., & Weissberg, R. P. (2017). Promoting positive youth development through school-based social and emotional learning interventions: A meta-analysis. *Child Development*, 88(4), 1156–1171. <https://doi.org/10.1111/cdev.12864>
- Thomas, E., & Dey, A. M. (2020). Role of school counselors and the factors that affect their practice in India. *Journal of School-Based Counseling Policy and Evaluation*, 2(1), 22–28.
- Vaithianathan, V., Kumar, S., & Rao, P. (2024). Institutionalising counselling and mental health support through curriculum reform in schools. *International Journal of Educational Reform*, 33(2), 188–205.
- Wadhvani, I. (2022). Students' attitudes towards school guidance and counselling services in India. *International Journal for Innovative Research in Multidisciplinary Field*, 8(6), 179–187.
- World Bank. (2023). Ending learning poverty and supporting socio-emotional development in schools. World Bank Group. World Bank Education

A Study of the Attitude of Primary Teachers towards Activity Based Learning Programme in Relation to Gender and Locality

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Abstract

The National Education Policy (NEP) 2020 emphasises competency-based and experiential learning approaches in order to move beyond rote learning practices. Activity-Based Learning (ABL) is an important learner-centred approach that actively engages students in meaningful learning experiences through participation in various classroom activities. The present study was conducted to examine the attitude of primary teachers towards Activity Based Learning Programme in relation to gender and locality variables. The study adopted the descriptive survey method. The sample comprised 800 primary teachers selected randomly from Rohtak and Jhajjar districts of Haryana. A self-developed attitude scale was used for data collection. The collected data were analysed using Mean, Standard Deviation and independent sample t-test as parametric statistical techniques. The findings of the study revealed that no significant difference existed in the attitude of primary teachers towards ABL Programme with respect to district, gender and locality variables. The study indicates that teachers generally possess similar attitudes towards the implementation of Activity Based Learning in primary schools. The findings of the study may be useful for strengthening learner-centred teaching practices and effective implementation of NEP 2020 at the elementary level.

Keywords: Competency-based learning, Experiential learning, Activity Based Learning, Attitude, Primary Teachers

Introduction

Indian culture is considered to be the oldest culture of the world. Big centres of education were established here. The real meaning of education is to make a man human and to make life progressive, cultural and civilized. It is very important for the growth of the individual and the society. It is through education that man develops his thinking power and reasoning power, problem solving and intellect, talent and inclination, positive emotions and skills and good values and interests. It is through

this that he keeps learning human current affairs, morality and something new every day and every moment.

Education determines the direction and condition of a country and society. Education is not only the key to human development but also a means to move towards the overall liberation and self-reliance of children. Education does the work of giving values to children through mother, father, society and teacher. It opens the doors of the conscience of man, gives

knowledge of right and wrong, justice and injustice. Education is the backbone of the strong development of the country.

It is a valid principle of modern psychology that the things learnt in childhood, the habits formed in childhood are not forgotten or changed throughout life. This is the time when the foundation of becoming a citizen for the society is laid. It is an eternal truth that no one is a criminal by birth, that is, a person with a dangerous tendency for the society is not born but circumstances make him so. Such circumstances arise due to illiteracy or lack of proper education. This means that when the society is facing the ill-effects of man's criminal tendencies today, it can be removed through the spread of proper education. Therefore, since ancient times, education scholars have been in favour of paying special attention to providing socially useful education to children of this age, that is, 6-14 years. By moving in the direction received at this time, the learners can be prepared as good citizens for the future.

Parents are the first teachers of the child and their authority is also superior to other teachers provided they have the ability to teach. For primary education it is necessary that the child's parents should be well educated. But this is not the situation right now. The main objective of primary education is to ensure healthy and all-round development of the child. Along with this, his emotions have to be developed in such

a way that he can be prepared as a healthy, aware citizen in the national interest.

Many measures were taken for the progress of primary education in independent India. Under Article 45 of the Indian Constitution, the government has been directed to ensure free and compulsory education for children up to 14 years of age under the Directive Principles of State Policy. Various efforts have been made from time to time to ensure qualitative growth in education. In these, education has been made a subject of the Concurrent List from the State List by the 42nd Constitutional Amendment, that is, the responsibility of providing education will be of both the Central and State Governments and many commissions have been formed, many organizations and institutions have been established and various programmes and schemes have also been conducted. All these have a positive impact on our school education. Apart from these, many programmes are being run with private participation for quality education. In this sequence, 'Activity-Based Learning Program' (ABL) has been started. ABL programme is completely activity-based programme.

Activity Based Learning (ABL)

Through various efforts, Sarva Shiksha Abhiyan is committed to ensure enrollment and retention of children (boys and girls) and quality education under primary education in the state. One

such effort in the series of these efforts of Sarva Shiksha Abhiyan is Activity Based Learning Program. It is an activity-based teaching process in which learning of children is ensured through activities. In this process of teaching and learning, teaching is done by considering each child as the centre. The belief that every child is important, each child has his own pace of learning and the pace of learning and freedom is the need of every child, is the main basis of this process. Every child is important in the learning process. The child should be provided with opportunities to learn by doing it himself according to his pace, interest and level. With the aim of ensuring quality education, Activity Based Learning (ABL) programme was developed through Sarva Shiksha Abhiyan. With the objective of ensuring quality education, the Department of Elementary Education, NCERT, New Delhi and department through various NGOs have provided an enhanced Activity-Based Learning (ABL) kit.

Need for Activity Based Learning (ABL) Programme

1. There is a need to strengthen the foundation of primary education by paying special attention to children.
2. There is a need to make the process of teaching-learning child-centred and enjoyable.
3. There is a need to work with children according to their pace and level.

4. Children should be able to acquire abilities according to the curriculum.
5. Children's involvement in schools should increase, their enrolment and retention should be ensured.

Objectives of Activity Based Learning (ABL) Programme

1. To strengthen the foundation of primary education.
2. To ensure child-centred learning.
3. To make the students ready to learn.
4. To make teaching easy, simple, enjoyable and interesting.
5. To ensure quality teaching process.
6. To make the classroom process activity-based.
7. Providing children with ample opportunities to learn by doing.

Need and Significance of the Study

Before doing research on any problem, it is necessary to see what benefit that study will have to human society from different perspectives. There is no point in taking the risk of spending your time and money by working on any unimportant subject. Today, in this era of liberalism and globalization, when it is being felt that the whole world is becoming a community, then the education system also cannot keep itself away from this era. Therefore, new global standards of education are being established. The Indian education system is one of the oldest education systems in the world. After independence, the Indian

government made many efforts to bring about radical changes in the education system and to take the newly aspiring society to heights. Under this, various types of education programmes were announced. In every situation, efforts were made that the light of education should not be limited to only big cities but it should also reach far-flung villages. However, more than 70 years have passed since the country got independence. This is the time when we should see to what extent the strategy and methodology thought of by our educationists have proved fruitful. Through this research, an attempt has been made to know the attitude of teachers towards "Activity-Based Learning Programme", one of the schemes run by the government in the field of education (elementary education).

Statement of the Problem

“A Study of the Attitude of Primary Teachers towards Activity Based Learning Programme in Relation to Gender and Locality”

Definition of Key Terms

Attitude : Attitude refers to the opinions, feelings and predispositions of primary teachers towards the implementation of Activity Based Learning Programme in classroom teaching.

Activity Based Learning (ABL) : Activity Based Learning is a learner-centred teaching-learning approach in which students actively participate in various educational activities for meaningful learning experiences.

Primary Teachers: Primary teachers refer to teachers teaching students from classes I

to V in government primary schools.

Objectives of the Study

1. To study the attitude of primary teachers towards Activity Based Learning Programme.
2. To compare the attitude of primary teachers towards Activity Based Learning Programme with respect to district.
3. To compare the attitude of primary teachers towards Activity Based Learning Programme with respect to gender.
4. To compare the attitude of primary teachers towards Activity Based Learning Programme with respect to locality.

Hypothesis of the Study

1. There is no significant difference in the attitude of primary teachers towards Activity Based Learning Programme with respect to district.
2. There is no significant difference in the attitude of primary teachers towards Activity Based Learning Programme with respect to gender.
3. There is no significant difference in the attitude of primary teachers towards Activity Based Learning Programme with respect to locality.

Research Methodology

Method: The present study employed the descriptive survey method to examine the attitude of primary teachers towards Activity Based Learning Programme.

Population: The population of the present study comprised of Primary teachers of Haryana.

Sample: The sample comprised of 800 Primary teachers of Haryana state from Rohtak and Jhajjar districts. (400 from Rohtak and 400 from Jhajjar district)

Tool Used: A self-developed attitude scale prepared by the researcher was used for data collection. The scale consisted of items related to teachers' perceptions and attitudes towards Activity-Based Learning

Programme. Higher scores on the scale indicated more favourable attitudes towards Activity-Based Learning Programme.

Statistical Tools used: The collected data were analysed using descriptive statistics (mean and standard deviation) and inferential statistics (independent-samples t-test).

Analysis of Data

Table 1
Comparison of Attitude of Primary Teachers towards Activity Based Learning Programme by District

District	N	Mean	Standard Deviation	t- Value
Rohtak	400	139.06	26.18	0.94**
Jhajjar	400	140.86	27.71	

**** Not Significant**

Table 2
Comparison of Attitude of Primary Teachers towards Activity Based Learning Programme with respect to Gender

District	N	Mean	Standard Deviation	t- Value
Rohtak	400	139.20	26.41	0.63**
Jhajjar	400	140.72	27.09	

**** Not Significant**

Table 3
Comparison of Attitude of Primary Teachers towards Activity Based Learning Programme with respect to Locality

Locality	N	Mean	Standard Deviation	t- Value
Urban	400	142.01	27.66	0.52**
Rural	400	139.95	25.96	

**** Not Significant**

Findings of the Study

1. Overall Attitude towards ABL Programme (Objective 1)

The primary objective was to study the general attitude of primary teachers towards the Activity-Based Learning (ABL) Programme. The mean scores obtained from the attitude scale for all groups (Rohtak: 139.06; Jhajjar: 140.86; Urban: 142.01; Rural: 139.95) are significantly high. This indicates that primary teachers generally possess a highly favorable and positive attitude towards the implementation of Activity Based Learning in schools.

2. Comparison by District (Objective 2)

No significant difference was found in the attitude of primary teachers with respect to their district.

Data Summary: The mean score for Rohtak district was 139.06 (\$SD=26.18\$) and for Jhajjar district was 140.86 (\$SD=27.71\$).

Statistical Result: The calculated t-value of 0.94 is lower than the critical table values at both 0.05 and 0.01 levels of significance.

Conclusion: The null hypothesis was accepted, indicating that teachers from both districts share similar views on ABL.

3. Comparison by Gender (Objective 3)

The study revealed no significant difference in the attitude of primary teachers based on gender.

Data Summary: Female teachers (listed under Jhajjar in Table 2) showed a mean of 140.72, while male teachers (listed under Rohtak in Table 2) showed 139.20.

Statistical Result: The calculated t-value of 0.63 is not significant.

Conclusion: Both male and female teachers positively accept activity-oriented teaching

practices.

4. Comparison by Locality (Objective 4)

No significant difference was found in the attitude of primary teachers regarding their locality (Urban vs. Rural).

Data Summary: Urban teachers had a mean score of 142.01 (\$SD=27.66\$), while rural teachers had a mean of 139.95 (\$SD=25.96\$).

Statistical Result: The calculated t-value of 0.52 is lower than the table value, indicating no significant difference.

Conclusion: The Activity Based Learning Programme has achieved relatively uniform acceptance among both urban and rural teachers.

Discussion of Results

The present study was conducted to examine the attitude of primary teachers towards Activity Based Learning Programme with respect to district, gender and locality variables. The mean scores obtained by primary teachers indicate that teachers generally possessed favorable attitudes towards Activity Based Learning Programme. The findings suggest that teachers positively accepted activity-oriented and learner-centred teaching practices at the primary level.

The findings of the study revealed that no significant differences existed among primary teachers with respect to district, gender and locality variables. The obtained t-values in all the comparisons were found to be not significant at 0.05 level of significance. This indicates that demographic variables did not significantly influence teachers' attitudes towards

Activity-Based Learning Programme.

The absence of significant differences among teachers belonging to different demographic groups suggests that Activity Based Learning Programme has achieved a relatively uniform acceptance among primary teachers. One possible reason for such similarity may be the implementation of common educational policies, teacher training programmes and standardised classroom practices in government primary schools under Sarva Shiksha Abhiyan and NEP 2020 initiatives.

The findings further indicate that teachers increasingly recognise the importance of experiential and learner-centred pedagogy in improving classroom interaction, student participation and meaningful learning experiences. Activity Based Learning helps students to learn through active participation, classroom activities and practical experiences rather than rote memorisation. Therefore, teachers may perceive Activity-Based Learning as an effective approach for enhancing the quality of primary education.

The findings of the present study support the vision of National Education Policy 2020, which emphasises competency-based learning, experiential learning and child-centred pedagogy at the elementary level. The study also highlights the importance of creating classroom environments where children actively participate in the learning process according to their interests, pace and abilities.

The results of the present study are in agreement with earlier studies conducted by Fouzia Anwar (2019), H. C. Celik

(2018), and Shah and Rahat (2014), which reported positive acceptance and usefulness of activity-based teaching methods in improving classroom participation, motivation and learning experiences among students.

Educational Implications of the Study

1. The findings of the study indicate that primary teachers generally possess favourable attitudes towards Activity Based Learning Programme irrespective of district, gender and locality variables.
2. The study suggests that Activity Based Learning strategies can be implemented effectively in both rural and urban primary schools without major demographic barriers.
3. The findings support the objectives of National Education Policy 2020, which emphasises competency-based learning, experiential learning and learner-centred pedagogy at the elementary level.
4. Positive teacher attitudes towards Activity Based Learning may contribute to improved classroom interaction, active student participation and meaningful learning experiences among primary school students.
5. Teacher education institutions such as NCERT, SCERT and DIETs should organise regular workshops, orientation programmes and in-service training programmes for strengthening teachers' competencies

- regarding activity-based and experiential teaching methods.
6. Schools should be provided with adequate teaching-learning materials, activity kits and classroom resources for the effective implementation of Activity Based Learning practices.
 7. School heads and educational administrators should encourage teachers to adopt innovative, participatory and child-centred teaching strategies in classroom practices.
 8. Activity-based pedagogical practices should be integrated systematically into teacher education programmes for improving the quality of elementary education.
 9. The findings of the study may be useful for curriculum planners, educational administrators and policy makers in designing programmes related to quality improvement in primary education.

Conclusion

The present study was conducted to examine the attitude of primary teachers towards Activity Based Learning Programme with respect to district, gender and locality variables. The findings of the study revealed that primary teachers generally possessed favourable attitudes towards Activity Based Learning Programme. No significant differences were found in teachers' attitudes with respect to district, gender and locality variables.

The study indicates that Activity Based Learning is being positively

accepted by primary teachers as an effective learner-centred and experiential teaching approach. The findings further suggest that demographic variables do not significantly influence teachers' attitudes towards the implementation of Activity Based Learning practices in primary schools.

The study highlights the educational significance of Activity Based Learning in promoting classroom participation, experiential learning and meaningful learning experiences among students. The findings also support the vision of National Education Policy 2020 for strengthening competency-based and child-centred education at the elementary level.

Suggestions for future research

On the basis of the research presented by the researcher, the following topics have been conceived in the concerned area, about which study is possible and the world of education can benefit a lot in this field :

1. This research work has been done on only 800 teachers, it can also be done on a larger sample.
2. In this research, Rohtak and Jhajjar districts have been taken, other districts of the state can be taken in it.
3. In this research, only the attitude of teachers has been studied, apart from this, the attitude of parents and children can be studied.
4. An experimental study can be conducted of the educational level of students of classes in which ABL programme is running and not running.
5. In this research, only the attitude of teachers has been studied, apart from

this, the enrolment ratio of children can be studied.

References

- Ahlfeldt, S., Mehta, S., & Sellnow, T. (2005). Measurement and analysis of student engagement in university classes where varying levels of PBL methods of instruction are in use. *Higher Education Research and Development*, 24(1), 5–20.
- Anwar, F. (2019). The effect of activity-based teaching techniques on student motivation and academic achievement. *Journal of Education and Educational Development*, 6(1), 154–170.
- Celik, H. C. (2018). The effects of activity-based learning on sixth grade students' achievement and attitudes towards mathematics activities. *Eurasia Journal of Mathematics, Science and Technology Education*, 14(5), 1963–1977.
- Harfield, T., Davies, K., Hede, J., Panko, M., & Kenley, R. (2007). Activity-based teaching for Unitec New Zealand construction students. *Emirates Journal for Engineering Research*, 12(1), 57–63.
- Mehra, R. K. (2018). From traditional to experiential learning: John Dewey's reformatory approach. *BSSS Journal of Education*, 7(1), 15–25.
- Patel, A. B. (2024). Attitude of teachers towards activity based learning in relation to certain variables. *BSSS Journal of Education*, 13(1), 40–47.
- Shah, I., & Rahat, T. (2014). Effect of activity-based teaching method in science. *International Journal of Humanities and Management Sciences*, 2(1), 39–41.

Classroom Silence: Investigating the Fear of Speaking among High School Students in South Kamrup area of Kamrup District, Assam

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Abstract

Classroom participation through verbal expression is a key component of effective learning, yet many high school students remain silent due to fear of speaking in class. This study investigates the extent, causes and variations of this fear among students in South Kamrup, Assam. The research employed a descriptive survey design, using both quantitative and qualitative methods. Data were collected from 150 high school students (Classes IX and X) through a structured questionnaire, and from 20 high school teachers through semi-structured interviews. The findings reveal that approximately 68% of students experience moderate to high levels of fear when speaking in class. The most prominent factors contributing to this fear include fear of making mistakes (74%), lack of self-confidence (67%), fear of peer judgement (61%), and negative teacher reactions (55%). The study found significant gender-based differences, with female students reporting higher levels of fear than male students. Additionally, an inverse relationship was observed between academic performance and fear—students with lower academic scores exhibited greater fear of speaking. Teacher interviews highlighted peer pressure, language anxiety, cultural norms, and teacher behaviour as key influences on students' speaking confidence. Both students and teachers suggested that supportive classroom environments, encouragement from teachers, group activities and the avoidance of public criticism could help mitigate this fear.

Keywords: *Fear of speaking in class, high school students, South Kamrup, academic performance, gender*

Introduction

Effective communication is a cornerstone of the educational process. In a classroom setting, students are expected not only to listen and comprehend but also to actively participate by asking questions, engaging in discussions, and presenting their thoughts. However, a significant number of students remain silent, hesitant or anxious when it comes to speaking in front of their peers and teachers. This phenomenon, often described as "fear of speaking in class," is

a critical but underexplored issue in the context of school education.

Fear of speaking in class is a form of communication apprehension or classroom anxiety that affects students' willingness to express themselves verbally. This fear can stem from various sources, such as low self-esteem, fear of judgement, language barriers, past negative experiences, peer pressure, or a lack of supportive classroom environment.

This fear of speaking in class not only hampers a student's personal development but also affects the teaching-learning process. Teachers may misinterpret silence as disinterest or lack of preparation, when in fact it may be rooted in psychological distress or anxiety. Addressing this issue requires understanding its root causes and identifying the specific challenges students face in expressing themselves in class.

Given the growing emphasis on holistic and inclusive education, it is vital to explore and understand this phenomenon from a ground-level perspective. This study, therefore, aims to investigate the prevalence and causes of fear of speaking in class among high school students in the South Kamrup area. By shedding light on this silent barrier to learning, the research hopes to contribute to more inclusive, empathetic, and learner-friendly educational practices in high schools across Assam and beyond.

Literature review

Some of the related literatures on fear of speaking in the classroom are stated below:

Bourhis, Allen, & Bauman (2006) found that students often refrain from asking questions or engaging in discussions due to fear of embarrassment or peer ridicule. Singh (2016) studied students in North India and found that fear of speaking was more prevalent among female students, those from rural backgrounds, and those studying in second-language (English-medium) environments. Sharma and Das (2019) focused on Assamese school

students and found that students from tribal and economically weaker sections exhibited greater classroom silence, often due to linguistic barriers and lack of self-confidence. Goswami (2020) conducted research in the Kamrup district and found that many high school students feel anxious about expressing themselves due to fear of being judged, scolded, or laughed at—especially in large classrooms.

While national-level studies exist, limited research is available on high school students from rural or semi-urban areas like South Kamrup, Assam. This study aims to fill that gap by providing localized insights into the causes and implications of fear of speaking in class.

Rationale of the study

The ability to speak confidently in a classroom setting is an essential component of effective learning and overall academic development. In today's education system, student participation is not only encouraged but expected as part of active learning methodologies such as group discussions, debates, presentations, and peer interactions. However, a considerable number of students, especially in rural and semi-urban areas like South Kamrup in Assam, remain silent in classrooms due to a persistent fear of speaking. This silence often goes unnoticed or is misunderstood by teachers, leading to further disengagement of students from the teaching-learning process.

Despite possessing the required knowledge or understanding of a subject, students may refrain from speaking due

to anxiety, shyness, fear of judgement, fear of making mistakes, or negative past experiences. This fear can hinder their confidence, limit their classroom engagement, and adversely affect their academic performance and future communication skills. Furthermore, in traditional classroom settings where teacher-centred approaches still dominate, there is little room for open dialogue and student expression. This results in many students, particularly those from underrepresented or disadvantaged backgrounds, feeling excluded or discouraged from participating.

The South Kamrup area presents a unique context for studying this issue due to its mix of urbanizing environments and traditional rural educational settings. Cultural expectations, gender roles, socio-economic status, and linguistic diversity in this region may further influence the nature and intensity of students' fear of speaking in class. Yet, very few empirical studies have been conducted in this area to systematically understand this phenomenon and its underlying factors.

The rationale of this study lies in addressing a hidden yet critical aspect of classroom dynamics that directly impacts students' academic and personal development. The findings of this research are expected to inform future educational practices and interventions that promote confident communication and active participation among high school students in Assam.

Objectives of the study

1. To investigate the extent of fear of

speaking in class among high school students in South Kamrup.

2. To identify the factors contributing to this fear.
3. To examine any differences in fear levels based on gender and academic performance.
4. To suggest strategies to reduce fear and encourage active classroom participation.

Hypotheses of the Study

1. There is a significant difference in fear of speaking in class between male and female students.
2. Students with lower academic performance experience higher fear of speaking in class.

Methodology

- a) Research Design:** The present study is descriptive and survey-based in nature under mixed method research. A descriptive survey design has been chosen to collect data from a large number of students to understand their level of fear, the factors contributing to it, and its effect on classroom participation.
- b) Population:** The population for this study consisted of all high school students (classes IX to X) studying in provincialized high schools located in the South Kamrup area of Assam.
- c) Sample and Sampling Technique:** A total of 150 students were selected as the sample from 10 Provincialized high schools for the study using a stratified random

sampling technique. The sample was stratified based on gender (Male and Female), and academic performance level (four categories based on last examination results) to ensure representation from different demographic groups. Additionally, 20 high school teachers were interviewed informally to gain qualitative insights into classroom dynamics and student behaviour.

d) Tools for Data Collection: To collect relevant data, the following tools were used:

- **Self-constructed Questionnaire for Students:** A structured questionnaire containing 10 Likert-scale items and 5 open-ended questions was used to assess the students' fear of speaking in class, its causes and its impact. The questionnaire was validated by subject experts and piloted be-

fore final administration.

- **Interview Schedule for Teachers:** A semi-structured interview schedule with 10 questions was developed for teachers to gather their observations and perceptions about students' speaking behaviours and possible classroom factors contributing to fear.

- e) **Techniques of Data Analysis:** Quantitative data (from the Likert-scale items) were analysed using descriptive statistics like percentages. Qualitative data (the responses collected from the teacher interviews) were analysed using thematic analysis.

Analysis and Interpretation

In this study, both quantitative and qualitative data were analysed using appropriate techniques in the following manner:

Table 1
Level of Fear of Speaking in Class among High School Students

Fear Level	Number of Students (N=150)	Percentage (%)
High Fear	52	34.7%
Moderate Fear	68	45.3%
Low Fear	30	20.0%
Total	150	100%

The table 1 shows that a significant portion (34.7%) of students reported high fear, while 45.3% had moderate fear. Only

20% had low fear. This implies that a large majority feel anxious or hesitant about speaking in class.

Table 2
Factors Responsible for Fear of Speaking in Class

Factors	Agree (%)	Neutral (%)	Disagree (%)
Fear of being judged by peers	61%	20%	19%
Lack of self-confidence	67%	18%	15%
Fear of making mistakes	74%	16%	10%
Negative teacher reaction	55%	24%	21%
Poor communication skills	48%	30%	22%
Language barrier (e.g., English or Assamese)	40%	28%	32%

The above table reveals the factors responsible for fear of speaking in class and found that top contributing factor was fear of making mistakes (74%), followed by lack of self-confidence (67%) and fear of being judged by peers (61%). These internal psychological barriers appear stronger than

external ones. Negative teacher reactions (55%) and poor communication skills (48%) were also influential. Language barriers were noted by 40% of students, highlighting the challenge of instruction in second languages.

Table 3
Variation in Fear of Speaking in Class among Students based on Gender

Gender	High Fear	Moderate Fear	Low Fear	Total Students
Male	20 (26.3%)	36 (47.4%)	20 (26.3%)	76
Female	32 (43.2%)	32 (43.2%)	10 (13.6%)	74

Table 3 shows that among female students, 43.2% reported high fear compared to 26.3% of male students.

Females also had a lower percentage in the “low fear” category.

Table 4
Influence of Academic Performance on Fear of Speaking in Class

Academic Performance	High Fear	Moderate Fear	Low Fear	Total Students
Below 40%	18 (60%)	9 (30%)	3 (10%)	30
40%–59%	20 (44.4%)	18 (40%)	7 (15.6%)	45
60%–79%	10 (22.2%)	25 (55.6%)	10 (22.2%)	45
80% and above	4 (10%)	16 (40%)	20 (50%)	40

Table 4 shows that students with below 40% mark had the highest level of fear (60%), followed by those in the 40–59% category (44.4%). On the other hand,

students scoring 80% and above reported the lowest fear levels, indicating a clear inverse relationship between academic performance and fear of speaking.

Table 5
Suggested Measures to Reduce Fear of Speaking in Class

Suggestions by Students	Frequency	Percentage (%)
Teachers should be more encouraging	58	38.7%
Group activities to build confidence	42	28.0%
More opportunities for speaking in class	36	24.0%
Avoid public scolding for mistakes	28	18.7%
Peer support and language practice sessions	22	14.7%

Students suggested that fear. Avoiding public scolding (18.7%) and encouragement from teachers (38.7%), offering peer support or language sessions group activities (28%), and more speaking (14.7%) were also highlighted. opportunities (24%) could reduce their

Table 6
Thematic Analysis of Teacher Interviews

Theme Code	Sample	Teacher Response (Quote)	Interpretation
Causes of Speaking Fear	Fear of negative judgment	Students fear that their friends will laugh at them if they say something wrong.	Peer pressure plays a strong role in inhibiting classroom participation.
Causes of Speaking Fear	Fear of making mistakes	They hesitate because they're scared of making mistakes, especially in English.	Fear of language errors is a major barrier.
Causes of Speaking Fear	Shyness/low confidence	Many students are too shy, especially when asked to read aloud or answer.	Personality traits such as introversion affect speaking behaviour.
Gender-based Differences	Girls less vocal	Girls generally speak less, especially in front of boys.	Cultural or social norms may restrict female students from speaking freely.
Gender-based Differences	Boys more outspoken	Boys usually speak up more, though not always correctly.	Boys may be encouraged to speak more despite errors.

Teacher's Role	Fear of punishment/criticism	They worry I'll scold them if they give the wrong answer.	Teacher reaction plays a direct role in students' willingness to speak.
Teacher's Role	Encouragement helps participation	When I praise or gently correct, students are more likely to try again.	Positive reinforcement increases classroom speaking.
Language Barriers	Weak in English	Many can't express themselves well in English, so they stay silent.	English as a second language poses a major fear factor.
Language Barriers	First-generation learners	Some students are first in their family to study in English-medium schools.	Socio-economic background contributes to communication fear.
Suggested Strategies	Group activities	Small group discussions help students open up more.	Collaborative environments reduce pressure to perform.
Suggested Strategies	Encouragement and patience	We need to give them more chances without immediate correction.	Supportive teaching practices can help break the silence barrier.

The above table presents a thematic analysis of the responses collected from high school teachers in South Kamrup, Assam. The data were coded according to emerging patterns and grouped into major themes related to the fear of speaking in class among students. Selected quotes from the teachers illustrate the core issues and inform potential interventions.

Teachers confirmed that peer pressure, language fear, shyness, and negative teacher behaviour all contribute to student silence. They emphasised the need for patience, group work, and positive reinforcement to encourage speaking. Gender and socio-economic background were identified as influencing factors.

Results and Discussion

- 68% of students reported moderate to high levels of fear of speaking in class.
- The most common causes of fear were:
 - Fear of making mistakes (74%)
 - Lack of self-confidence (67%)
 - Fear of being judged by peers (61%)
 - Negative teacher reactions (55%)
 - Poor communication skills and language barriers
- Peer pressure and fear of embarrassment were consistently noted by both students and teachers as key factors inhibiting participation.

4. Language barrier (English or Assamese) emerged as a prominent issue, especially among first-generation learners.
5. Fear was significantly higher among female students compared to male students.
6. Female students were found to be more hesitant, potentially due to social conditioning and co-educational dynamics.
7. Students with lower academic performance were more likely to experience high fear, while high-performing students reported less anxiety.
8. Supportive and encouraging teacher behaviour played a major role in reducing fear.
9. Students believed that group discussions, classroom encouragement, and eliminating public scolding would help them speak more freely.
10. Teachers recommended creating safe speaking spaces, using collaborative activities, and being gentle in corrections to boost students' confidence.

The findings of the present study offer significant insight into the phenomenon of fear of speaking in class among high school students of South Kamrup, Assam. The data reveal that a considerable proportion of students experience moderate to high levels of fear when asked to speak in class. This fear is not a superficial issue but one deeply rooted in a variety of psychological and environmental factors. For instance, fear of making mistakes, being judged by peers,

and a lack of self-confidence emerged as prominent contributors to this anxiety. The presence of such fear negatively affects the ability of students to express themselves, ask questions or participate in classroom discussions, which are all crucial components of holistic education.

Gender-based analysis of the data further reveals that female students tend to experience slightly higher levels of fear compared to their male counterparts. This observation could be influenced by socio-cultural factors that discourage assertive behaviour among girls, especially in rural or semi-urban settings like South Kamrup. Additionally, the study found that students with lower academic performance were more likely to experience a higher degree of speaking fear, suggesting a cyclical relationship wherein poor academic achievement and fear of speaking reinforce each other. The academic consequences of such fear can be severe, as students who are hesitant to ask questions or clarify doubts may continue to lag behind in their studies. Hence, both hypotheses are accepted in this research.

Moreover, language barriers—particularly in English and, at times, even in Assamese—further compound the problem. Students who are not confident in their linguistic abilities often hesitate to speak due to fear of grammatical mistakes or pronunciation errors, leading to embarrassment or ridicule. Teacher behaviour also plays a crucial role; students reported that discouraging remarks or public criticism by teachers intensified their fear of speaking. In contrast, students

expressed that encouraging and supportive classroom environments made them feel more comfortable and confident.

The study also brings attention to the importance of group activities, peer support, and safe speaking environments in overcoming speaking fear. Suggestions from students, such as being given more speaking opportunities, forming smaller discussion groups, and receiving constructive feedback instead of public correction, point to the need for pedagogical reforms. These findings collectively suggest that addressing the fear of speaking in classrooms requires a multidimensional approach that involves changes in teaching methods, classroom culture, and student support mechanisms. The results

underscore the need for schools, educators, and policy-makers to recognise classroom silence not as a sign of discipline or respect, but as a symptom of deeper issues that need urgent intervention for the academic and emotional well-being of students.

Conclusion

Fear of speaking in class is a significant emotional barrier for students, particularly in rural and semi-urban areas like South Kamrup. Addressing this issue requires a holistic approach involving teachers, peers, and school administrators. Cultivating a safe and encouraging environment can greatly enhance student participation and academic success.

Reference

- Bandura, A. (1977). *Social learning theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Baruah, A., & Ahmed, R. (2020). Language barriers and classroom participation: A study among Assamese high school students. *International Journal of Educational Research*, 38(2), 55–63.
- Bourhis, J., Allen, M., & Bauman, S. (2006). Communication apprehension: A meta-analysis of 60 studies. *Communication Education*, 55(3), 283–303. <https://doi.org/10.1080/03634520600879122>
- Chaudhury, M. (2018). Gender differences in classroom communication apprehension among rural adolescents. *Journal of Educational Psychology*, 12(1), 66–74.
- Goswami, D. (2020). Fear of speaking among high school students of Kamrup: A study of classroom dynamics. *Assam Journal of Educational Research*, 7(1), 22–30.
- Gupta, P., & Singh, A. (2021). Impact of speaking anxiety on student learning and academic performance. *Journal of Educational Psychology and Counseling*, 9(2), 45–58.
- Joshi, V. (2021). Creating safe classroom environments for verbal participation. *Indian Journal of Teacher Education*, 6(3), 19–26.
- Krashen, S. D. (1982). *Principles and practice in second language acquisition*. Pergamon Press.

- McCroskey, J. C. (1977). Oral communication apprehension: A summary of recent theory and research. *Human Communication Research*, 4(1), 78–96.
- Patel, M. (2018). Classroom communication and student anxiety: A study in Indian secondary schools. *Educational Quest*, 9(1), 40–47.
- Pathak, R. (2019). The role of teachers in reducing communication fear among high school students. *Journal of Pedagogical Research*, 3(4), 55–61.
- Sen, A. (2020). Peer-based learning as a tool to overcome speaking anxiety. *Journal of Innovative Teaching Strategies*, 4(2), 33–41.
- Sharma, S., & Das, K. (2019). Classroom participation and silence: A case study of tribal students in Assam. *Indian Educational Review*, 56(1), 62–72.
- Singh, R. (2016). Communication apprehension among school students: A study in the North Indian context. *Asian Journal of Educational Studies*, 3(3), 10–18.
- Thapa, R. (2017). Peer pressure and student silence in classroom settings. *Himalayan Education Journal*, 5(2), 25–34.
- Yadav, P. (2015). Self-esteem and classroom speaking anxiety: A correlational study. *Indian Journal of Psychology and Education*, 5(1), 29–35.

Gender Differences in Adjustment across Home, Health, Social, and Emotional Domains among Adolescents in Guwahati

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Abstract

This study investigates the gender-based variations in adjustment levels among school-going adolescents in Guwahati, Assam. Focusing on four critical domains—home, health, social, and emotional adjustment—the research utilised Bell's Adjustment Inventory (adapted by R. K. Ojha) to assess a sample of 200 students (100 boys and 100 girls). The findings reveal significant gender differences in home, health, and emotional adjustment, with boys generally demonstrating higher levels of adjustment than girls. However, no significant difference was observed in social adjustment. These results underscore the need for gender-sensitive psychological interventions to support adolescent development in urban Indian contexts.

Introduction

Adjustment is a dynamic and continuous process through which individuals navigate their environment to meet internal needs and external demands. It involves the harmonious integration of one's behaviour with the surrounding social and physical conditions. As James Drever noted, adjustment entails modifications intended to compensate for or meet specific conditions, making it an essential mechanism for human survival and psychological well-being. Individuals who successfully adapt to changing circumstances tend to lead more fulfilling lives, whereas those struggling with adjustment may experience heightened anxiety, depression, or personality disorders.

Adolescence represents a pivotal transitional phase between childhood and adulthood, characterised by rapid physical,

psychological, and cognitive shifts. The World Health Organization (WHO) defines this stage as occurring typically between the ages of 10 and 19. During this period, teenagers often grapple with biological changes and the evolving expectations of their social environment. Erikson's developmental stages further highlight the identity-seeking nature of this period, usually spanning ages 13 to 19. Given the intensity of these changes, the ability to adjust becomes a primary determinant of an adolescent's future mental health and social integration.

Rationale of the Study

The transition from childhood to adulthood is arguably the most volatile period of human development outside of infancy. Adolescents find themselves in a "liminal" space—no longer children, yet

not quite adults. The rapid bodily changes associated with puberty are inextricably linked to shifts in cognitive processing, emotional regulation, and social interactions. Consequently, maintaining equilibrium between personal needs and environmental expectations becomes a significant challenge.

Maladaptive behaviour established during adolescence often persists into adulthood, manifesting as chronic personality or behavioural disorders. While extensive research has explored adolescent adjustment, findings vary significantly based on geographical, cultural, and socio-economic contexts. Guwahati, the gateway to Northeast India, presents a unique demographic landscape. As a major urban hub with a diverse population of nearly one million, it offers a rich field for investigating how local upbringing and parenting styles influence adjustment. Despite its importance, there is a lack of localized research focusing specifically on gender differences in adjustment within this metropolitan area. This study aims to fill that gap by examining how adolescent boys and girls in Guwahati navigate their home, health, social, and emotional lives.

Methodology

Research Question

Is there a significant difference in the adjustment levels of adolescent boys and girls across various domains?

Objectives

1. To assess and compare the home adjustment levels of adolescent boys

and girls.

2. To evaluate and compare the health adjustment levels of both genders.
3. To examine and compare the social adjustment patterns between boys and girls.
4. To analyse and compare the emotional adjustment levels of adolescent students.

Hypotheses

- **H₁:** There is no significant difference between adolescent boys and girls in terms of home adjustment.
- **H₂:** There is no significant difference between adolescent boys and girls in terms of health adjustment.
- **H₃:** There is no significant difference between adolescent boys and girls in terms of social adjustment.
- **H₄:** There is no significant difference between adolescent boys and girls in terms of emotional adjustment.

Operational Definitions

- **Adjustment:** The capacity to adapt to physical and psychosocial changes during adolescence.
- **Home Adjustment:** The ability to maintain harmonious relationships within the family environment.
- **Health Adjustment:** Awareness of and adaptation to one's changing physical condition.
- **Social Adjustment:** The effectiveness of an individual's interactions within their broader social environment.
- **Emotional Adjustment:** The ability

to regulate internal emotional states in response to external stressors.

Participants and Sampling

The study involved 200 school-going adolescents (13–18 years) from Guwahati. A multi-stage sampling approach was used: schools were selected via purposive sampling, while individual participants were recruited through simple random sampling. The sample evenly split between boys (n=100) and girls (n=100) from various government and private institutions.

Data Collection Procedure

The researchers obtained formal permission from school authorities and provided a detailed orientation to the participants. The questionnaire was administered in a controlled setting, with assurances of anonymity and confidentiality. Participation was entirely

voluntary, and researchers were present to clarify any ambiguities during the process.

Research Instrumentation

- **Personal Information Sheet:** To collect demographic data (age, gender, school type).
- **Bell's Adjustment Inventory (R. K. Ojha):** A standardised tool consisting of four sub-scales (Home, Health, Social, and Emotional), each containing 35 "Yes/No" items. The inventory is recognised for its high reliability (split-half and test-retest) and established validity.

Results and Discussion

Domain-Specific Adjustment Levels

The descriptive analysis of the adjustment levels reveals striking differences between the genders across the four studied domains.

Table 1
Levels of Home Adjustment (%)

Level	Home	
	Gender	
	Boys	Girls
Excellent	2.5	0
Good	1	0
Average	22	23.5
Unsatisfactory	12.5	10
Very Unsatisfactory	12	16.5

As shown in Table 1, a small percentage of boys achieved "Excellent" or "Good" home adjustment, whereas no girls fell into these categories. While both groups showed a significant presence

in the "Average" category, a higher percentage of girls (16.5%) reported "Very Unsatisfactory" home adjustment compared to boys (12%).

Table 2
Levels of Health Adjustment (%)

Health		
Level	Gender	
	Boys	Girls
Excellent	0.5	0
Good	5.5	1.5
Average	22.5	9.5
Unsatisfactory	9.5	10.5
Very Unsatisfactory	12	28.5

In the health domain (Table 2), the disparity is even more pronounced. Over a quarter of the female participants (28.5%) reported “Very Unsatisfactory” health adjustment, more than double the rate of their male counterparts (12%). Boys were also significantly more likely to report “Average” or “Good” health adjustment.

Table 3
Levels of Social Adjustment (%)

Social		
Level	Gender	
	Boys	Girls
Excellent	0	0
Good	0	0
Average	4.5	0
Unsatisfactory	8.5	9.0
Very Unsatisfactory	37.0	41.0

Social adjustment (Table 3) and girls (41%) falling into the “Very Unsatisfactory” category. Neither gender appears to be a significant challenge for both genders in this sample, with the vast majority of both boys (37%) showed “Excellent” or “Good” levels of social adjustment.

Table 4
Levels of Emotional Adjustment (%)

Emotional		
Level	Gender	
	Boys	Girls
Excellent	0	0
Good	1.0	0
Average	9.0	1.0

Unsatisfactory	1.5	2.0
Very Unsatisfactory	38.5	47.0

Emotional adjustment (Table 4) followed a similar trend, with girls (47%) being more likely than boys (38.5%) to experience “Very Unsatisfactory” levels. Boys showed slightly better “Average” and “Good” adjustment levels than girls.

Hypothesis Testing and Comparative Analysis

The study utilised t-tests to determine the significance of the observed differences between genders.

Table 5
Levels of Emotional Adjustment (%)

Domain	Gender	Mean	S.D.	t-value	P-value	Result
Home	Boys	14.37	4.327	-2.080	0.039	Significant
	Girls	15.66	4.443			
Health	Boys	9.16	3.905	-5.596	0.000	Highly Significant
	Girls	12.41	4.300			
Social	Boys	18.23	4.904	-1.565	0.119	Not Significant
	Girls	19.34	5.114			
Emotional	Boys	18.76	6.733	-4.975	0.000	Highly Significant
	Girls	23.24	5.978			

Home Adjustment

The analysis revealed a significant difference in home adjustment ($p = 0.039$), leading to the rejection of H1. Boys demonstrated better home adjustment than girls. This finding aligns with research by Vishal and Kaji (2014), who also noted that adolescent boys often navigate domestic environments with fewer perceived constraints than girls in certain cultural contexts.

Health Adjustment

A highly significant difference was found in health adjustment ($p < 0.001$),

rejecting H2. Boys reported significantly better adjustment to their physical health than girls. This supports the findings of Sahu and Dewangan (2021), suggesting that adolescent girls may experience more distress or difficulty in adapting to the physiological changes of puberty compared to boys.

Social Adjustment

The study found no statistically significant difference in social adjustment between boys and girls ($p = 0.119$), failing to reject H3. Both genders struggled

similarly with social integration, indicating that the challenges of navigating social hierarchies and peer relationships in an urban environment like Guwahati affect adolescents regardless of gender.

Emotional Adjustment

The most pronounced difference was observed in emotional adjustment ($p < 0.001$), rejecting H4. Girls scored significantly higher on the inventory (indicating poorer adjustment) than boys. While some studies, such as Bhagat (2016), have found girls to be more emotionally adjusted, our findings suggest that in the specific context of Guwahati, adolescent girls may face higher emotional stressors or have fewer effective coping mechanisms than their male peers.

Conclusion

This study highlights that gender plays a crucial role in how adolescents in Guwahati adjust to the changes in their lives. Boys generally exhibited better adjustment in the home, health, and emotional domains. Social adjustment remains a universal challenge for both genders in this urban setting. These findings suggest a critical need for school-based counselling programmes that are tailored to the specific emotional and physical health needs of adolescent girls. Furthermore, the high rates of unsatisfactory social adjustment across the board indicate a broader need for social skills training and peer support systems within the educational framework of Guwahati.

References

- Agarwal, A. (2014). Adjustment, Emotional Control and Perceived Loneliness among Adolescents. *International Journal of Indian Psychology*, 1(4), 129-135.
- Agarwal, A., Kaul, N., & Gandhi, N. (2017). A Comparative Study of Adjustment between Boys and Girls at Undergraduate Level. *International Journal of Indian Psychology*, 4(4).
- Azuji, I., & Nwanna, U. (2019). Elements of Adjustment Process in Adolescents: Suggestions for Counselling. *International Journal of Research and Innovation in Social Science*, 456-462.
- Babasaheb, R. R. (2019). A study of adjustment among male and female college going students. *International Journal of Indian Psychology*, 7(4), 1071-1080.
- Bhagat, P. (2016). Comparative study of adjustment among secondary school boys and girls. *International Journal Applied Research*, 2(7).
- Boro, B. (2017). Adjustment problems of secondary school students of Gorkha community with respect to gender-A study. *International Journal of Applied Research*, 3(8), 341-344.
- Brass, N., McKellar, S.E., North, E. A., & Ryan, A.M. (2019). Early adolescents' adjustment at school: A fresh look at grade and gender differences. *The Journal of Early Adolescence*, 689-716.
- Chaube, P.S. (2011). *Developmental Psychology*. Neel Kamal Publications Pvt. Ltd.
- Chauhan, V. (2013). A study on adjustment of higher secondary school students of Durg district. *IOSR Journal of Research & Method in Education*, 1(1), 50-52.

- Curtis, A. C. (2015). Defining adolescence. *Journal of Adolescent and Family Health*, 7(2).
- Daniel, E. (2013). Adjustment among School going Adolescents: A Study in Kunnathur village, Annur Block (Coimbatore District). *International Journal of Humanities and Social Science Invention*, 2(1), 7-12.
- Gehlawat, M. (2011). A study of adjustment among high school students in relation to their gender. *International Referred Research Journal*, 3(33).
- Gill, S. (2014). Emotional, Social and Educational Adjustment of Visually Handicapped Students of Special Schools Students. *International Journal of Scientific and Research Publications*, 4(3).
- Kasundra, R. J., & Singh, I. S. (2020). Adjustment among secondary school Students in relation to their gender and residence area. *International Journal of Indian Psychology*, 8(2), 719-725.
- Koul, L. (2009). *Methodology of Educational Research*. Vikash Publishing House Pvt Ltd.
- Lalima, & Prasad, S. (2019). A Comparative Study of the Adjustment of the Female and Male Students Studying at Higher Secondary Level. *TechnoLEARN: An International Journal of Educational Technology*, 9(2), 101-109.
- Mangal, S. K. (2011). *Advanced Educational Psychology*. PHI Learning Pvt. Ltd.
- Mozumdar, T., & Phookan, B. I. (2019). Adjustment among Adolescents of Guwahati City in Relation to Gender and Religion. *IRA-International Journal of Management & Social Sciences*.
- Ojha, R. K. (2006). *Manual for Bell's Adjustment Inventory*. National Psychological Corporation.
- Raju, M.V.R., & Rahamtulla, T.K. (2007). Adjustment Problems among School Students. *Journal of the Indian Academy of Applied Psychology*, 33(1), 73-79.
- Sekar, J. M. A., & Lawrence, A. S. A. (2016). Emotional, Social, Educational Adjustment of Higher Secondary School Students In Relation to Academic Achievement. *i-manager's Journal on Educational Psychology*, 10(1), 29-35.
- Sahu, U., & Dewangan, J. (2021). A comparative study of adjustment between boys and girls at undergraduate level. *Scholarly Research Journal for Inter-Disciplinary Studies*, 14824-14835.
- Tripathy, M., & Sahu, B. (2018). Gender: It's Effect on Adjustment Level of High School Students. *New York Science Journal*, 11(2), 88-91.
- Thanikaivel, M., & Priya, K. (2016). Adjustment problems among School going Adolescent Students. *EPRA International Journal of Multidisciplinary Research*, 2(8).
- Vishal, P., & Kaji, S. M. (2014). Adjustment of boys and girls school level students in Ahmedabad. *The International Journal of Indian Psychology*, 2(1), 31-37.

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