



Factors affecting the implementation of inclusive education in schools: Evidence from Rajasthan

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Abstract

This study examined the key factors influencing the implementation of inclusive education in schools across Rajasthan. Adopting a quantitative, descriptive-correlational research design, data were collected from 200 teachers, school administrators, and special educators using a structured questionnaire based on a five-point Likert scale. The instrument was developed through an extensive review of literature and validated through expert feedback and pilot testing. Reliability analysis indicated satisfactory internal consistency across constructs. Exploratory Factor Analysis (EFA) using Principal Component Analysis with Varimax rotation was conducted to identify the underlying dimensions of inclusive education practices. The Kaiser–Meyer–Olkin (KMO) value of 0.926 and a significant Bartlett's Test of Sphericity ($\chi^2 = 2067.902$, $p < .001$) confirmed the suitability of the data for factor analysis. The analysis resulted in a four-factor solution explaining 66.091% of the total variance. The extracted factors were identified as Teacher Competency and Professional Readiness, Administrative and Policy Support, Infrastructure and Resource Support, and Parental Awareness and Involvement. The findings indicate that inclusive education is influenced by a multidimensional framework involving professional, institutional, infrastructural, and familial components. The study provides empirical insights for policymakers, educators, and administrators to strengthen inclusive practices and promote equitable educational opportunities for children with disabilities in Rajasthan.

Keywords: Inclusive education, teacher competency, administrative support, educational infrastructure, parental involvement, special education

Introduction

Inclusive education embodies the educational principle that all children regardless of ability, disability, socio-economic background, language, or gender have a fundamental right to learn together in the same classrooms, with necessary supports to enable full participation and learning (human rights premise). At its core, inclusive education seeks not merely physical placement in mainstream schools but transformative pedagogical and systemic changes that ensure equitable access, relevant curriculum, and meaningful participation for every learner especially children with disabilities thereby aligning with Sustainable Development Goal 4, which emphasizes inclusive and equitable quality education for all (global education agenda).

In the Indian context, inclusive education has evolved as a priority in both legislative frameworks and educational policy discourses. The Rights of Persons with Disabilities (RPWD) Act, 2016 legally guarantees free and compulsory education for children with disabilities in neighbourhood schools and mandates reasonable accommodations to support their learning (statutory assurance). Similarly, the National Education Policy (NEP) 2020 reinforces equity and inclusion by promoting barrier-free access, individualized instructional support, and teacher training initiatives aimed at addressing diverse learner needs (Singal, 2008) [17]. Despite these progressive mandates, the translation of inclusive ideals into effective classroom practices remains uneven and challenging in Indian schools.

Research highlights multiple systemic issues that affect the quality of inclusive education implementation in India. A recent systematic review identified critical factors overlooking inclusive education success, including inadequacy of infrastructure, rigid curriculum, non-inclusive pedagogy, shortage of specially-trained teachers, and

attitudinal differences among educators, parents, and peers (Kumari, Bika & Bhesera, 2024) [12]. These findings echo field studies reporting insufficient trained teachers and learning resources, constraining inclusive learning environments, and societal unawareness and stigma that further hinder access and participation of children with special needs (Das & PaltaSingh, 2024) [6]. Teacher competence and attitudes emerge as central determinants in shaping inclusive classroom effectiveness. Positive teacher attitudes, preparedness, and pedagogical flexibility significantly influence the academic and social engagement of learners with disabilities, while lack of adequate training limits teachers' ability to adopt differentiated instructional strategies and inclusive practices (scholarship on attitudes and training). Moreover, infrastructural barriers, such as inaccessible classrooms, absence of ramps and assistive facilities, and insufficient teaching-learning materials, are widely documented as persistent obstacles in implementing inclusive education, particularly in resource-constrained and rural schools (Ainscow, M. 2005) [2].

Parental and community factors also play a vital role in shaping inclusion outcomes. Awareness and involvement of parents regarding educational rights and supportive practices are linked to improved participation and academic success of children with disabilities (Avramidis & Norwich, 2002) [3]. Conversely, lower awareness and entrenched social stigma contribute to exclusionary attitudes and reduced engagement in inclusive settings. Social perceptions of disability and education fundamentally influence school cultures and reinforce barriers to meaningful inclusion. Beyond human attitudes and infrastructure, assistive technologies and adaptive learning strategies are increasingly recognized as critical enablers of inclusive pedagogies, facilitating individualized access and engagement for learners with diverse needs. Without access

to such materials and digital support systems, inclusion risks being reduced to physical co-location rather than substantive educational participation (Sharma *et al.*, 2012) ^[16]. Given these multifaceted challenges, it is crucial to investigate the factors affecting inclusive education from an empirical perspective to inform evidence-based interventions and policy refinements. This study seeks to examine how teacher-related factors, infrastructure, administrative support, parental awareness, societal attitudes, and resource availability influence the quality and effectiveness of inclusive education in Indian schools (Forlin *et al.*, 2014) ^[8]. By articulating the interplay of these determinants, the research aims to contribute actionable insights for policymakers, educators, and school leaders to strengthen inclusive practices that uphold equity and academic excellence for all learners.

Review of Literature

Inclusive education has been widely examined as a critical educational reform to ensure equitable access and meaningful participation of all learners regardless of ability. Research indicates that while policies promoting inclusion are advancing globally and nationally, practical implementation remains complex due to multiple influencing factors. Studies have highlighted that inclusive education is not just about physical placement of students with disabilities into mainstream classrooms but about restructuring educational environments, pedagogy, and support systems to address diverse learner needs (Kumari, Bika & Bhesera, 2024) ^[12].

One major theme emerging in the literature is the role of teachers' attitudes and competencies in fostering inclusive classrooms. Several review studies have shown that teachers' perceptions of inclusion significantly shape classroom interaction and learner outcomes. For instance, Bandyopadhyay and Dhara (2021) ^[4] found that although many teachers express positive attitudes toward inclusive education in theory, their actual classroom practices are often constrained by a lack of confidence, knowledge gaps, and insufficient training in inclusive pedagogy. Similarly, Jyoti and Devi (2026) ^[11] concluded in a comprehensive review that teacher preparedness, ongoing professional development, and leadership support are central to successful inclusion, suggesting that teacher attitudes alone are inadequate without structured training and institutional backing.

Another consistent finding in the literature is the impact of school infrastructure and physical accessibility on inclusion. Studies within India reveal that while inclusive policies exist, infrastructural barriers such as lack of ramps, accessible toilets, and learning aids remain prevalent, limiting access for children with physical disabilities. Kumari *et al.* (2024) ^[12] noted that inadequate infrastructure is among the major structural challenges hindering inclusive practices, alongside irrelevant curricula and insufficient evaluation procedures. In addition, reports from education information systems suggest that even in states with strong educational performance, the basic facilities required to support children with special needs are frequently missing, highlighting a gap between policy and school-level realities. Curriculum and teaching-learning materials are frequently identified as another vital factor influencing inclusion. Research underscores the need for curriculum adaptation, use of Universal Design for Learning (UDL), and

differentiated instruction to meet diverse needs. Without flexibility in curriculum and assessment, learners with disabilities may remain excluded academically even if physically present in classrooms. Findings from systematic reviews suggest that entrenched and rigid instructional practices contribute to limited engagement and poor learning outcomes for students with disabilities, calling for inclusive teaching strategies supported by adequate instructional resources.

Parental awareness and involvement also appear prominently in literature as a determinant of inclusive education success. Studies indicate that parents who are knowledgeable about their children's rights, educational provisions, and inclusive practices tend to advocate more effectively for appropriate accommodations and engage more actively with schools. Conversely, a lack of awareness, coupled with societal stigma around disability, negatively affects parental participation and the educational progress of children with special needs. Research recommends increased parent education and community engagement programs to build supportive environments for inclusive learning.

Policy frameworks and national contexts further shape inclusive education implementation. The introduction of the Rights of Persons with Disabilities (RPWD) Act, 2016 and policy reforms like the National Education Policy (NEP 2020) reflect India's legislative commitment to inclusion. These frameworks emphasize removing barriers, building teacher capacity, and providing enabling environments for learners. Government documents detail specific strategies such as accessible learning materials, exam accommodations, and free resources for children with special needs, aligning with international agendas for equitable and barrier-free education. Despite such frameworks, research suggests persistent contradictions between policy goals and execution at the school level, with implementation often hampered by resource constraints, administrative gaps, and lack of monitoring mechanisms.

Broader sociocultural and systemic factors are also discussed as influential. Literature points to societal attitudes, stigma, and misconceptions about disability as barriers that extend beyond the classroom. These attitudes influence teacher expectations, peer interactions, and overall school climate, thus shaping the lived experiences of learners with special needs. Studies conducted in various contexts emphasize the need for awareness programs, community outreach, and inclusive culture building to address deep-rooted biases and foster supportive environments for all students.

Finally, recent reviews underscore the importance of comprehensive, multi-level interventions that integrate policy, teacher development, infrastructure, curriculum adaptation, and community engagement. Inclusive education is increasingly seen not merely as a pedagogical approach but as a holistic process requiring collaboration among stakeholders, sustained professional development for educators, and continuous evaluation of inclusive practices. The literature calls for more empirical research that investigates context-specific strategies and innovative models to overcome entrenched barriers to inclusion.

Research Methodology

This study adopted a quantitative research design to investigate the factors affecting inclusive education in

schools across Rajasthan. A descriptive-correlational approach was employed, allowing for the systematic measurement of respondents' perceptions regarding various enablers and barriers to inclusive practices. The population for the study consisted of teachers, school administrators, and special educators actively engaged in schools implementing inclusive education programs. Rajasthan was chosen as the study area because of its diverse educational, socio-cultural, and demographic characteristics, which provide a representative perspective on inclusive education challenges. A purposive sampling technique was applied to select a total of 200 respondents, ensuring that participants had at least one year of experience working with children with disabilities in mainstream or inclusive classrooms and were willing to provide informed responses.

Data were collected through a structured questionnaire, developed based on an extensive review of existing literature and validated through expert feedback and a pilot study. Each item was measured on a 5-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The instrument was pilot-tested with 20 respondents to ensure clarity and reliability, and necessary revisions were made to enhance content validity. The data collection process was carried out over two months, using both online forms and paper-based questionnaires to reach respondents across urban and rural areas of Rajasthan. Before administering the questionnaire, respondents were briefed on the purpose of the study, and their informed consent was obtained. Anonymity and confidentiality were assured to encourage honest and accurate responses. After data collection, the responses were coded and analyzed using SPSS (Version 26). Initially, the data were screened for missing values, outliers, and normality assumptions to ensure suitability for statistical analysis. Descriptive statistics, including means, standard deviations, and frequency distributions, were computed to summarize the demographic profiles of respondents and provide preliminary insights into each factor. To assess the reliability of the instrument, Cronbach's alpha was calculated for each construct, with values above 0.70 considered acceptable.

To identify the underlying structure of the factors affecting inclusive education, Exploratory Factor Analysis (EFA) was conducted using Principal Component Analysis (PCA) with Varimax rotation. The appropriateness of the dataset for factor analysis was verified using the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity, with KMO values above 0.6 and p-values below 0.05 indicating suitability. Factors with eigenvalues greater than 1 were retained, and items with factor loadings of 0.5 or higher were included in the final factors. These factors were then interpreted and labeled based on the conceptual meaning of the items and the constructs identified in the literature. The percentage of variance explained by the extracted factors was reported to indicate how well the factors represented the observed data.

Data Analysis

The data collected from 200 respondents across schools in Rajasthan were analyzed using SPSS Version 26 to identify the key factors influencing inclusive education. Prior to conducting factor analysis, the dataset was carefully screened for missing values, outliers, and normality to ensure the accuracy and reliability of the results. Descriptive

statistics, including mean score, and frequency distributions, were first computed to summarize the demographic characteristics of the respondents and to provide preliminary insights into perceptions related to teacher competencies, infrastructure, administrative support, parental involvement, societal attitudes, and availability of teaching-learning resources.

Demographic Profile of the Respondents

Table 1 presents the demographic characteristics of the 200 respondents included in the study. The majority of participants were male (62%), while females constituted 38% of the sample. In terms of marital status, most respondents were married (65%), followed by unmarried individuals (31.5%), with a small proportion classified as divorcee/widow or others (3.5%). Regarding age distribution, the largest group fell within the 25–45 years category (38%), followed by 18–25 years (32%), 45–55 years (22.5%), and above 55 years (7.5%), indicating that the sample largely comprised individuals in their active professional years.

With respect to educational qualification, a substantial majority were graduates (61.5%), followed by postgraduates (21.5%), while a smaller proportion had final school education (11.5%), professional qualifications (4.5%), or doctoral degrees (1.5%). In terms of annual income, most respondents earned between Rs. 1,00,001 and Rs. 2,00,000 (45%), followed by Rs. 1,00,000 (29%), Rs. 2,00,001 to Rs. 3,00,000 (16%), and Rs. 3,00,001 and above (10%). Overall, the demographic profile indicates a diverse sample in terms of age, education, and income, providing a balanced representation for examining factors affecting inclusive education.

Table 1: Sampling Profile of the respondents

Variables	Frequency	%
Gender		
Male	124	62.00%
Female	76	38.00%
Marital Status		
Married	130	65.00%
Unmarried	63	31.50%
Divorcee/Widow/etc.	7	03.50%
Age		
18-25	64	32.00%
25-45	76	38.00%
45-55	45	22.50%
55 Above	15	07.50%
Educational Qualification		
Final School	23	11.50%
Graduate	122	61.50%
Post-Graduate	43	21.50%
Doctorate	3	01.50%
Professional	9	04.50%
Annual Income		
Rs. 1,00,000	58	29.00%
Rs. 1,00,001 to 2,00,000	90	45.00%
Rs. 2,00,001 to 3,00,000	32	16.00%
Rs. 3,00,001 and above	20	10.00%

Source: Primary Data, computed using SPSS 26

KMO and Bartlett's Test

The suitability of the data for factor analysis was assessed using the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity. The KMO value

was 0.926, indicating excellent sampling adequacy. Bartlett’s Test of Sphericity was statistically significant ($\chi^2 = 2067.902$, $DF = 190$, $p < .001$), confirming that the correlation matrix was not an identity matrix. These results demonstrate that the dataset was appropriate for conducting Exploratory Factor Analysis (Hair *et al*, 2019) ^[10].

Table 2: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.926
Bartlett's Test of Sphericity	Approx. Chi-Square	2067.902
	df	190
	Sig.	.000

Source: Primary Data, computed using SPSS 26.

Component Matrix

An Exploratory Factor Analysis (EFA) using Principal Component Analysis (PCA) with Varimax rotation was conducted to examine the underlying dimensions of the 20-item scale measuring factors affecting inclusive education. The analysis yielded a four-factor solution with eigenvalues of 3.399, 3.375, 3.243, and 3.201, respectively, all exceeding Kaiser’s criterion of 1.0. These four components together accounted for 66.091% of the total variance, indicating a substantial representation of the data structure.

Individually, Component 1 explained 16.995% of the variance, Component 2 accounted for 16.872%, Component 3 explained 16.216%, and Component 4 contributed 16.005%. The relatively even distribution of variance across the four components suggests a stable and balanced multidimensional construct underlying perception of inclusive education.

The communalities ranged from 0.549 to 0.756, demonstrating that all items were adequately explained by the extracted factor solution. Since all communalities exceeded the recommended minimum threshold of 0.50 (Costello & Osborne, 2005; Fabrigar, 1999) ^[5, 7], no items were excluded from further analysis. The pattern of loadings indicated that Items 1–5 loaded predominantly on Component 1, Items 6–10 on Component 3, Items 11–15 on Component 2, and Items 16–20 on Component 4. Based on the conceptual meaning of the grouped items, the four extracted factors were interpreted as: (1) Teacher Competency and Professional Readiness, (2) Administrative and Policy Support, (3) Infrastructure and Resource Support, and (4) Parental Involvement and Awareness. Overall, the findings support a coherent four-factor structure representing the key dimensions influencing the implementation of inclusive education.

Table 3: Rotated Component Matrix

Variables	Component				Communalities
	1	2	3	4	
Factor 1	.673	-.398	-.301	.186	.736
Factor 2	.607	-.429	-.214	.294	.684
Factor 3	.633	-.392	-.259	.117	.635
Factor 4	.621	-.482	-.203	.269	.731
Factor 5	.669	-.361	-.215	.116	.638
Factor 6	.604	-.121	.488	-.088	.625
Factor 7	.602	-.169	.523	-.002	.664
Factor 8	.644	-.170	.507	-.006	.701
Factor 9	.648	-.111	.451	-.051	.638
Factor 10	.614	-.092	.403	.025	.549
Factor 11	.602	.475	.002	.216	.634
Factor 12	.586	.502	-.026	.262	.665
Factor 13	.645	.421	-.043	.264	.665
Factor 14	.616	.516	-.090	.320	.756
Factor 15	.693	.389	-.036	.160	.659
Factor 16	.640	.075	-.280	.365	.627
Factor 17	.691	.015	-.139	.366	.632
Factor 18	.619	.119	-.194	.380	.580
Factor 19	.721	.130	-.137	.387	.705
Factor 20	.681	.094	-.136	.449	.694
Eigen Value	3.399	3.375	3.243	3.201	
Percentage of Variance Explained	16.995	16.872	16.216	16.005	
Cumulative Percentage of Variance Explained	26.995	33.870	50.086	66.091	

Source: Primary Data, computed using SPSS 26.

Naming of the factors

The exploratory factor analysis resulted in a four-factor structure representing the key dimensions influencing inclusive education. The first factor, labeled Teacher-Related Factors, accounted for 16.995% of the total variance and included five items (1–5) with loadings ranging from 0.607 to 0.673, reflecting teachers’ preparedness, professional competence, and attitudes toward inclusive practices. The second factor, Administrative and Policy Support, explained 16.872% of the variance and comprised items 11–15 with loadings between 0.389 and 0.516, indicating the role of institutional support, policy communication,

and governance in facilitating inclusive education. The third factor, Infrastructural Factors, accounted for 16.216% of the variance and included items 6–10, with loadings ranging from 0.403 to 0.523, highlighting the importance of physical facilities, assistive devices, and resource availability. The fourth factor, Parental Awareness and Involvement, explained 16.005% of the variance and consisted of items 16–20 with loadings between 0.365 and 0.449, emphasizing parental engagement, awareness of rights, and collaboration in inclusive education. Together, these four factors explained 66.091% of the total variance, indicating a well-balanced and statistically robust multidimensional structure.

Table 4: Naming of the factors

Sr. No.	Name of the Variables	Statements	Loading
1.	Teacher-Related Factors (16.995%)	Factor1	.673
		Factor2	.607
		Factor3	.633
		Factor4	.621
		Factor5	.669
2.	Infrastructural Factors (16.872%)	Factor11	.475
		Factor12	.502
		Factor13	.421
		Factor14	.516
		Factor15	.389
3.	Administrative & Policy Support (16.216%)	Factor6	.488
		Factor7	.523
		Factor8	.507
		Factor9	.451
		Factor10	.403
4.	Parental Awareness & Involvement (16.005%)	Factor16	.365
		Factor17	.366
		Factor18	.380
		Factor19	.387
		Factor20	.449

Source: Primary Data, computed using SPSS 26

Conclusions

This study examined the key factors influencing the implementation of inclusive education in schools across Rajasthan using a quantitative research approach. Through the application of Exploratory Factor Analysis (EFA), four significant dimensions were identified: Teacher Competency and Professional Readiness, Administrative and Policy Support, Infrastructure and Resource Support, and Parental Awareness and Involvement. Together, these factors explained 66.091% of the total variance, indicating a robust and well-structured multidimensional model of inclusive education practices. The findings highlight that teacher-related factors play a critical role in the successful implementation of inclusive education. Teachers' professional training, confidence, and attitudes significantly influence inclusive classroom practices. Additionally, institutional support through effective administrative leadership and clear policy communication was found to be equally important. The availability of adequate infrastructure, accessible facilities, and assistive learning resources further strengthens inclusive practices. Moreover, parental awareness and active involvement emerged as a crucial dimension, emphasizing the collaborative nature of inclusive education. The high Kaiser-Meyer-Olkin (KMO) value and significant Bartlett's Test of Sphericity confirmed the suitability of the data for factor analysis, while satisfactory communalities and balanced variance distribution validated the reliability and structural soundness of the measurement instrument. The results underscore that inclusive education is not dependent on a single factor but rather on the combined influence of professional competence, institutional support, resource availability, and family engagement.

Overall, the study provides empirical evidence that strengthening teacher preparation programs, enhancing administrative accountability, improving infrastructural facilities, and promoting parental collaboration are essential strategies for advancing inclusive education in Rajasthan. These findings offer valuable insights for policymakers, school administrators, and educators seeking to develop

more effective and sustainable inclusive education frameworks.

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