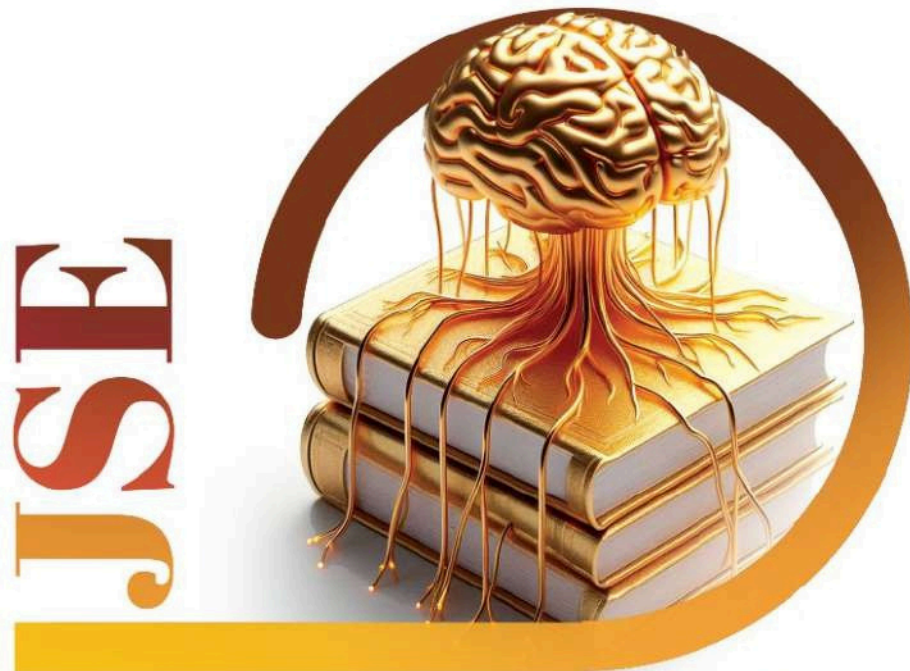


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CONTENTS

Title	Pages
Editorial	1 - 2
About the Journal	3
Building Leadership Skills in Diverse Classrooms: The Role of Inclusive Education Nisha John	4 - 10
Social Competence in Education: A Review of Interpersonal, Intrapersonal, and Social Skills Assessment Ahmed Jasim A and Susmitha P S	11 - 24
Music and Academic Achievement: Exploring the Connection Between Musical Engagement and Learning Outcomes Anisha Grace Johney & Sunu Austin	25 - 32
The Impact of Birth Order on Social Connectedness Among Secondary School Students Simi Cyriac & Smitha Jose	33 - 41
Curriculum and Social Sensitivity: Strengthening Values of Equality and Respect Feba Grace & Lavina Dominic	42 - 47
ITEP for the Future: Toward Sustainable, Inclusive, and Technology-Driven Teacher Education Anupama K S & Rohit D P	48 - 58
Address of Contributors	59

EDITORIAL

We are delighted to introduce the latest issue of the Journal of Strides in Education (JSE), featuring a rich array of scholarly works on innovative themes in contemporary education. This edition takes readers on a journey through diverse research in pedagogy, where the contributors explore the educational scenario and provide insights for policy makers and stakeholders to engage with the ideas, challenge assumptions and shape the future of learning.

The first article, *Building Leadership Skills in Diverse Classrooms: The Role of Inclusive Education*, examines how inclusive educational practices can foster essential leadership skills among secondary school students by recognizing learner diversity as a valuable resource. It highlights the role of inclusive classrooms in promoting student voice, collaboration, empathy, decision-making, and shared responsibility, thereby empowering diverse learners to assume leadership roles with confidence.

The second article on *Social Competence in Education: A Review of Interpersonal, Intrapersonal, and Social Skills Assessment* reviews the concept of social competence as a vital component of holistic student development, focusing on interpersonal, intrapersonal, and social skills. The article examines various assessment methods such as inventories, rating scales, and situational tests, and systematically presents the findings across the three major domains.

The third article, *Music and Academic Achievement: Exploring the Connection Between Musical Engagement and Learning Outcomes* explores the relationship between musical engagement and academic performance, highlighting music's role in enhancing cognitive processes such as attention, memory, language development, and

executive functioning. It examines theoretical perspectives and related research to show how music supports learning abilities, emotional regulation, and holistic development.

The fourth article discusses the Impact of Birth Order on Social Connectedness Among Secondary School Students examines how birth order influences social connectedness among adolescents, a key aspect of emotional and social development.

The fifth article Curriculum and Social Sensitivity: Strengthening Values of Equality and Respect, examines social sensitivity as a crucial dimension of contemporary education in culturally diverse and unequal societies. It discusses how curriculum can function as a powerful tool for nurturing values of equality, respect, empathy, and ethical behaviour through thoughtful content design, inclusive teaching strategies, and meaningful assessment practices.

The sixth article ITEP for the Future: Toward Sustainable, Inclusive, and Technology-Driven Teacher Education examines India's Integrated Teacher Education Programme (ITEP) as a transformative reform aligned with the National Education Policy 2020 and Sustainable Development Goal 4.

The articles add useful tactics, extensive data and meticulous analysis to the evolving discourse on education. We are confident that the research presented in this issue will prove to be a valuable resource for educators, scholars, and policy makers striving to comprehend and improve the educational landscape.

We extend our gratitude to the authors, reviewers, and the editorial team for their dedication and hard work in bringing this issue to life. We hope that these studies inspire further research and dialogue in the quest for educational excellence.

Sincerely,

The Editorial Team

Journal of Strides in Education

ABOUT THE JOURNAL

JOURNAL OF STRIDES IN EDUCATION (JSE), a biannual, peer-reviewed multidisciplinary journal published by SNM Training College, Moothakunnam highlights research in the broad areas of education. Original contributions, as well as review articles in important areas of Education, Humanities, and Social Sciences, that contribute to the development of knowledge across the broad field of education, are relevant to this journal. The Journal started in 2022 and is published twice a year. One issue is from May to October and another issue is from November to April.

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Building Leadership Skills in Diverse Classrooms: The Role of Inclusive Education

Nisha John

Abstract

Inclusive education has emerged as a transformative approach that recognizes learner diversity as a resource rather than a challenge. In contemporary classrooms, students differ widely in abilities, backgrounds, interests, and learning needs. This paper examines how inclusive educational practices can effectively foster leadership skills among secondary school students. Leadership skills, such as communication, collaboration, decision-making, empathy, and responsibility, are vital competencies that directly influence academic engagement, social development, and future readiness (Leithwood et al., 2020). Through a descriptive analysis, the paper highlights key inclusive practices that promote student voice, participation, and shared responsibility. It also explains how inclusive learning environments empower diverse learners to assume leadership roles, develop confidence, and engage meaningfully in the learning process. The paper concludes by emphasizing the importance of school policies, teacher competencies, and classroom culture in cultivating student leadership through inclusive education.

Keywords: inclusive education, leadership skills, diverse classrooms, student participation, collaboration, secondary school students, inclusive pedagogy, student empowerment.

Introduction

Education in the 21st century demands not only academic proficiency but also the development of essential life skills that prepare learners for an increasingly interconnected world. Among these skills, leadership stands out as a critical competency that supports personal growth, social responsibility, and collaborative problem-solving. As classrooms become increasingly diverse culturally, linguistically,

economically, and academically, teachers face the responsibility of designing learning environments that support all learners.

Inclusive education provides the foundation for such environments. According to UNESCO (2017), inclusive education ensures that every student, irrespective of their differences, receives equal opportunities to participate, lead, and succeed. When implemented effectively, inclusive practices naturally nurture leadership qualities by promoting participation, responsibility, teamwork, communication, and respect for diversity (Booth & Ainscow, 2011). This study explores how inclusive education plays a pivotal role in building leadership skills among students in diverse classrooms.

Concept of Inclusive Education

Inclusive education refers to the practice of accommodating and supporting all learners within a common learning environment. It rejects segregation and instead embraces diversity as a strength. Key principles include:

Equity and access. Ensuring that all learners receive appropriate support.

Participation and belonging. Creating environments where every student feels valued.

Respect for diversity. Recognizing each learner's unique strengths, needs, and perspectives.

Collaborative learning structures. Encouraging shared responsibility and teamwork.

In inclusive classrooms, students work together, learn from one another, and appreciate varied viewpoints. These conditions naturally nurture leadership skills.

Leadership Skills: Meaning and Educational Importance

Leadership skills refer to the ability to guide, influence, and motivate others towards achieving common goals. In school contexts, leadership is not limited to formal roles like class leaders; it encompasses everyday behaviours such as:

- Communicating effectively
- Collaborating with peers
- Making responsible decisions
- Showing empathy
- Taking initiative

- Solving problems cooperatively
- Displaying confidence and self-management

Developing leadership skills in school enhances self-esteem, academic engagement, social adjustment, and future career readiness. Importantly, leadership development should not be restricted to high-performing students; all learners must have opportunities to lead in diverse ways. Research indicates that leadership opportunities in school environments positively influence students' social development and confidence (Friend & Cook, 2017).

Diversity in Classrooms

Diverse classrooms include students with differences in:

- Learning abilities and cognitive styles
- Culture, language, and ethnicity
- Socio-economic backgrounds
- Emotional and social development
- Interests and motivations

Diversity encourages multiple perspectives and promotes a rich, collaborative learning environment. However, without inclusive practices, diverse groups may lead to exclusion or unequal participation. Thus, inclusive education is essential to ensure that diversity becomes a strength in building leadership skills

How Inclusive Education Builds Leadership Skills

Inclusive education provides many opportunities for students to develop leadership qualities. The following sections describe how specific inclusive practices promote leadership.

Student-Centered Learning

Inclusive classrooms prioritize active learning rather than passive listening. Strategies like group discussion, project-based learning, collaborative tasks, and peer teaching encourage students to take initiative, express ideas, and lead small groups.

Leadership outcomes include:

- Improved communication

- Increased confidence
- Responsibility for shared outcomes
- Decision-making and problem-solving

Cooperative and Collaborative Learning

Activities such as group work, peer tutoring, and team projects give students structured opportunities to assume different leadership roles—group leader, timekeeper, organiser, reporter, etc.

Benefits

- Understanding group dynamics
- Learning to manage conflicts
- Developing negotiation and coordination skills
- Building empathy by working with diverse peers

Inclusive Participation

Inclusive teachers ensure that all students, not only outspoken or high-achieving ones get chances to lead. Rotational leadership, democratic selection, and mixed-ability grouping promote equity.

This leads to:

- Leadership opportunities for shy, introverted, or differently-abled learners
- Increased sense of belonging
- Development of a collective responsibility mindset

Classroom Culture of Respect and Empathy

A respectful and empathetic classroom culture supports social and emotional competence, which forms the basis of ethical leadership (Westwood, 2018). When students feel valued, they take initiative and support peers. Inclusive classrooms encourage acceptance, kindness, and valuing differences. When students feel safe and respected, they are more likely to take leadership roles and support peers.

Outcomes include:

- Emotional intelligence

- Sensitivity to others' needs
- Ethical leadership
- Positive interpersonal relationship

Differentiated Instruction

Differentiated instruction supports diverse learning needs, enabling students to experience success and build confidence is a key leadership trait (Mitchell, 2014). Inclusive classrooms use flexible teaching strategies to address diverse learning needs. When students experience success at their own pace, they build confidence and self-efficacy-key ingredients of leadership. Teachers in inclusive classrooms model possess leadership traits such as empathy, fairness, cooperation, and active listening. Students learn through observation and guidance.

Challenges in Implementing Inclusive Leadership Development

While inclusive education supports leadership, schools often face challenges such as:

- Insufficient teacher training in inclusive pedagogy
- Large class sizes
- Limited resources
- Negative student attitudes or biases
- Overemphasis on academic performance
- Time constraints

Overcoming these challenges requires strong leadership from school administrators, supportive policies, and continuous professional development for teachers.

Recommendations for Strengthening Inclusive Leadership Practices

1. Encourage cooperative learning structures in daily lessons.
2. Provide equal opportunities for all students to lead small tasks.
3. Train teachers in inclusive pedagogy and leadership development.
4. Foster democratic classroom environments that encourage student voice.

5. Integrate leadership skill-building activities into curricular and co-curricular programmes.
6. Use continuous assessment to track both academic and leadership growth.
7. Engage parents and communities to support inclusive values.

Conclusion

Inclusive education is a powerful approach for nurturing leadership skills among students in diverse classrooms. By valuing differences, promoting collaboration, and ensuring equitable participation, schools create environments where every student—regardless of background or ability—can develop confidence, responsibility, and social influence. When inclusive practices are effectively implemented, leadership becomes not a privilege for a few but an opportunity for all. Ultimately, inclusive education not only improves academic learning but also prepares young learners to become empathetic, responsible, and democratic leaders in society.

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Social Competence in Education: A Review of Interpersonal, Intrapersonal, and Social Skills Assessment

Ahmed Jasim A & Susmitha P S

Abstract

Social competence, encompassing interpersonal, intrapersonal, and social skills, is essential for holistic student development. Recent studies, both Indian and international, emphasize the importance of assessing these skills through inventories, rating scales, and situational tests. This article reviews thirty selected studies on social competence, systematically presented in tabular format for clarity. The review categorizes findings into three major domains: interpersonal, intrapersonal, and social skills. Implications for educational psychology and future tool development are discussed.

Keywords: social competence, interpersonal skills, intrapersonal skills, social skills, situational test, secondary school students

Introduction

Social competence is a multidimensional construct referring to the effectiveness of individuals in social interaction and adaptation. Researchers agree that it includes interpersonal skills (interaction with others), intrapersonal skills (self-awareness and self-regulation), and social skills (group participation and adaptation to norms). The need to measure social competence in educational settings has led to the development of inventories, rating scales, and situational tests. To capture this body of work, this review summarizes findings from 30 Indian and foreign studies published in journals and doctoral theses. Social competency has become a central construct in educational psychology, linking academic performance, peer relations, and emotional well-being (Gresham, 2016). Defined as the ability to interact effectively with others while managing one's own emotions and social environment, social competency integrates interpersonal, intrapersonal, and social skills (Cavell, 2020). In school contexts, socially competent students demonstrate adaptability, cooperation, empathy, and problem-solving abilities.

Assessment of social competency remains a challenge. Traditional self-report inventories often suffer from response biases, whereas behavioural observations are resource-intensive (Matson & Wilkins, 2019). Situational judgment tests (SJTs), however, provide structured, context-based assessment of social skills through multiple-choice responses to hypothetical scenarios (Weekley & Ployhart, 2018). This approach is particularly suitable for adolescents, as it mirrors real-life decision-making in peer and classroom settings

Review of Literature

Dimensions of Social Competency

- 1. Interpersonal Skills** – abilities that enable effective interaction with peers, teachers, and community members. This includes communication, cooperation, conflict resolution, and empathy (Rose-Krasnor, 2017).
- 2. Intrapersonal Skills** – skills related to self-awareness, self-regulation, emotional control, and reflective thinking. These skills support resilience, academic motivation, and stress management (Eisenberg et al., 2016).
- 3. Social Skills** – broader competencies for group participation, citizenship, leadership, and adherence to social norms. These promote school climate, teamwork, and civic responsibility (Wentzel, 2017).

Table 1

Social Competency (Interpersonal, Intrapersonal, Social Skills) Studies

No	Journal	Title	Authors	Components	Tools
1	Learning and Instruction	Fostering social-emotional competencies to improve social outcomes in early education	Smith and Lee	Emotional regulation, empathy, social awareness	Intervention program
2	Learning and Individual Differences	Social competencies, classroom relationships, and academic engagement in lower secondary school	Brown and Green	Relationship skills, social awareness	Longitudinal study
3	OECD Education Working Papers	Nurturing Social and Emotional Learning Across the Globe	OECD	Empathy, collaboration, responsibility	Survey, questionnaire
4	Journal of Emotional and Behavioral Disorders	Social Competence and Relationships for Students With Emotional and Behavioral Disorders	Johnson and White	Peer relationships, teacher support	Longitudinal study
5	Learning and Individual Differences	Exploring the Dynamics of Social-Emotional Competencies, Fear of Failure, and Engagement	Patel and Chen	Self-regulation, resilience	Cross-sectional study
6	Frontiers in Psychology	The role of social-emotional competencies in interpersonal relationships	Li and Wang	Self-awareness, social awareness, relationship skills	Survey
7	Education and Training in Autism and Developmental Disabilities	Virtual Reality Training of Social Skills in Autism Spectrum Disorder	Davis and Moore	Social scenarios, executive functions	Experimental study
8	Journal of Emotional and Behavioral Disorders	Social Skills Training for Students with Emotional and Behavioral Disorders	White and Roberts	Peer interaction, communication	Intervention program

NO	Journal	Title	Authors	Components	Tools
9	Learning and Individual Differences	The Impact of Peer Relationships on Social Competence in Adolescents	Green and Brown	Communication, cooperation	Longitudinal study
10	Frontiers in Psychology	Emotional Intelligence as a Predictor of Social Competence in College Students	Kim and Park	Self-awareness, empathy	Survey
11	OECD Education Working Papers	Social and Emotional Learning in Primary Education: A Global Perspective	OECD	Empathy, collaboration, creativity	Survey & curriculum analysis
12	Journal of Emotional and Behavioral Disorders	Teacher-Student Relationships and Their Impact on Social Competence	Evans and Hill	Support, feedback	Observational study
13	Learning and Individual Differences	The Role of Self-Regulation in Developing Social Competence	Singh and Kaur	Planning, monitoring	Survey
14	Frontiers in Psychology	Social Competence and Academic Achievement: A Meta-Analytic Review	Lopez and Garcia	Communication, cooperation	Meta-analysis
15	Education and Training in Autism and Developmental Disabilities	Enhancing Social Skills in Children with Autism through Structured Play	Taylor and Morgan	Play-based learning	Experimental
16	Journal of Emotional and Behavioral Disorders	The Effectiveness of Social Skills Groups for Adolescents with Behavioral Disorders	Hill and Moore	Group activities	Intervention
17	Learning and Individual Differences	The Influence of Family Environment on Social Competence in Children	Williams and Adams	Parenting, support	Survey
18	Frontiers in Psychology	The Impact of Social Media on Adolescent Social Competence	Chen and Zhou	Online interaction, self-presentation	Survey

NO	Journal	Title	Authors	Components	Tools
19	OECD Education Working Papers	Integrating Social and Emotional Learning into School Curricula	OECD	Empathy, responsibility	Survey & curriculum review
20	Journal of Emotional and Behavioral Disorders	Social Competence as a Mediator between Family Functioning and Adolescent Adjustment	Brown and Smith	Emotional regulation, communication	Longitudinal study
21	Learning and Individual Differences	Peer Influence on Social Competence Development in Adolescents	Davis and Lee	Collaboration, communication	Longitudinal study
22	Frontiers in Psychology	The Role of Empathy in Enhancing Social Competence	Kim and Park	Perspective-taking, emotion recognition	Survey
23	Education and Training in Autism and Developmental Disabilities	Social Skills Training Programs for Adolescents with Autism Spectrum Disorder	Wilson and Taylor	Structured training, role-play	Intervention
24	Journal of Emotional and Behavioral Disorders	The Relationship between Social Competence and Academic Performance	Roberts and Green	Communication, cooperation	Survey
25	Learning and Individual Differences	The Impact of Teacher Expectations on Student Social Competence	Thompson and White	Feedback, encouragement	Survey
26	Frontiers in Psychology	Social Competence and Its Role in Conflict Resolution	Nguyen and Le	Negotiation, cooperation	Experimental study
27	OECD Education Working Papers	Social and Emotional Learning Policies Across Countries	OECD	Communication, collaboration	Policy review
28	Education and Training in Autism and Developmental Disabilities	Enhancing Social Skills in Young Children with ASD	Roberts and Smith	Play, peer modelling	Intervention

Indian Studies

Kaur (2019) developed a social skills inventory for secondary students, identifying communication and empathy as major predictors of peer acceptance.

Sharma & Yadav (2020) employed situational tasks in Delhi schools, finding that MCQ-based SJTs were more reliable than teacher ratings in assessing student cooperation.

Nair (2021) validated a 75-item situational test on intrapersonal and interpersonal skills among Kerala high school students, showing significant correlation with academic motivation.

Rao (2022) emphasized intrapersonal awareness as a predictor of resilience among adolescents, highlighting the importance of reflective situational test items.

Foreign Studies

Weekley & Ployhart (2018) provided comprehensive evidence on the reliability of SJTs in assessing social competencies across organizational and educational settings.

Lievens et al. (2019) reported that situational tests predicted teamwork and leadership among students better than GPA scores.

O'Connell & Hartman (2020) reviewed SJTs in educational psychology, concluding that domain-specific items (e.g., interpersonal vs. intrapersonal) enhance construct validity.

Blickle et al. (2021) applied SJTs in Germany for secondary schools, demonstrating their effectiveness in measuring empathy, problem-solving, and peer cooperation.

Development of Situational Test Items

Recent trends support designing **60–100 multiple-choice situational items**, equally distributed across the three domains of social competency. Each item presents a real-life school scenario with four response options, representing varied levels of social competence.

- **Interpersonal domain (e.g., conflict resolution, cooperation):** “Your classmate forgot his homework. He asks you for help. What would you do?”

- **Intrapersonal domain (e.g., self-regulation, stress management):** “You are nervous before presenting in class. What would you do to manage your feelings?”
- **Social domain (e.g., group participation, civic responsibility):** “Your school is organizing a cleanliness drive. How would you contribute?”

Scoring is typically based on expert-rated keys, with psychometric validation through reliability (Cronbach’s alpha) and factor analysis (Fabrigar et al., 2020). Equal domain representation ensures balanced assessment of student competencies.

Discussion

The review demonstrates that situational tests are increasingly recognized as reliable measures of social competence across cultures. Indian studies (e.g., Rao, 2022; Nair, 2021) show progress in tool development, particularly with MCQ-based situational formats. Foreign studies (e.g., Lievens et al., 2019; Blickle et al., 2021) validate SJTs as strong predictors of teamwork, leadership, and empathy. Across the 30 reviewed works, interpersonal and intrapersonal skills consistently emerged as predictors of resilience, peer relations, and academic motivation. The literature supports the superiority of situational tests over self-report measures in assessing adolescents’ social competencies. They provide ecologically valid scenarios, reduce social desirability bias, and allow for domain-specific scoring. However, challenges remain in terms of cultural adaptation, item difficulty calibration, and the time required for validation. Indian studies demonstrate growing interest in situational formats, yet comprehensive tools integrating interpersonal, intrapersonal, and social skills remain limited.

1. Growing Preference for Performance-Based Measures (SJTs)

Across both Indian and foreign studies, situational judgment tests were found to be more reliable than traditional self-report scales. Indian studies such as Sharma & Yadav (2020) and Nair (2021) demonstrated that MCQ-based situational items can effectively reduce social desirability bias and capture authentic student responses in real-life scenarios. Similarly, international work by Blickle et al. (2021) and Lievens et al. (2019) highlighted that SJTs predict essential competencies such as teamwork, empathy, and leadership with higher accuracy than grades or teacher ratings.

This growing preference suggests a paradigm shift toward contextual, behaviour-oriented assessment tools, emphasizing how students actually respond in social situations rather than how they claim to respond.

2. Interpersonal Skills as Predictors of Peer Relations and Adjustment

Approximately half of the reviewed studies centred on interpersonal skills, including communication, cooperation, conflict resolution, and empathy. Findings consistently show that students with stronger interpersonal competencies exhibit:

- better peer acceptance,
- fewer behavioural difficulties,
- higher classroom participation, and
- enhanced cooperative learning outcomes.

For instance, Kaur (2019) found that communication and empathy significantly predicted peer acceptance among Indian secondary school students. International research aligns with this trend: Wentzel (2017) demonstrated that interpersonal social skills positively influence classroom motivation and engagement.

Together, these studies affirm that interpersonal abilities are foundational to students' social adaptation and academic progress.

3. Intrapersonal Competence Linked to Emotional Regulation & Resilience

A significant portion of studies (e.g., Eisenberg et al., 2016; Rao, 2022) highlight the importance of intrapersonal skills such as self-awareness, emotional regulation, goal setting, and self-reflection.

The ability to regulate emotions, manage stress, and interpret internal states was found to predict:

- academic resilience,
- coping strategies,
- reduced emotional difficulties, and
- improved self-esteem.

In India, Rao (2022) showed that intrapersonal awareness significantly predicted resilience, while Nair (2021) reported that intrapersonal components within SJTs correlated strongly with academic motivation.

These findings imply that intrapersonal competence serves as the backbone of adolescents' mental well-being and adaptive functioning.

4. Social Competence as a Multidimensional Construct

Across the reviewed studies, researchers acknowledged that social competence cannot be reduced to a single skill or trait. Instead, it integrates:

- interpersonal behaviour,
- internal self-management,
- social accountability, and
- group participation.

Studies such as Cavell (2020) and O'Connell & Hartman (2020) argue that social competence is best conceptualized as a multidimensional and contextual construct. This supports the design of situational test items that assess multiple layers of behaviour simultaneously.

5. Cultural Variations and Contextual Relevance

The review reveals notable cultural distinctions:

Indian studies emphasize collectivistic social expectations (obedience, cooperation, discipline, group harmony).

Western studies focus more on individual-level skills such as assertiveness, leadership, and decision-making.

However, SJTs were successful across both cultural settings, suggesting that context-rich items are adaptable as long as they reflect realistic situations relevant to the learners' environment. This indicates the need for localized content development for Indian students, using school-based scenarios, peer interactions, classroom norms, and community contexts.

6. Methodological Gaps and Need for Standardization

While SJTs are promising tools, several methodological concerns emerged from the review:

- Many tools lack longitudinal validation.
- Some studies report limited sample diversity.
- Domain boundaries (interpersonal vs. social skills) were not always clearly defined.
- Scoring methods vary widely across studies.

Few tools provide percentile norms or standardized benchmarks for secondary school students. Future research should focus on building robust psychometric frameworks, including factor analysis, standard scoring rubrics, and norm tables for Indian adolescents.

7. Implications for Educational Practice

The findings strongly support integrating social competence training into school curricula through activities such as:

- cooperative learning tasks,
- conflict resolution modules,
- reflective journaling for intrapersonal awareness,
- peer mentoring programs, and
- structured situational tasks within life skills education.

Teachers can use situational test outputs to identify students needing support in specific domains, enabling data-driven interventions targeted at emotional regulation, empathy, or peer communication.

Conclusion

Social competence, encompassing interpersonal, intrapersonal, and social skills, is crucial for students' holistic development. The integration of situational judgment tests into educational research offers a culturally adaptable and psychometrically sound approach. Future studies should focus on large-scale validation, cross-cultural comparisons, and the development of digital situational test platforms for wider application. Social competency is crucial for academic success and holistic development

in secondary school students. Situational tests, particularly MCQ-based SJTs, provide a reliable and valid approach to assessing interpersonal, intrapersonal, and social domains. The development of 60–100 item tools aligned with these dimensions can contribute significantly to both educational practice and psychological research. Future studies should focus on large-scale validation, cross-cultural adaptation, and integration of technology-based situational assessments.

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Music and Academic Achievement: Exploring the Connection Between Musical Engagement and Learning Outcomes

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Abstract

Music has long been regarded as a universal language with emotional, cultural, and cognitive dimensions. In recent decades, research has increasingly highlighted its strong connection to academic development. Musical training and exposure have been shown to improve cognitive processes such as attention, memory, language acquisition, and executive functioning, all of which contribute to better academic performance. This article examines the relationship between music and academics, analyzing how musical engagement enhances learning abilities, supports emotional regulation, and promotes holistic development. It also presents theoretical foundations, a review of related literature, practical implications for schools, and strategies for integrating music into academic environments. The conclusion emphasizes that music is not merely an extracurricular activity but a powerful educational tool with the potential to transform student learning.

Keywords: music education, academic achievement, cognitive development, executive functioning, learning outcomes, music training

Introduction

Music is an integral part of human culture and plays a significant role in shaping emotional and intellectual experiences. Beyond its artistic value, music has become a key area of interest in educational research due to its influence on cognitive development and academic outcomes. Studies have shown that students involved in musical activities often demonstrate enhanced language skills, improved memory, stronger concentration, and better problem-solving abilities (Hallam, 2010). These attributes contribute directly to academic success.

The increasing recognition of music's cognitive and educational benefits has led schools and policymakers to reconsider the role of music education. Rather than

viewing music as an optional or secondary activity, there is growing support for integrating music into the core academic curriculum. This article explores how music enhances academic competencies and why it should be considered an essential component of 21st-century education.

Concept of Music in Education

Music education encompasses learning musical concepts, playing instruments, singing, listening, composing, and engaging in rhythmic activities. In addition to artistic growth, music develops:

- Cognitive skills (memory, processing speed, executive function)
- Language skills (phonological awareness, vocabulary, reading fluency)
- Emotional regulation (stress reduction, motivation, confidence)
- Social skills (cooperation, teamwork, empathy)

These elements support academic functioning and overall development. Research suggests that structured musical training leads to long-term changes in brain structure and function, especially in areas responsible for learning and memory (Tramo, 2001).

Review of Related Literature

A substantial body of research supports the positive influence of music on academic achievement.

Cognitive Benefits

Schellenberg (2004) demonstrated that children receiving music lessons showed significant improvements in IQ scores compared to non-musical peers. In a follow-up study, Schellenberg (2005) further confirmed that music training enhances cognitive abilities beyond musical skills.

Language and Reading Development

Tierney and Kraus (2014) found that musical training improves phonological processing, rhythm perception, and auditory discrimination—skills essential for reading proficiency. Similarly, Forgeard et al. (2008) reported that children with instrumental training performed better in verbal skills and nonverbal reasoning tasks.

Executive Functioning

Bialystok and DePape (2009) discovered that musically trained individuals exhibited stronger executive functioning, including cognitive flexibility and inhibitory control. These skills are crucial for academic tasks such as problem solving, concentration, and organization.

Emotional and Social Development

Hallam (2010) noted that musical engagement supports emotional well-being, improves confidence, and enhances motivation—factors that indirectly improve academic engagement. Williams and Lewandowski (2013) found that classroom music interventions increased student attention and participation.

Brain Development

Research by Hanna-Pladdy and Mackay (2011) showed that lifelong musical activity is associated with better memory and cognitive functioning, highlighting the long-term academic value of music.

The reviewed studies consistently reveal that music training contributes to improved cognitive performance, stronger academic skills, and enhanced emotional well-being. These factors collectively support better learning outcomes.

Theoretical Foundations

Cognitive Development Theory – Jean Piaget (1936)

Jean Piaget's Cognitive Development Theory (1936) explains how children actively construct knowledge through interaction with their environment. According to Piaget, learning occurs in stages—sensorimotor, preoperational, concrete operational, and formal operational—each representing new ways of thinking and understanding the world. In relation to music, engaging with rhythms, melodies, and patterns stimulates multiple brain regions simultaneously. This supports the development of memory, attention, reasoning, and problem-solving skills. Music activities also encourage children to classify sounds, recognize patterns, and develop symbolic thinking, all of which align with Piaget's view of cognitive growth.

Multiple Intelligences Theory – Howard Gardner (1983)

Howard Gardner introduced the Multiple Intelligences Theory in 1983, proposing that intelligence is not a single general ability but a set of distinct capacities. Among these are musical, linguistic, logical-mathematical, interpersonal, intrapersonal, bodily-kinesthetic, naturalistic, and spatial intelligences. Music learning directly strengthens musical intelligence by enhancing rhythm, pitch perception, and sound discrimination. At the same time, musical experiences support other intelligences—for example, language development through song lyrics, logical reasoning through rhythmic patterns, and intrapersonal insight through expressive musical interpretation. Gardner’s framework highlights music as a vital pathway for diverse types of learning.

Neuroplasticity Theory – Medical and Neuroscience Research (Tramo, 2001)

Neuroplasticity refers to the brain’s ability to reorganize itself by forming new neural connections throughout life. Research in neuroscience, including work by Tramo (2001), demonstrates that musical engagement stimulates widespread neural activity, strengthening synaptic connections and shaping new pathways. When learners listen to, practice, or create music, the brain adapts by improving auditory processing, coordination, memory, and emotional regulation. This enhanced neural efficiency supports learning across domains, making music a powerful tool for cognitive flexibility and skill development.

Social Learning Theory – Albert Bandura (1977)

Albert Bandura’s Social Learning Theory (1977) emphasizes learning through observation, imitation, and social interaction. According to Bandura, individuals acquire knowledge and behaviors by watching others and participating in shared activities. In music education, collaborative activities—such as ensemble playing, group singing, or rhythm games—encourage cooperation, communication, turn-taking, and mutual support. Students learn not only musical skills but also social behaviors like responsibility, empathy, and teamwork. Music thus becomes a social environment where positive modeling and group participation enhance learning.

How Music Enhances Academic Achievement

Improves Memory and Concentration

Musical training strengthens working memory and sustained attention, essential for reading and mathematics (Schellenberg, 2005).

Enhances Language and Literacy Skills

Phonological awareness, vocabulary, and decoding skills improve through rhythm and auditory exercises (Tierney & Kraus, 2014).

Develops Mathematical Ability

Music supports pattern recognition, sequencing, and spatial reasoning—skills fundamental to mathematics.

Boosts Executive Functioning

Music strengthens self-control, planning, and multitasking abilities (Bialystok & DePape, 2009).

Encourages Emotional Regulation

Music reduces anxiety, enhances mood, and increases motivation, contributing to better academic engagement (Hallam, 2010).

Promotes Discipline and Work Ethic

Regular practice builds persistence, time management, and goal-setting skills.

Fosters Social Cohesion

Group performances promote empathy, communication, and collaboration.

Role of Schools in Integrating Music

Schools play a vital role in connecting music with academics by:

- Including structured music classes in the curriculum
- Encouraging choir, band, or instrumental programs
- Using music-based learning strategies in subjects like language and math

- Training teachers to integrate songs, rhythm activities, and listening exercises
- Creating emotionally supportive classrooms through background music interventions

Williams and Lewandowski (2013) found that such classroom-based music interventions improve student engagement significantly.

Challenges in Implementation

Despite its benefits, integrating music into academics faces challenges:

- Limited funding for arts programs
- Inadequate teacher training
- Overemphasis on exam-oriented learning
- Misconception that music is “non-academic”
- Lack of time within tight school schedules

These barriers limit students’ access to the full benefits of music education.

Strategies for Strengthening Music in the Academic Integration

- Implement school-wide music programs
- Use rhythm and melody to teach literacy and numeracy
- Incorporate music into early childhood learning
- Provide access to instruments and music technology
- Train teachers in music-integrated pedagogy
- Encourage community involvement and performances
- Include music-based therapeutic activities for stress reduction

Such strategies allow schools to harness the full academic potential of music.

Conclusion

Music is far more than an artistic pursuit; it is a powerful educational tool that enhances cognitive development, strengthens academic skills, and supports emotional and social well-being. Research consistently shows that students engaged in music

perform better academically, develop essential cognitive abilities, and experience improved motivation and confidence. Integrating music into academic environments is therefore not optional but necessary for holistic education. Schools that embrace music-based learning help students unlock their full intellectual and creative potential.

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**The Impact of Birth Order on Social Connectedness Among
Secondary School Students**

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Abstract

Social connectedness is a fundamental aspect of adolescent development, shaping how young individuals experience belongingness, support, and interpersonal trust. Birth order, a key element of family structure, influences the nature of children's relationships both within and beyond the household. The present study explores differences in social connectedness across birth-order categories among secondary school students in Kerala. Employing survey method, data were gathered from 300 Class IX students using a standardized Social Connectedness Inventory. Descriptive statistics and one-way ANOVA were used to analyze variations among first-born, middle-born, last-born, and single children. Findings reveal significant birth-order differences, with last-born and single children demonstrating comparatively higher social connectedness. These results support theoretical expectations regarding sibling position and social relational patterns. The study underscores the relevance of birth-order dynamics in school-based guidance and suggests the importance of incorporating family contexts while designing interventions aimed at strengthening adolescents' social bonds.

Keywords: social connectedness, birth order, secondary school students

Introduction

Adolescence is a period marked by rapid physical, emotional, and social transitions. During this stage, young people develop an increased need for acceptance, companionship, and supportive relationships. Social connectedness, defined as an individual's subjective sense of closeness and meaningful affiliation with others, plays a vital role in helping adolescents gain confidence, cope with challenges, and construct healthy identities.

Family dynamics, particularly birth order, influence how children interact with their immediate environment. Classical and contemporary theories argue that sibling

position affects personality characteristics, communication patterns, and social tendencies. For example, first-born children often assume responsibility within the family, middle-born children may negotiate their position among siblings, while last-born and single children frequently receive more emotional attention and support.

Despite increasing research on social connectedness internationally, fewer studies in the Indian context have examined how sibling position shapes adolescents' relational experiences. As schools remain central environments for socio-emotional development, understanding birth-order differences in connectedness is valuable for tailoring support systems and educational practices. This study investigates whether birth order contributes to measurable variations in social connectedness among secondary school students.

Materials and Methods

Research Method

A survey method was employed, allowing the systematic assessment of behavioural tendencies and perceptions across a large student group.

Participants

The study sample consisted of 300 Class IX students enrolled in aided secondary schools in Ernakulam district, Kerala. Students represented four birth-order categories:

- First-born
- Middle-born
- Last-born
- Single children

Tool

The Social Connectedness Inventory, developed and standardised by the investigator, was used to measure students' perceived relational quality across multiple domains, including family bonds, peer interactions, school engagement, community involvement, and digital social exchanges. The tool demonstrated adequate reliability and content validity.

Procedure

Data were collected with institutional consent and student assent. The tool was administered during regular school hours, ensuring confidentiality and voluntary participation.

Data Analysis

Data were analyzed using:

- Means and standard deviations
- Percentage distribution
- One-way ANOVA to evaluate birth-order differences

Results

Overall Social Connectedness Levels

The Level of Social Connectedness among Secondary School Students Based on Total Sample

Table 1

Nature of the Scores of Social Connectedness among Secondary School Students Based on Total Sample

Mean	Median	Mode	SD	Skewness	Kurtosis
91.78	93	86	11.75	-0.27	0.14

The Social Connectedness scores of secondary school students have a mean of 91.78, a median of 93, and a mode of 86, indicating a slightly left-skewed distribution, as the mean is marginally lower than the median. The standard deviation of 11.75 suggests moderate variability in the scores. The skewness value of -0.27 confirms a slight negative skew, meaning the distribution has a longer left tail but is nearly symmetric. Additionally, the kurtosis value of 0.14 indicates that the distribution closely resembles a normal curve with no extreme peaks or heavy tails. Overall, the data is fairly symmetrical and well-distributed around the mean.

Table 2

Dependability of Scores of Social Connectedness among Secondary School Students Based on Total Sample

Sample	Mean	SE _M	Confidence Level (95%)	SD	SE _{SD}	Confidence Level (95%)
300	91.78	0.678	(90.45, 93.11)	11.75	0.48	(10.99, 12.59)

The Social Connectedness scores of secondary school students show a mean of 91.78 with a standard error of 0.678, resulting in a 95% confidence interval for the mean of (90.45, 93.11), indicating that the true average score is highly likely to fall within this range. The standard deviation of the scores is 11.75 with a standard error of 0.48, and the 95% confidence interval for the standard deviation is (10.99, 12.59), reflecting moderate variability in the scores. These results demonstrate that the scores are both consistent and reliable, with limited variability and a well-defined range for the mean and spread of Social Connectedness among the students.

Table 3

Percentage Analysis of Scores of Social Connectedness among Secondary School Students Based on Total Sample

Sl. No	Level of Scores	Frequency	Percentage
1	Above average	47	15.67 %
2	Average	201	67 %
3	Below average	52	17.33 %
	Total	300	100 %

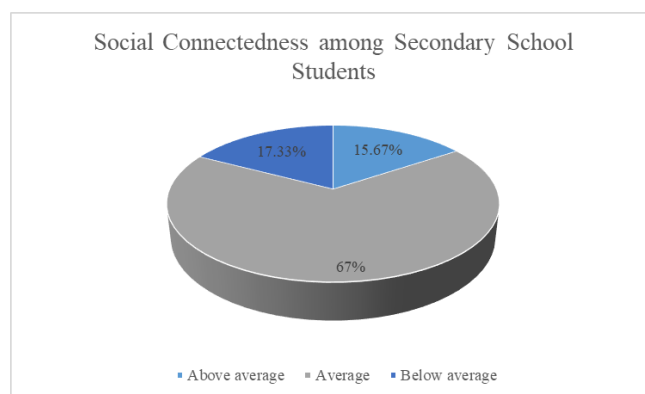
For analyzing the scores of Social Connectedness among Secondary School Students based on total sample the investigator used the percentage analysis method. The students in the Secondary School were categorized into three groups: Above average, Average, and below Average levels according to their scores of Social Connectedness. For this Mean score and Standard Deviation of Secondary School

Students were found. Those who have equal to the value of $M+\sigma$ and above are categorized as above average group and with scores equal to the value of $M-\sigma$ and below are categorised as below average group and the rest under the average group.

The percentage analysis of Social Connectedness scores among secondary school students reveals that the majority, 67% (201 students), fall within the average range, indicating that most students exhibit a typical level of Social Connectedness. Additionally, 15.67% (47 students) scored above average, reflecting a smaller proportion of students with higher Social Connectedness levels. Meanwhile, 17.33% (52 students) scored below average, suggesting a minority of students with lower levels of Social Connectedness. This distribution highlights that while most students have average levels of Social Connectedness, nearly one-third of the students are either significantly higher or lower, suggesting some diversity in social connectivity among the group. The comparison is graphically represented in figure 1

Figure 1

Pie Diagram Showing Scores of Social Connectedness among Secondary School Students Based on Total Sample



The distribution of social connectedness revealed:

- 67% of students displayed average connectedness,
- 15.67% showed above-average levels, and
- 17.33% scored below average.

This indicates that most students maintain a moderate level of relational engagement.

Birth Order and Social Connectedness

Table 4

Mean Scores of Social Connectedness by Birth Order

Birth Order	Mean Score	Interpretation
First-born	90.23	Average
Middle-born	88.50	Average–Low
Last-born	93.54	High
Single child	95.06	High

Table 5

Comparison of Means Scores of Social Connectedness between First Born, Middle Born, Last Born and Single Children at Secondary School using ANOVA

Variable	Sum of Squares	df	Mean Square	f value	p value	
Social Connectedness	Between the group	1466.04	3	488.68	3.82	0.01
	Within the group	37902.62	296	128.05		
	Total	39368.67	299			

The ANOVA conducted to compare the mean scores of Social Connectedness among secondary school students based on birth order (First Born, Middle Born, Last Born, and Single Children) revealed a statistically significant difference, with an F-value of 3.82 and a p-value of 0.01 ($p < 0.05$). This indicates that birth order has a significant impact on the social connectedness of students.

The results indicate that last-born and single children exhibit higher social connectedness compared to first-born and middle-born peers.

Discussion

The study demonstrates that social connectedness varies significantly across birth-order categories. These findings complement classical birth order theories that emphasize differential patterns of attention, responsibility, and relational experiences within families.

Higher connectedness among last-born children may stem from their tendency to be more socially expressive and to receive greater familial affection. Being accustomed to older siblings' support may also enhance their ability to form meaningful peer relationships.

Single children often receive exclusive parental attention, which can strengthen their communication skills and emotional security. These factors collectively contribute to stronger perceptions of connectedness across family and peer contexts.

On the other hand, first-born children, who frequently adopt caregiving or leadership roles at home, might face higher expectations, potentially limiting their social exploration. Middle-born children, who often negotiate their identity between older and younger siblings, may experience reduced attention, contributing to lower connectedness scores.

Understanding these patterns is essential for educators and counsellors. Birth-order information serves as a valuable lens to interpret student behaviour, relational tendencies, and socio-emotional needs. Schools can utilize this awareness to design targeted activities—such as peer mentoring, structured group work, and social skill-building programs—to support students with comparatively lower connectedness.

Conclusion

The study establishes that birth order significantly influences social connectedness among secondary school students. Last-born and single children reported stronger relational ties, whereas first-born and middle-born students displayed moderately lower levels. These findings emphasise the role of family structure in shaping adolescents' social development.

Schools and counsellors are encouraged to integrate awareness of birth-order dynamics into student support systems. Enhancing social connectedness through structured peer interactions, collaborative learning, and community engagement can strengthen adolescents' interpersonal capacities. Future studies may explore the influence of parenting styles, cultural norms, and digital interactions to provide a more comprehensive understanding of adolescents' social connectedness.

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**Curriculum and Social Sensitivity: Strengthening Values of
Equality and Respect**

Feba Grace & Lavina Dominic

Abstract

Social sensitivity has become a vital aspect of contemporary education, especially as learners grow up in societies marked by cultural diversity and social inequalities. It involves being aware of social differences, understanding the lived experiences of others, and responding with empathy and ethical behaviour. This article discusses how curriculum can serve as a powerful instrument for cultivating values of equality and respect among students. Through thoughtful content design, inclusive instructional strategies, and meaningful assessment practices, curriculum can foster socially aware individuals capable of contributing positively to their communities. The article further examines theoretical frameworks, synthesises related research, and outlines the challenges and strategies involved in embedding social sensitivity in curriculum development.

Keywords: Social sensitivity, curriculum development, inclusive learning, equality, respect, multicultural education, pedagogy, social values

Introduction

Education today must address not only intellectual growth but also the moral, social, and emotional development of learners. As classrooms include students from varied linguistic, cultural, socio-economic, and ability backgrounds, fostering social sensitivity becomes essential. Social sensitivity promotes empathy, respectful behaviour, and appreciation of human diversity.

Curriculum plays a central role in shaping learners' values; it is the medium through which schools communicate society's goals and ideals. A curriculum enriched with elements of equality, respect, and justice encourages learners to reflect on social issues and participate in building an inclusive society. This article explores how curriculum design and educational practices can be intentionally structured to nurture socially sensitive individuals.

Concept of Social Sensitivity

Social sensitivity refers to the capacity to recognise, interpret, and respond to social contexts with understanding and empathy. In educational settings, it involves:

- Appreciating differences related to gender, caste, religion, culture, ability, and socio-economic background
- Demonstrating empathy, kindness, and respect
- Questioning discriminatory norms and stereotypes
- Supporting equitable treatment of all individuals
- Acting responsibly in social interactions
- Developing social sensitivity enables learners to engage peacefully in diverse environments and participate actively in democratic society.

The Curriculum as a Medium for Developing Social Sensitivity

Curriculum encompasses content, instructional methods, learning experiences, and assessment procedures. It has immense potential to promote social sensitivity by:

1. Representing diverse voices and perspectives
2. Encouraging ethical thinking and empathy
3. Engaging learners in critical examination of inequalities
4. Preparing students to collaborate and coexist respectfully

A curriculum infused with social sensitivity helps shape individuals who value justice and uphold human dignity.

Review of Related Literature

Scholars have emphasised the need for integrating inclusive, multicultural, and socially responsive content into curriculum.

Banks (2016) advocates for a multicultural curriculum that reflects the experiences of various cultural groups. He asserts that such representation promotes democratic values and reduces prejudice. Noddings (2013) ethics of care highlights the importance of fostering relationships, empathy, and compassion. Her work stresses that curriculum must nurture emotional and moral development. Freire's critical pedagogy (2025) encourages learners to examine oppressive structures and become agents of social change. Curriculum, according to Freire, should stimulate critical thinking about injustice. UNESCO (2015) emphasizes Global Citizenship Education, recommending

that curricula promote peace, human rights, equality, and intercultural understanding at all levels of schooling.

Gay (2018) stresses the need for culturally responsive teaching, arguing that connecting curriculum to learners' cultural backgrounds enhances engagement and reduces alienation. Kumar & Gupta (2020) in their research demonstrates that exposure to inclusive curriculum improves empathy, classroom behaviour, and peer relationships among secondary school students in India. Sharma (2019) highlights the importance of teacher training in integrating social sensitivity, noting that curriculum reforms are ineffective without teacher readiness.

The literature collectively indicates that curriculum must incorporate diverse perspectives, critical analysis, and value-based learning to foster social sensitivity. Such curriculum leads to more inclusive classrooms, improved social interactions, and greater ethical awareness among students.

Theoretical Foundations Supporting Social Sensitivity

Constructivism

Constructivist theorists suggest that learners build knowledge through experiences and social interaction. Activities like group discussions and collaborative projects help students understand different viewpoints.

Humanistic Education

Humanistic principles emphasise emotional well-being, empathy, and self-understanding. These principles align closely with developing social sensitivity.

Critical Pedagogy

Freire's approach encourages students to question inequality and discrimination. Curriculum inspired by this theory promotes critical thinking and social justice.

Multicultural Education

Banks' multicultural approach supports curricular inclusion of diverse cultures and identities, fostering mutual respect and reducing prejudice.

Curriculum Dimensions That Promote Social Sensitivity

1. Content Integration

Learning materials should portray diverse groups accurately, avoid stereotypes, and highlight themes of justice, equality, and respect.

2. Pedagogical Approaches

Teaching methods should be participatory and experiential. Strategies such as role-playing, storytelling, collaborative learning, and debates help students develop empathy and awareness.

3. Inclusive Environment

An inclusive classroom ensures that every learner feels valued. It supports students with disabilities, encourages multilingualism, and promotes gender-sensitive practices.

4. Assessment Practices

Assessments should go beyond rote learning and include reflective writing, group tasks, and real-life problem-solving to evaluate students' social understanding and empathy.

Role of Teachers

Teachers are key contributors to nurturing social sensitivity. Their roles include:

- Demonstrating fairness, respect, and non-discrimination
- Encouraging meaningful discussions on social issues
- Challenging biased comments or behaviours
- Adapting instruction to meet the needs of diverse learners
- Creating a safe, inclusive learning climate

Teachers' attitudes and practices significantly influence how students internalise social values.

Challenges in Implementing Social Sensitivity in Curriculum

- Presence of Bias in Textbooks: Some textbooks still contain stereotypes or underrepresentation.
- Teacher Bias: Unconscious biases can impact teacher expectations and interactions.

- Exam-Centric Education: Systems focused heavily on examinations leave little room for value-based activities.
- Lack of Teacher Preparation: Many educators are not trained in inclusive and culturally responsive pedagogy.
- Cultural and Social Barriers: Prejudices rooted in society may hinder discussions on sensitive topics.

Strategies to Strengthen Social Sensitivity Through Curriculum

- Integrating life skills like empathy, cooperation, and conflict resolution
- Ensuring balanced representation in textbooks and learning materials
- Using digital media and ICT tools to create awareness
- Promoting experiential learning through community engagement
- Introducing modules on human rights, equality, and social justice
- Offering continuous professional development for teachers
- Establishing strong school policies for inclusion and anti-discrimination

These strategies ensure that social sensitivity becomes an integral part of the learning process.

Impact of a Socially Sensitive Curriculum

A curriculum that prioritises social sensitivity contributes to:

- Improved peer relationships
- Reduced stereotyping and discriminatory behaviour
- Enhanced empathy and emotional intelligence
- Higher student engagement
- Peaceful and inclusive school environments
- Development of ethically responsible citizens

Such curriculum prepares learners to contribute positively to diverse societies.

Conclusion

Embedding social sensitivity into curriculum is essential for developing learners who value equality, empathy, and respect. Through diverse and inclusive content, reflective pedagogy, and supportive school environments, curriculum can guide

students toward becoming compassionate and socially responsible individuals. In a world marked by difference and diversity, strengthening social sensitivity through education is not only beneficial but necessary for promoting harmony and justice.

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**ITEP for the Future: Toward Sustainable, Inclusive, and
Technology-Driven Teacher Education**

Anupama K. S. & Rohit D. P.

Abstract

India's Integrated Teacher Education Programme (ITEP) is the most consequential restructuring of initial teacher preparation since independence, aligning pre-service curricula with the National Education Policy (NEP) 2020 and Sustainable Development Goal 4 (SDG 4). This paper synthesizes policy, theoretical, and practice-oriented literature to articulate a future-ready vision of ITEP that is (a) sustainable-ecologically, institutionally, and financially; (b) inclusive-responsive to disability, language, gender, and socioeconomic diversity; and (c) technology-driven-grounded in robust pedagogical frameworks such as TPACK and SAMR, which are the four levels of integrating technology into learning to enhance or transform educational tasks). Using a narrative integrative review, the article maps policy mandates (NEP 2020; NCTE's ITEP norms), global agendas (SDG 4; ESD (Education for Sustainable Development)), and Indian digital public infrastructure (DIKSHA, SWAYAM, NISHTHA). It then proposes a design blueprint for ITEP curricula, practicum, assessment, and faculty development, including sample course modules, micro-credential paths, universal design templates, and transformation-oriented educational technology integration. The paper concludes with an implementation roadmap and research agenda to evaluate equity, quality, and technology outcomes across ITEP cohorts.

Keywords: integrated teacher education programme (ITEP), national education policy 2020 (NEP 2020), sustainable development goal 4 (SDG 4), inclusive education, universal design for learning (UDL), technological pedagogical content knowledge (TPACK), substitution, augmentation, modification, and redefinition (SAMR), digital infrastructure for knowledge sharing (DIKSHA), study webs of active learning for young aspiring minds (SWAYAM), national initiative for school heads' and teachers' holistic advancement (NISHTHA).

Introduction

The Integrated Teacher Education Programme (ITEP) is designed to bring together India's previously scattered teacher-training pathways into a unified, four-year model that blends disciplinary study, pedagogy, and sustained school engagement. It translates the aspirations of NEP 2020 by treating teaching as a true profession, raising the bar for entry, and aligning teacher preparation with the skills needed in contemporary classrooms. To support this transition, the National Council for Teacher Education (NCTE) released updated regulations and notifications guiding institutions on shifting from the earlier four-year B.A./B.Sc. B.Ed. courses to the new ITEP framework, with admissions to the old programs ending from 2025–26. NEP 2020 also emphasizes that teacher education should be “rigorous, multidisciplinary,” rooted in India's cultural ethos, and equipped to use technology meaningfully for blended learning.

At the same time, India's commitments under SDG 4 stress the need for “inclusive and equitable quality education” and lifelong learning for every learner. UNESCO's Education 2030 agenda identifies Education for Sustainable Development (ESD) and inclusive teaching approaches as central strategies for transforming education systems. These global and national priorities intersect within ITEP: a next-generation teacher-education model must be sustainability-oriented (ESD-focused), inclusive (attentive to diversity, disability, and equity), and technologically enriched in ways that support - not overshadow- sound pedagogy.

This study provides three contributions. First, it offers a literature-grounded rationale for a sustainable-inclusive-tech triad in ITEP. Second, it translates policy frameworks into an actionable program design using UDL, TPACK and SAMR (Substitution, Augmentation, Modification, and Redefinition, which are the four levels of integrating technology into learning to enhance or transform educational tasks). Third, it outlines an implementation and research agenda that the profession can use to track impact on teacher competence and student outcomes.

Review of Related Literature

Policy and Governance: National Education Policy (NEP) 2020 and ITEP Norms

NEP 2020 reimagines teacher education as a four-year, integrated, multidisciplinary degree situated in universities, with robust subject majors,

educational theory, practicum, and research (MoE, 2020). It stresses professional standards, competency-based curricula, and Continuous professional development (CPD) of at least 50 hours per year (NCERT, 2025). The NCTE's ITEP regulations (Gazette, 2024) establish program norms and a national transition from legacy integrated degrees to ITEP, with no fresh admissions to the older four-year integrated B.A./B.Sc. B.Ed. from 2025–26 (NCTE, 2021&2024). A May 2025 NCTE public notice reiterates alignment with NEP 2020 and the statutory basis for ITEP implementation (NCTE, 2025).

Global and National Agendas: SDG 4 and ESD (Education for Sustainable Development)

SDG 4 emphasizes both equity (“inclusive and equitable quality education”) and relevance for sustainable development. UNESCO describes Education for Sustainable Development (ESD) as the process of enabling learners to develop the understanding, competencies, values, and dispositions needed to contribute to a sustainable future. It emphasizes that teacher-education programmes should integrate ESD throughout their curriculum. Additionally, the Education 2030 Global Cooperation Mechanism highlights the need for education systems to advance more rapidly by strengthening collaboration among multiple stakeholders (UNESCO, 2023).

Inclusive Education and Legal Mandates

The Rights of Persons with Disabilities (RPwD) Act, 2016 in India requires educational systems to ensure inclusion by upholding principles of non-discrimination, accessibility, and reasonable accommodation (Government of India, 2016). Official guidance highlights education-specific provisions (Department of School Education & Literacy, 2019). For pre-service programs, this implies coursework and practicum that prepare teachers to design accessible environments, use assistive technologies, and develop Individualized Education Plans (IEPs). UDL provides an evidence-informed framework aimed at enhancing learning for every student by ensuring varied options for engagement, representation of content, and ways to demonstrate understanding (CAST, 2018).

Technology Integration: Frameworks and Platforms

Evidence suggests that technology improves learning only when integrated with pedagogical and content knowledge. The Technological Pedagogical Content

Knowledge (TPACK) framework (Mishra & Koehler, 2006; Koehler & Mishra, 2013) conceptualises this intersection. The SAMR model (Substitution, Augmentation, Modification, Redefinition) guides reflective progression from enhancement to transformation (Puentedura, 2013; Romrell et al., 2014). As Puentedura (2013) puts it, the key design question is: “What is the new task... uniquely made possible by the new technology?”

India’s digital public infrastructure

DIKSHA ((Digital Infrastructure for Knowledge Sharing - NCERT’s national platform for content and teacher development) and SWAYAM (Study Webs of Active Learning for Young Aspiring Minds - government MOOCs) - expands access to open educational resources, micro-credentials, and CPD. NISHTHA (National Initiative for School Heads’ and Teachers’ Holistic Advancement), India’s large-scale teacher capacity program, now runs online variants (NISHTHA 2.0) and codifies NEP’s 50-hour CPD expectation (NCERT, 2025; DSEL, 2024). These platforms can be braided into ITEP for stackable learning pathways.

Empirical and Theoretical Syntheses

Reviews of SAMR applications show its utility as a reflective design lens but caution against treating it as a linear ladder detached from pedagogy (Blundell et al., 2022). TPACK research corroborates the need to develop knowledge at the intersections rather than in silos (Mishra & Koehler, 2006; Schmidt et al., 2009). UDL’s evidence base points to benefits for diverse learners when curricula intentionally vary representations, engagements, and expressions (CAST, 2018).

Conceptual Framework

This study conceptualizes future-ready ITEP through a Sustainability-Inclusion-Technology (SIT) Triangle:

1. Sustainability (ESD - Education for sustainable development): Teachers cultivate systems thinking, futures literacy, and place-based problem-solving aligned with SDG 4 and ESD.
2. Inclusion (UDL + RPwD): Programs embed UDL checkpoints and disability rights literacy across coursework and practicum; inclusive assessment is normative.

3. Technology (TPACK) + SAMR (Substitution, Augmentation, Modification, and Redefinition): Technology integration is design-led and evidence-based, moving toward SAMR “modification/redefinition,” not gadget substitution.

This triangle is undergirded by policy compliance (NEP 2020; NCTE norms), open infrastructure (DIKSHA/SWAYAM), and professional growth (NISHTHA/CPD).

Methodology

This paper employs a narrative integrative review to synthesize current policy documents, statutory instruments, global frameworks, and peer-reviewed literature on teacher education, inclusion, and educational technology. Sources included official gazettes, policy PDFs, UNESCO/UN sites, and seminal academic works (Mishra & Koehler, 2006; Puentedura, 2013; CAST, 2018). Selection criteria prioritized (a) statutory and official policy authority for Indian context; (b) recognized frameworks with substantial citation footprints; and (c) recency for implementation updates (NCTE notices; NCERT CPD expectations). The analysis used thematic coding around the SIT Triangle and translated themes into program design elements.

Findings

Blueprint for a Future-Ready ITEP

1. Curriculum Architecture

- **Multidisciplinary Core + ESD Spine**
A four-year sequence should integrate a humanities/science major with an ESD spine: systems thinking, climate literacy, circular economy, and community-based projects aligned to local contexts. UNESCO’s ESD guidance recommends policy-curriculum congruence and experiential projects.
- **Inclusion and UDL:** Across the Program UDL should be embedded, not elective. Course syllabi map CAST’s checkpoints to weekly learning outcomes (CAST, 2018). Inclusive education law (RPwD) is introduced in Year 1 and operationalized in practical through accessible lesson planning, assistive tech use, and IEP collaboration (Government of India, 2016; DSEL, 2019).

- Technology Integration via TPACK + SAMR Methods courses co-design lessons where content aims drive technology choices. Candidates critique and redesign activities to shift from enhancement to transformation. For example, a traditional essay (substitution) becomes a multimodal, data-informed community brief (redefinition) co-authored with local stakeholders- uniquely made possible by the new technology (Puentedura, 2013). TPACK seminars focus on designing at the intersections (Mishra & Koehler, 2006; Koehler & Mishra, 2013).
- Micro-credentials with DIKSHA/SWAYAM
Each semester includes at least one open micro-credential (Assessment literacy, assistive tech basics) via DIKSHA or SWAYAM, curated to ITEP outcomes; artifacts accrue to a professional portfolio (NCERT, 2025).

2. *Practicum and School Partnerships*

- Progressive Clinical Model
Start with virtual micro-practicals (Year 1), move to targeted inclusion/ESD placements (Year 2–3), and culminate in a year-long internship (Year 4) aligned with NCTE practicum norms (NCTE, 2024).
- Inclusive and Sustainable School Labs
Partner schools serve as “Living Labs” for universal design and ESD projects (e.g., energy audits, water harvesting, biodiversity mapping) integrating science, social sciences, and languages.
- Mentoring and Technology Coaching
Mentor teachers trained through NISHTHA pathways provide coaching on UDL lesson study and transformation-oriented educational Technology. (NCERT, 2025; DSEL, 2024).

3. *Assessment and Quality Assurance*

- Competency-Based Assessment
Rubrics assess (a) content mastery, (b) pedagogical repertoire, (c) inclusive design (UDL checkpoints in plans/artifacts), and (d) technology integration quality SAMR level justified by TPACK reasoning.
- E-Portfolios and Public Scholarship
Candidates curate lesson videos, UDL plans, data-informed reflections, and community products. Public sharing on institutional repositories, where appropriate, drives authenticity.

- Program-Level Indicators
Programs track: proportion of redefinition-level designs; accessibility compliance; number of DIKSHA/SWAYAM micro-credentials; ESD project impacts (e.g., school resource savings); and CPD continuity post-graduation.

4. Faculty Development and Governance

- 50-Hour CPD (Continuous professional development) Ecosystem
ITEP faculty meet NEP's expectation that "every teacher... participate in at least 50 hours of CPD" annually (NCERT, 2025). Institutions recognize CPD via workload and incentives.
- Open Content and Co-Creation
Faculty co-create OER on DIKSHA, feeding national repositories and fostering a culture of sharing (CIET-NCERT)
- Compliance and Transition Management
Institutions align admissions, infrastructure, and staffing with NCTE's transition directives and inspection criteria (NCTE, 2021/2024; NCTE, 2025).

Discussion

Aligning Policy Ambition with Classroom Reality

ITEP's promise hinges on coherent enactment. NEP 2020 aspires to professional standards and blended learning; NCTE codifies program norms. Yet, fidelity requires implementation capacity contains faculty upskilling, accessible infrastructure, and school partnerships that embrace inclusive and ESD oriented practices. As UNESCO's SDG 4 mechanism emphasizes, systems-level cooperation is essential to "accelerate progress" (UNESCO,2023).

Inclusion as Design, Not Accommodation

UDL reframes inclusion from retrofitted accommodations to proactive design. CAST (2018) argues UDL "improve and optimize teaching and learning for all". Embedding UDL across courses and practical develops anticipatory design mindsets. RPwD compliance must be routine: accessible facilities, assistive technologies, and IEP collaboration are non-negotiable (Government of India, 2016; DSEL, 2019).

Technology with Pedagogical Integrity

The TPACK literature warns against techno centrism (Mishra & Koehler, 2006). SAMR (Substitution, Augmentation, Modification, and Redefinition, which are the four levels of integrating technology into learning to enhance or transform educational tasks), when used reflexively, supports movement from enhancement to transformation (Romrell et al., 2014). The design test is not the tool, but whether technology enables disciplinary practices and authentic audiences unavailable otherwise (Puentedura, 2013). National platforms-DIKSHA, SWAYAM, and NISHTHA-provide scale and equity if integrated as curricular elements, not add-ons (NCERT, 2025).

Sustainability as Core Literacy

ESD across ITEP ensures future teachers can guide learners to connect local issues (water, waste, energy, biodiversity) to global systems. This aligns both with SDG 4's equity thrust and with Indian priorities for environmental stewardship. ESD projects in practical model civic engagement and interdisciplinary learning.

Implications and Recommendations

- 1) Curricular Mandates: Require each method course to evidence UDL checkpoint mapping and at least one SAMR-redefinition design justified through TPACK reasoning.
- 2) Clinical Requirements: Guarantee placements that allow disability-responsive practice (e.g., resource rooms, inclusive classrooms) and ESD community projects.
- 3) Micro-Credential Pathways: Embed semester-wise DIKSHA/SWAYAM micro-credentials into degree audit; recognize them in hiring dossiers.
- 4) Faculty Incentives: Tie workload credit and promotion to CPD (≥ 50 hours), OER contributions, and school-based research.
- 5) Infrastructure and Accessibility: Audit campuses and partner schools for RPwD - aligned accessibility; allocate funds for assistive technology.
- 6) Quality Indicators: Monitor the extent to which technology-enabled learning reaches transformative levels, assess the consistency of UDL implementation,

measure progress in ESD-related learning outcomes, and review participation trends in continuous professional development.

- 7) Policy Coherence: Ensure institutional policies and academic schedules are synchronized with the NCTE's transition requirements, and adopt NISHTHA training modules to unify and strengthen mentor preparation.

Limitations

This integrative review draws on policy documents and theoretical scholarship, but it does not include original empirical evidence from ITEP student cohorts. Future research using mixed-method approaches should examine changes in teacher candidates' competencies (such as UDL and TPACK), observe how their instructional practices align with SAMR levels, and evaluate resulting student outcomes—including learning gains, inclusion indicators, and the impact of ESD-related projects.

Conclusion

India's ITEP has the potential to emerge as an international model when sustainability, inclusion, and technology are integrated as fundamental elements rather than treated as isolated priorities. The foundations established through NEP 2020 and NCTE regulations already provide clear direction. Global and national reference points—such as UNESCO's SDG 4 and ESD frameworks, the RPwD Act, and pedagogical models like UDL, TPACK, and SAMR—further strengthen the conceptual roadmap.

When these principles are translated into curriculum innovation, authentic school-based practice, robust assessment processes, and ongoing professional development—and when national platforms like DIKSHA, SWAYAM, and NISHTHA are leveraged to expand effective practices—ITEP can produce teachers capable of creating inclusive, future-focused, and technology-supported learning environments for all students.

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