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PROCEEDINGS

of the

Two Days Symposium on

Experiential and Embodied Learning Approaches in Special Education under NEP 2020:

*Integrating Theatre and Yogic Pedagogy
in Science Education for Learners with Disabilities*



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Principal's Note

Education becomes truly meaningful when it moves beyond the transmission of knowledge to embrace experience, participation, creativity, and inclusion. The National Education Policy (NEP) 2020 emphasises experiential and activity-based learning, recognising the importance of holistic development and equitable educational opportunities for all learners. The proceedings of the Two Days Symposium on “Experiential and Embodied Learning Approaches in Special Education under NEP 2020: Integrating Theatre and Yogic Pedagogy in Science Education for Learners with Disabilities” bring together valuable academic perspectives on innovative and inclusive pedagogical practices. The integration of theatre, yogic practices, and science education offers promising opportunities to engage learners through movement, expression, observation, collaboration, and embodied experiences. These proceedings provide a platform for educators, researchers, teacher educators, special educators, and policymakers to exchange ideas and explore approaches that respond to the diverse learning needs of students with disabilities. I hope this publication will encourage further research, professional dialogue, and the practical implementation of inclusive teaching strategies in educational institutions. I appreciate the efforts of the conveners, editors, contributors, and organising team of the Regional Institute of Education (NCERT), Mysuru, in bringing this academic initiative to fruition. May these proceedings contribute meaningfully to the advancement of accessible, equitable, and transformative education in the spirit of NEP 2020.



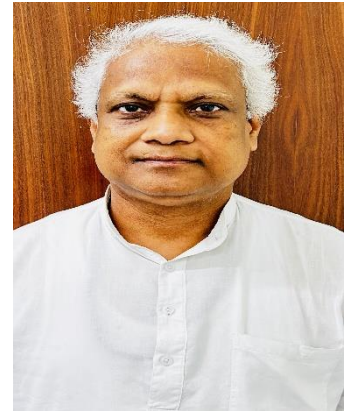
Prof. Pradyumna Kumar Sethy

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Dean's Note

Education is most effective when it recognises the diversity of learners and provides meaningful opportunities for every individual to participate, explore, and learn. The National Education Policy (NEP) 2020 encourages experiential, activity-based, and learner-centred pedagogies that promote holistic development and strengthen inclusive educational practices. The proceedings of the Two Days Symposium on “Experiential and Embodied Learning Approaches in Special Education under NEP 2020: Integrating Theatre and Yogic Pedagogy in Science Education for Learners with Disabilities” represent a valuable academic initiative towards exploring innovative approaches to teaching and learning. The integration of theatre, yogic pedagogy, and science education offers opportunities to enrich classroom experiences through creative expression, movement, sensory engagement, and active participation, while addressing the diverse needs of learners with disabilities. This publication brings together extended abstracts that contribute to academic dialogue on inclusive pedagogy, experiential learning, and educational innovation. It provides a platform for researchers, teacher educators, special educators, and practitioners to exchange ideas and reflect on approaches that can make learning more accessible, engaging, and meaningful. I congratulate the organisers, editors, and contributors for their efforts in bringing this symposium and its proceedings to fruition. I hope this publication will inspire further research, collaboration, and the implementation of inclusive teaching practices in educational institutions, contributing to the broader vision of equitable and quality education for all.



Prof. Pratyusa Kumar Mandal

Dean of Instructions

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Editors' Note

The pursuit of inclusive education requires pedagogical approaches that recognise learners' diverse abilities, experiences, and ways of engaging with knowledge. In the context of the National Education Policy (NEP) 2020, experiential and embodied learning offer important possibilities for making education more participatory, accessible, meaningful, and responsive to individual learning needs. The present symposium proceedings, titled "*Experiential and Embodied Learning Approaches in Special Education under NEP 2020: Integrating Theatre and Yogic Pedagogy in Science Education for Learners with Disabilities,*" bring together extended abstracts that explore innovative educational practices at the intersection of special education, theatre, yogic pedagogy, and science education. The contributions reflect the importance of active engagement, sensory and bodily experiences, creative expression, movement, and inclusive classroom practices in supporting diverse learners. The volume seeks to encourage academic discussion on how theatre-based activities and yogic practices can complement science teaching and learning, particularly when educational experiences are designed to accommodate learners with disabilities. It also highlights the need for collaboration among teacher educators, researchers, special educators, and practitioners to develop inclusive strategies grounded in educational theory and practice.

As editors, we acknowledge the contributions of all authors and participants whose ideas and scholarly engagement have enriched this publication. We express our sincere gratitude to the leadership and academic community of the Regional Institute of Education (NCERT), Mysuru, for supporting this symposium and facilitating dialogue on inclusive educational innovation. We hope these proceedings will serve as a useful academic resource for researchers, teacher educators, special educators, and students, while inspiring further inquiry and practical initiatives towards equitable and inclusive education.



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ART AND THEATRE-BASED PEDAGOGY IN INCLUSIVE EDUCATION

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Abstract

Inclusive education requires pedagogical approaches that recognise learner diversity, encourage active participation, and provide equitable opportunities for meaningful learning. Art and theatre-based pedagogy offer promising approaches to addressing diverse educational needs by integrating creative expression, movement, storytelling, role-play, improvisation, and collaborative performance into the teaching–learning process. This abstract explores the educational potential of arts-integrated and theatre-based practices in promoting inclusion, social interaction, communication, emotional expression, and peer relationships among learners with and without disabilities. Through activities such as drama games, tableau, mime, role-play, sensory exploration, and collaborative storytelling, teachers can create flexible learning environments in which learners participate through different modes of expression and demonstrate their understanding beyond conventional verbal and written responses. These approaches may be particularly valuable for learners with visual, hearing, intellectual, developmental, and physical disabilities when activities are appropriately adapted to their individual strengths and support requirements. Theatre-based pedagogy can also encourage empathy, cooperation, perspective-taking, and awareness of disability, thereby contributing to more accepting classroom communities. However, effective implementation requires accessible learning materials, differentiated activities, teacher preparation, appropriate assistive support, and opportunities for every learner to contribute meaningfully. The integration of art and theatre into inclusive education aligns with the learner-centred and experiential orientation of the National Education Policy (NEP) 2020. The paper highlights the need to move beyond viewing art and theatre merely as extracurricular activities and to recognise their potential as inclusive pedagogical resources across curricular areas. It concludes that thoughtfully designed arts- and theatre-based practices can enrich classroom engagement and support the development of more participatory, creative, and inclusive educational environments.

Keywords: Art-based pedagogy, theatre-based learning, inclusive education, learners with disabilities, experiential learning, social inclusion, NEP 2020.

ADVANCING INCLUSIVE EDUCATION THROUGH RCI AND NEP 2020

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Abstract

Inclusive education is a fundamental principle of an equitable and learner-centred education system that recognises diversity, promotes participation, and ensures meaningful learning opportunities for all learners, including persons with disabilities. In India, the National Education Policy (NEP) 2020 and the Rehabilitation Council of India (RCI) provide important policy and professional frameworks for strengthening inclusive educational practices through curriculum transformation, teacher preparation, professional standards, and accessible learning environments. This topic focused on the complementary roles of NEP 2020 and RCI in advancing inclusive education, with particular attention to the preparation of teachers and special educators, capacity building, barrier-free learning environments, and the implementation of inclusive pedagogical practices. NEP 2020 emphasises equitable access, flexibility in teaching and assessment, the integration of assistive technologies, and the provision of appropriate support for learners with disabilities. RCI contributes to this vision through the regulation of professional training programmes, recognition of qualifications, and the promotion of standards for special educators and rehabilitation professionals. The effective integration of these frameworks requires stronger collaboration among general educators, special educators, teacher education institutions, educational administrators, and policymakers. It also calls for pedagogical approaches that accommodate diverse sensory, cognitive, linguistic, and physical needs through differentiated instruction, universal design for learning, experiential learning, and accessible educational resources. Within the broader context of teacher education, the session highlights the importance of translating policy commitments into classroom-level practices that foster participation, autonomy, social inclusion, and holistic development. It further emphasises the need for continuous professional development, institutional accountability, and systematic monitoring of inclusive education initiatives. The topic concludes that meaningful progress towards inclusive education depends not merely on policy formulation but on coordinated implementation, professional competence, and a sustained commitment to educational equity. Aligning the vision of NEP 2020 with the professional framework of RCI can contribute to a more accessible, responsive, and inclusive education system in India.

Keywords: Inclusive Education, NEP 2020, Rehabilitation Council of India, Teacher Education, Special Education

INCLUSIVE ART AND PLAY-BASED EDUCATION FOR DIVERSE LEARNERS

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Abstract

Inclusive education requires learning environments in which every child can participate, communicate, explore and demonstrate learning in meaningful ways. The National Education Policy (NEP) 2020 promotes experiential learning, arts-integrated education, activity-based pedagogy and each learner's unique abilities. These priorities support inclusive art and play for children with disabilities (CwDs). This paper examines inclusive art- and play-based education for children with intellectual, sensory, physical and motor, communication, neurodevelopmental and learning disabilities, including disabilities recognized under the Rights of Persons with Disabilities (RPwD) Act, 2016. Art and play are not merely recreational activities or rewards after academic work. When planned with clear learning goals, they can support attention, memory, concept formation, problem-solving, early literacy and numeracy, communication, fine- and gross-motor development, independence, social participation, emotional expression and self-regulation. Drawing, music, movement, drama, storytelling, construction, sensory exploration and cooperative games provide different ways for children to understand ideas and express what they know. Such experiences can strengthen peer relationships, confidence, choice-making and belonging. The paper focuses on practical ways to make classroom art and play accessible. It discusses Universal Design for Learning principles, multiple means of engagement, representation and expression, and reasonable accommodations. Examples include tactile and high-contrast materials, sign-supported instructions, visual schedules, simplified steps, adapted tools, accessible play spaces, alternative response methods, communication boards, peer support and flexible time. It highlights the need to consider individual strengths, preferences, sensory needs, safety, cultural relevance and age appropriateness, rather than assuming that all children within one disability category require the same support. The paper concludes that inclusive art and play depend mostly on thoughtful planning, positive attitudes, collaboration and observation. By adapting activities without removing meaningful participation, teachers can turn classroom experiences into opportunities for equitable learning, agency and social inclusion.

Keywords: Inclusive Education; Art-integrated Learning; Play-based Learning; Experiential Learning; Universal Design for Learning; Children with Disabilities; NEP 2020; RPwD Act 2016

INCLUSIVE SCIENCE PEDAGOGY FOR DIVERSE LEARNERS UNDER NEP 2020

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Abstract

Inclusive science education seeks to ensure equitable access to meaningful scientific learning for students with diverse abilities, disabilities, learning needs, and sociocultural backgrounds. The National Education Policy (NEP) 2020 emphasizes inclusive, equitable, and learner-centered education, necessitating pedagogical approaches that address learner diversity in science classrooms. This paper examines the relevance of inclusive science pedagogy and explores strategies such as activity-based learning, inquiry-based instruction, Universal Design for Learning (UDL), differentiated instruction, theatre pedagogy, multisensory teaching, and assistive technology. It highlights the adaptation of instructional materials, laboratory activities, classroom interactions, and assessment practices to facilitate the participation of learners with visual and hearing impairments, intellectual disabilities, and specific learning disabilities. Tactile models, visual representations, audio descriptions, collaborative experiments, and role-play are considered practical means of making scientific concepts accessible through multiple modes of engagement and expression. The paper further discusses teachers' competencies in identifying individual learning needs, designing accessible learning experiences, and implementing flexible assessment practices. The importance of continuous professional development, accessible laboratory infrastructure, and appropriate assistive technologies is also emphasized. Drawing on the principles of NEP 2020, the National Curriculum Framework for School Education 2023, and the Rights of Persons with Disabilities Act 2016, the paper underscores the need to integrate inclusive pedagogical practices into science education. Such integration can promote scientific literacy, conceptual understanding, critical thinking, active participation, and equitable learning opportunities for all learners.

Keywords: Inclusive science pedagogy, NEP 2020, diverse learners, Universal Design for Learning, differentiated instruction, assistive technology, and science education.

EDUCATION FOR ALL: ISSUES AND CHALLENGES IN INCLUSIVE AND SPECIAL EDUCATION WITH SPECIAL REFERENCE TO NATIONAL EDUCATION POLICY 2020

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Abstract

Education, being as an essential investment in the development of human resources is vital to nation building. Investment in education increases accumulation of human capital. Education makes substantial contribution to national income and its growth. It empowers human beings to acquire greater control over the circumstances that dominate their lives and contributes to the quality their life. However, there is no denying the fact that all sections of the society do not have an equal access to education in the world, especially in the developing and the under developed countries, so it is to say that inequality in the distribution of earnings is positively correlated with inequality in access to education and vice-versa. The principle of equity is thus gaining ground as being quite important, considered to be the first necessary step towards the attainment of rewarding position and higher standard of living, particularly for the disadvantage segments of the population. ‘Education for All’ is a fundamental principle that emphasizes equitable access to quality education for every learner, irrespective of disability, gender, socioeconomic background, language, culture, or geographical location. Inclusive and special education play a crucial role in realizing this vision by addressing the diverse learning needs of children, particularly those belonging to Socio-Economically Disadvantaged Groups (SEDGs) and children with disabilities. The National Education Policy (NEP) 2020 emphasizes equity, inclusion, accessibility, and equal educational opportunities for all learners. It advocates the integration of children with disabilities into mainstream education, while recognizing the importance of education councillors, special teachers, individualized teaching plan, assistive technologies, accessible infrastructure, and appropriate pedagogical practices. Despite these provisions, several challenges persist, including inadequate infrastructure, shortages of trained special teachers, limited learning resources, social stigma, discriminatory attitudes, inaccessible learning materials, and insufficient implementation of inclusive policies. Furthermore, the effective coordination of general and special education systems remains essential to ensure meaningful participation and learning outcomes. This paper examines the major issues and challenges in achieving Education for All, with particular reference to inclusive and special education under NEP 2020. It highlights the need for capacity building, community participation, flexible curricula, universal design for learning, and effective policy implementation by Central and State/UTs governments to establish an equitable, accessible, and inclusive educational system for every learner.

Keywords: Inclusive Education, NEP 2020, SEDGs, Special Education

YOGA AS A TRANSFORMATIVE EDUCATIONAL PRACTICE ALIGNING WITH THE VISION OF NEP 2020

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Abstract

The new Indian educational policy, NEP 2020, creates an educational path that fosters inclusive student development, encouraging creative and critical thinking, experiential learning, competency-based education, and the integration of physical education with academic studies. In this context, yoga and meditation offer an educational approach that extends well beyond physical postures; they encompass body awareness, mindfulness, self-reflection, emotional understanding, and responsible engagement. Given the broader vision of 21st-century educators to shape students into civilised and well-educated citizens, the relevance of yoga as an inclusive, evidence-based pedagogical tool becomes highly significant. When examined through its conceptual, philosophical, and scientific foundations, it becomes evident that yoga can strengthen areas such as stress management, attention, executive functions, emotional well-being, classroom engagement, and readiness to learn. Based on a review of the existing research literature, this discussion systematically explores school-level yoga-based interventions, identifying their benefits, methodological limitations, and areas for further investigation. Research findings indicate that outcomes may vary depending on participants, intervention design, implementation context, and evaluation methods. The primary focus lies in translating policy principles into practical educational strategies. This involves teachers in experiential exercises, classroom-based demonstrations, research evaluation, reflective discussions, and the design of concise, yoga-based instructional activities. Education centred on yoga and meditation promotes accessibility, voluntary participation, cultural sensitivity, and physical safety; furthermore, for children with special needs, it helps alleviate stress and muscular tension while enhancing cognitive focus. It also offers evaluation methods, including measurable learning outcomes, participant feedback, systematic observation, and small-scale institutional studies. Rather than presenting yoga as a panacea or a substitute for established educational and health services, it is viewed as a valuable component of a comprehensive, learner-centred educational framework. Ultimately, such a pedagogical process aims to empower educators to integrate yoga-based practices in a thoughtful, critical, and inclusive manner. This fosters an educational environment that values academic study, well-being, personal growth, and meaningful engagement, aligning with the core spirit of the NEP 2020.

Keywords: Yoga, NEP 2020, Holistic Education, Experiential Learning, Self-Regulation, Inclusive Education, Evidence-Based Practice

ENHANCING TEACHERS' EXPRESSIVE PEDAGOGY THROUGH THEATRE-BASED VOICE MODULATION AND RASA PRACTICE: A PRACTICAL DEMONSTRATION APPROACH

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Abstract

Effective classroom teaching involves more than the transmission of subject knowledge; it also requires teachers to communicate ideas through vocal variation, facial expressions, body movements, gestures, and emotional responsiveness. Monotonous speech, limited non-verbal expression, and insufficient awareness of bodily communication may reduce learner engagement and weaken the effectiveness of classroom interaction. Theatre-based pedagogy offers practical techniques through which teachers can develop expressive communication and create more engaging learning experiences. The present practice-oriented study proposes to demonstrate how theatre techniques, particularly voice modulation exercises and Rasa-based expressive practices, can be integrated into teacher education to strengthen expressive pedagogical competencies. The demonstration will focus on vocal pitch, tone, pace, volume, pauses, articulation, and emphasis, enabling teachers to understand how vocal variation can communicate meaning, maintain attention, and convey classroom instructions effectively. In addition, Rasa practice, informed by the Indian aesthetic tradition, will be used to explore the relationship between emotional states, facial expressions, bodily gestures, posture, movement, and expressive awareness. Through guided exercises, emotional expression activities, role-play, storytelling, and simulated classroom teaching, participants will practise transforming ordinary instructional delivery into more expressive and engaging communication. The practical demonstration will also encourage teachers to reflect on their habitual communication patterns and recognise the pedagogical significance of verbal and non-verbal expression. The proposed approach is expected to offer a practical framework for incorporating theatre-based activities into teacher preparation and professional development programmes. Particular attention will be given to purposeful expression, emotional appropriateness, inclusive communication, and sensitivity to diverse learners. The study highlights the potential of theatre as an experiential and embodied pedagogical resource for developing teachers' expressive competence and enriching classroom interaction.

Keywords: Theatre-Based Pedagogy, Voice Modulation, Rasa Practice, Facial Expression, Body Language, Expressive Pedagogy, Teacher Education, Classroom Communication.

IMPACT OF MIND MAP-BASED INSTRUCTION ON CONCEPTUAL UNDERSTANDING OF SCIENCE CONCEPTS AMONG SEVENTH-GRADE STUDENTS WITH HEARING IMPAIRMENT

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Abstract

Science education fosters curiosity, critical thinking, and problem-solving, but teaching it effectively requires engaging and interactive methods. For students with hearing impairment, traditional approaches often fail to meet their learning needs, resulting in difficulties with conceptual understanding and lower academic achievement. Mind Mapping, a visual and brain-based instructional strategy introduced by Tony Buzan (1995), can enhance comprehension, memory retention, and organization of concepts by integrating images, colours, keywords, and hierarchical structures. This study investigated the impact of mind map-based instruction on conceptual understanding of science concepts among seventh-grade students with hearing impairment. A quasi-experimental pretest–posttest control-group design was adopted. Two English-medium special schools were purposively selected, and 30 eligible seventh-grade students were randomly assigned to an experimental group ($n = 15$) receiving mind map-based instruction and a control group ($n = 15$) receiving conventional instruction. A researcher-developed Science Conceptual Understanding Test and lesson-based mind maps were developed and validated by five experts in Special Education, and suggested modifications were incorporated. Formal permission was obtained from the school authorities, and ethical considerations, including informed consent and confidentiality of students, were strictly maintained. The intervention was conducted over one month, with sessions held for three days per week for 45 minutes each. Independent-samples t -tests were used to compare the pre-test and post-test scores between the groups, while paired-samples t -tests were used to examine within-group changes. The pre-test scores showed no significant difference between the groups, indicating baseline comparability. The control group showed a small and non-significant improvement from pre-test ($M = 6.73$) to post-test ($M = 7.10$), $t(14) = -1.319$, $p = .208$. In contrast, the experimental group demonstrated a significant improvement from pre-test ($M = 7.40$) to post-test ($M = 16.20$), $t(14) = -17.701$, $p < .001$. These findings indicate that the experimental group showed greater improvement in science conceptual understanding following the intervention. The findings highlight the value of integrating visual and interactive strategies such as mind mapping into science education for children with hearing impairment, enhancing conceptual understanding and supporting inclusive and effective learning outcomes.

Keywords: Mind Mapping, Conceptual Understanding, Hearing Impairment, Visual Learning, Science Education.

FROM MOVEMENT TO MEANING: EMBODIED SCIENCE LEARNING THROUGH YOGA AND THEATRE IN INCLUSIVE CLASSROOMS

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Abstract

Science learning in inclusive classrooms requires pedagogical approaches that move beyond predominantly verbal, text-based and observational modes of instruction and create meaningful opportunities for learners to experience scientific concepts through multiple forms of engagement. Embodied learning offers such a possibility by positioning the body, movement, sensory experience, emotion and reflection as integral to the construction of knowledge. In this context, the present paper explores the pedagogical potential of integrating yoga and theatre as complementary experiential strategies for making science learning more accessible, participatory and meaningful for diverse learners. The paper proposes an embodied science-learning approach in which selected scientific concepts are transformed into experiences through yogic movement, breathing, posture, role-play, gesture, dramatization, imitation, sensory exploration and reflective dialogue. Yoga contributes body awareness, breath regulation, concentration and mindful observation, while theatre provides opportunities for expression, enactment, communication, imagination and collaborative meaning-making. These practices can be adapted to different learning profiles through multisensory, multimodal and differentiated classroom activities. Rather than presenting yoga and theatre as additional activities, the approach positions them as pedagogical pathways through which learners can observe, enact, explore, communicate and reflect upon scientific phenomena. The proposed framework particularly considers how embodied experiences can support the learning of concepts that may otherwise remain abstract or difficult to visualise. Processes, systems, movements and relationships in science can be represented through bodily actions, dramatic situations, collaborative modelling and guided experiential tasks. Such experiences may create multiple entry points to learning and enable learners with diverse abilities to participate according to their individual strengths and modes of expression. The paper further examines the potential of this approach to promote conceptual understanding, active participation, communication, creativity, collaboration, self-awareness and confidence, thereby contributing to the holistic development envisioned in the National Education Policy (NEP) 2020. It argues that inclusive science education should not only accommodate learner differences but also actively use those differences as opportunities for richer classroom interaction and knowledge construction. The paper concludes by proposing that the integration of yoga and theatre can transform the science classroom into an embodied learning environment where movement becomes experience, experience becomes expression, and expression becomes scientific meaning. This approach offers teachers a flexible and inclusive pedagogical pathway for connecting scientific knowledge with learners' bodies, senses, emotions and lived experiences.

Keywords: Embodied Learning, Experiential Learning, Yoga, Theatre Pedagogy, Science Education, Inclusive Classrooms, Holistic Development

FROM POLICY PROMISE TO LINGUISTIC JUSTICE: REIMAGINING INCLUSIVE MULTILINGUAL EDUCATION UNDER INDIA'S NATIONAL EDUCATION POLICY 2020

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Abstract

The National Education Policy (NEP) 2020 emphasizes equity, inclusion, and multilingualism as foundations for social justice and national development. This conceptual paper critically examines the policy's language-education vision, focusing on mother-tongue or home-language-based multilingualism, the flexible three-language formula, and the gap between policy intentions and implementation. Defining equity as fairness, inclusion as participation, and multilingual education as the integrated use of learners' linguistic resources, the paper examines policy provisions alongside debates on language hierarchy, linguistic disadvantage, and the challenges faced by tribal, minoritized, and minority-language learners. The analysis identifies NEP 2020 as an opportunity to recognize learner agency, linguistic diversity, and the pedagogical benefits of early education in familiar languages. However, flexibility alone cannot ensure inclusion amid restrictive state language policies, examination frameworks, uneven teacher capabilities, inadequate resources, and the dominance of English and major Indian languages. The paper advocates an integrated, context-responsive multilingual framework grounded in critical language awareness, systematic language mapping, bilingual and translanguaging pedagogies, locally developed resources, and diverse assessment practices. It concludes that NEP 2020's transformative potential depends not only on policy aspirations but also on institutional arrangements that ensure equitable linguistic recognition, resources, and opportunities in everyday classrooms.

Keywords: NEP 2020; Inclusive Multilingual Education; Linguistic Justice; Mother-Tongue-Based Education

ALIGNING PEDAGOGY OF PHYSICAL SCIENCE WITH NEP 2020: EMBODIED APPROACHES FOR INCLUSIVE LEARNING

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Abstract

Among the school sciences, physics and chemistry ask learners to grasp entities that are, by their nature, never available to direct perception: the arrangement of atoms and molecules, the mechanics of chemical bonding, the behaviour of electric current and field, the transfer of energy, and the ordered rules of IUPAC naming. These phenomena differ from forces and motion, where causes remain hidden, but effects are directly felt; instead, they must be constructed entirely as mental models because no student will ever visually observe, touch, or physically experience the entities themselves. For students with disabilities, who must routinely navigate curricula tailored to conventional visual or textual formats, the imperceptible nature of these concepts constructs a secondary obstacle within an already exclusionary instructional paradigm. This paper advocates for a fundamental shift in physical science instruction, proposing theatre-based enactment as an alternative pathway into imperceptible phenomena—one that operates through embodied experience rather than strictly visual channels. Grounded in theories of embodied and grounded cognition, it posits that learners can build robust, functional internal models of atomic interactions, chemical bonding, and current flow through structured physical performance. By adopting roles to demonstrate electron transfer, dramatizing chemical reactions via character interactions, or utilizing coordinated movement and vocalization to illustrate relational concepts such as equilibrium, periodic trends, and energy transfer learners materialize abstract ideas. Through structured physical expression, vocal engagement, and collaborative meaning-making, theatrical techniques offer an accessible pathway for exploring scientific concepts that lack direct sensory counterparts, demonstrating particular utility for learners with varied sensory, cognitive, and communicative needs. This rationale aligns directly with current national policy frameworks in India. NEP 2020 explicitly advocates for experiential, competency-based, and inclusive pedagogy, while NCFSE 2023's Panchakosha Vikas model formally identifies physical, cognitive, and creative-spiritual growth as foundational pillars of curricular design. Theatre simultaneously engages all of these dimensions: its physical performance activates the body, its collaborative construction of meaning addresses cognition, and its artistic form fosters creative expression, framing it as a unified method that addresses a multi-dimensional developmental framework rather than a minor skill addition. Rather than treating drama as an extra activity inserted into physical science instruction, this paper presents a pedagogical model that positions theatre as an authentic, direct strategy for rendering abstract physics and chemistry concepts accessible to learners. The paper closes by considering what this integration means for how physical science teachers are prepared, how inclusive lessons on topics such as atomic structure, chemical bonding, electric current, energy transfer, and periodic trends can be designed.

Keywords: Embodied Cognition, Inclusive Physical Science Pedagogy, Theatre-Based Learning, Role-Play in Science Education, NEP 2020, NCFSE 2023, Disability, Atomic And Chemical Abstraction

INTGRATING AI-DRIVEN SMART IRRIGATION INTO SCIENCE EDUCATION: A SIMULATION FRAMEWORK FOR SUSTAINABLE RICE WATER MANAGEMENT

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Abstract

Rice (*Oryza sativa* L.) is a vital global crop, yet its production requires substantial water input of 3419 L/kg which is much higher than other crops, exacerbating agricultural water scarcity. With accelerating climate challenges and water scarcity, embedding advanced digital technologies into sustainability education has become essential. This study investigates the integration of Artificial Intelligence (AI) and IoT driven smart irrigation models in Rice into science teaching to enhance comprehension of environmental sustainability and resource conservation. The primary objective was to evaluate how AI based data analytics and sensor simulations facilitate the learning of sustainable agricultural water management. Through AI driven simulation platforms, the analysed soil moisture datasets and developed predictive irrigation schedules designed to optimize water efficiency and minimize wastage. Assessments revealed that AI integrated instruction significantly improved understanding of real time resource conservation and its direct alignment with Sustainable Development Goals (SDGs). Furthermore, it demonstrated high competency in applying predictive algorithms to tackle water management challenges in Rice. The study concludes that embedding AI into sustainable agricultural management systems significantly improves crop productivity (~16%) and optimizes water use efficiency (118 kg/ha-cm). By promoting site specific water management practices in rice cultivation, these systems can reduce overall water requirements up to 56% while conserving essential resources.

Keywords: Artificial Intelligence (AI), Environmental Sustainability, Rice, Smart Irrigation, Sustainable Development Goals (SDGs)

ACTINVOLVE: BRIDGING THEATRE PEDAGOGY AND COMPUTER VISION FOR EXPERIENTIAL LEARNING IN NEURODIVERGENT SCIENCE CLASSROOMS

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Abstract

Most digital learning tools ask students to sit and click, and very little of the body gets involved. This paper describes ActInvolve, a prototype that links theatre-based science activities with webcam-based computer vision, so that a learner's movement becomes the way they interact with the lesson. The prototype uses MediaPipe Pose to detect a small set of predefined movements and responds with digital feedback. The science concept was evaporation, and learners showed with their bodies how water molecules gain energy, leave the liquid and spread into the air. The work followed a design-and-development approach with a formative evaluation of the app itself; the prototype was not implemented in a real classroom. Three movements were tested over 90 planned trials. Between 88 and 89 were detected correctly (the record for one movement does not add up exactly, see Section 7.1), no false activations were recorded, and the recorded latency was 1000 ms for all three movements. Five students took part in testing sessions and all five finished all five tasks, with help ranging from none to verbal prompting and demonstration. One expert evaluator rated the prototype 3 or 4 on each of ten dimensions (mean 3.6 on a 1–5 scale), and a System Usability Scale response gave a score of 85. The sample is very small and there was no comparison group, so the results describe how the prototype performed in these sessions and say nothing about wider effectiveness or learning gains. The study offers one workable way of combining theatre pedagogy, embodied learning and computer-vision interaction in science teaching.

Keywords: Assistive Technology, Theatre Pedagogy, Neurodiversity, Experiential Learning, Embodied Learning, Computer Vision, Science Education, NEP 2020

INTEGRATING THEATRE INTO SCIENCE EDUCATION FOR CHILDREN WITH SPECIAL NEEDS (CWSN): OPPORTUNITIES AND CHALLENGES

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Abstract

Science education is important for developing scientific literacy, reasoning, problem-solving and inquiry skills. Children with Special Needs (CWSN) should get equal opportunities to learn science. However, science teaching may become difficult when lessons depend mainly on verbal explanation, reading, writing, diagrams or abstract ideas. Theatre-based pedagogy can provide another way of teaching science through acting, movement, dialogue, puppetry, storytelling and other forms of participation. This paper presents a conceptual review of the use of theatre in science education for CWSN. It reviews literature on drama-based pedagogy, science education, inclusive education and education of learners with different disabilities. The reviewed literature suggests that theatre can support conceptual understanding, scientific inquiry, communication, creativity, collaboration and classroom participation. However, the same theatre method may not be suitable for every learner. The choice of theatre form needs to consider the learner's needs, the science topic and the available support. The paper therefore presents a disability-responsive matrix connecting disability categories with suitable theatre forms, science topics, adaptations and possible learning outcomes. It also discusses challenges such as teacher preparedness, limited time, curriculum pressure, resources and the need to maintain scientific accuracy. The paper suggests that theatre can be useful in inclusive science classrooms when it is planned according to learner needs and used along with other teaching methods.

Keywords: Children with Special Needs, CWSN, Theatre-Based Pedagogy, Science Education, Inclusive Education, Experiential Learning, Universal Design for Learning

BEYOND THE SCREEN: DIGITAL, EXPERIENTIAL AND EMBODIED PEDAGOGIES FOR INCLUSIVE LEARNING UNDER NEP 2020

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Abstract

Inclusion in higher education is often linked to digital tools, devices that help with disabilities lectures with subtitles learning platforms and AI that personalizes learning. A look from a point of view questions this link. Disability as the social model says, is created not by mental differences but by the way institutions are set up to help a standard student. A website that works with a screen reader might look like it helps. Still keep the same setup. Access is not the same for everyone. Some people have access than others because of their class the language they speak their gender or where they live. So digital tools can actually keep the divisions they are supposed to break. Learning is also something that happens with the body and with people. Being part of a classroom involves the body, the attitude and being accepted by others. Students who are different often face shame that no technology can fix. The NEP 2020 promises education that's accessible to all and helps everyone grow. This gives some space for an understanding but it doesn't explain exactly how. The paper uses a way of thinking that looks at writings about digital access, ways to design learning for everyone and how students learn through experience and their bodies. It also looks closely at the NEP 2020 and other rules. No real information, from people is used. The synthesis suggests that digital environments extend flexibility, representational choice and personalisation; that theatre-based work supports expression, collaboration and the renegotiation of peer relations; and that yogic and embodied practice supports attention, self-regulation and well-being. These are complementary rather than competing: multimodal technologies can scaffold, rehearse and widen embodied participation for learners whose access to shared classroom space is constrained. The contribution is an integrated model in which UDL functions as the pedagogical bridge between accessible digital design, experiential learning and embodied practice, with implications for faculty development and institutional culture.

Keywords: Digital learning; Inclusive education; Experiential learning; Embodied pedagogy; Universal Design for Learning; Learners with disabilities; NEP 2020

**THEATRE-BASED PEDAGOGY IN INCLUSIVE SCIENCE EDUCATION: AN
EXPERIENTIAL LEARNING APPROACH FOR LEARNERS WITH DISABILITIES
UNDER NEP 2020**

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Abstract

The National Education Policy (NEP) 2020 advocates experiential, art-integrated, and inclusive pedagogical approaches to promote holistic learning and equitable educational opportunities for all learners. However, science education in many classrooms continues to rely predominantly on lecture-based instruction, which often presents challenges for learners with disabilities in understanding abstract scientific concepts. Theatre-based pedagogy offers a promising alternative by integrating role play, storytelling, simulation, mime, and other dramatic techniques to create meaningful, participatory, and multisensory learning experiences. This conceptual paper explores the potential of theatre-based pedagogy as an experiential approach to inclusive science education for learners with disabilities. Drawing upon Kolb's Experiential Learning Theory, Vygotsky's Social Constructivism, Gardner's Theory of Multiple Intelligences, and the principles of Universal Design for Learning (UDL), the paper examines how theatre-based instructional strategies can enhance conceptual understanding, collaboration, communication, creativity, and learner engagement. It further analyses the alignment of theatre-based pedagogy with the vision of NEP 2020 and the National Curriculum Framework (NCF) 2023. As a practical contribution, the paper proposes a structured theatre-based instructional sequence to support science teachers in designing inclusive and experiential classroom practices. The paper concludes that theatre-based pedagogy can serve as an effective complement to conventional science teaching by fostering active participation, accessibility, and meaningful learning for diverse learners, while identifying areas for future empirical research.

Keywords: Theatre-Based Pedagogy, Inclusive Science Education, Experiential Learning, Learners with Disabilities, NEP 2020, Universal Design for Learning, Arts-Integrated Learning

PREPARING STUDENT-TEACHERS FOR INCLUSIVE CLASSROOMS: REIMAGINING TEACHER EDUCATION THROUGH THE LENS OF NEP 2020

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Abstract

Education in the contemporary world is increasingly understood not merely as the transmission of knowledge but as a means of promoting equity, participation, dignity and social justice. Classrooms today are characterized by considerable diversity in learners' abilities, languages, cultures, socio-economic backgrounds, learning styles and educational experiences. Such diversity requires teachers to move beyond uniform approaches to teaching and develop learning environments in which differences are recognized as a natural part of classroom life rather than as barriers to learning. The present study examined the readiness of 20 ITEP student-teachers following a short-term inclusive teacher-preparation intervention. The findings showed positive descriptive changes across all four dimensions measured. Knowledge of inclusive education increased from 8.65 to 9.05, attitude towards inclusive education increased from 30.25 to 32.55, inclusive teaching self-efficacy increased from 34.15 to 36.30, and inclusive pedagogical readiness increased from 4.45 to 4.60. Overall readiness increased from 77.50 to 82.50. Reimagining B.Ed. and ITEP programmes through the lens of NEP 2020 can therefore contribute to strengthening the connection between educational policy and classroom practice. Inclusive teacher education should prepare teachers not simply to understand the idea of inclusion but to enact it through everyday teaching. Ultimately, inclusive classrooms require inclusive teachers, and inclusive teachers require teacher education that is itself inclusive, experiential, reflective and future-oriented.

Keywords: ITEP, Knowledge of Inclusive Education, Readiness, Educational Policy

BRIDGING LEARNING GAPS THROUGH INCLUSIVE FOUNDATIONAL LITERACY AND NUMERACY: A NEP 2020 APPROACH

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Abstract

Education becomes meaningful only when learners acquire the foundational skills required to understand, communicate, reason and participate effectively in their social and academic environments. Foundational Literacy and Numeracy (FLN) therefore occupy a central position in the development of children's educational trajectories. Literacy enables learners to listen, speak, read and write with understanding, while numeracy enables learners to understand numbers, quantities, operations, patterns and everyday mathematical situations. The present paper describes a practical teacher-led approach in which the teacher first noticed learning gaps during regular classroom teaching, identified specific areas of difficulty, planned differentiated activities, provided individual and peer support, used activity-based literacy and numeracy strategies, monitored learner responses continuously and modified instruction according to emerging needs. However, the achievement of FLN cannot depend solely on curriculum reform or policy directives. It requires teachers to notice differences in learners' starting points and respond to those differences through classroom practice.

Keywords: Foundational Literacy and Numeracy (FLN), Numeracy, Curriculum Reform

SOMATIC MAPPING IN INCLUSIVE EDUCATION: A THEATRE-IN-EDUCATION (TIE) FRAMEWORK FOR TEACHING STELLAR EVOLUTION TO LEARNERS WITH VESTIBULAR DYSFUNCTIONS

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Abstract

Conventional science pedagogy heavily relies on static, two-dimensional diagrams and text-centric materials to teach abstract astronomical phenomena. For neurodivergent learners experiencing vestibular processing dysfunctions, these visual-spatial methods present significant cognitive barriers. Because a compromised vestibular system affects spatial orientation, gravity perception, and balance, these students struggle to mentally conceptualize three-dimensional macroscopic transformations—such as gravitational collapse, thermal expansion, and stellar density transitions—without experiencing sensory disorientation or spatial anxiety. Aligning with the experiential, inclusive mandates of India's National Education Policy (NEP) 2020, this paper proposes an interdisciplinary intervention to be tested: Stellar Somatic Mapping. Departing from traditional pedagogical models that involve erratic physical movement or rotational orbits—which trigger dizziness in vestibular-challenged students—this paper introduces a stationary, collective Theatre-in-Education (TIE) framework. By translating the lifecycle of a star (from nebula compression to supernova collapse) into a highly structured sequence of slow-motion ensemble choreography, vocal resonance shifts, and tension-based physical tableaux, the classroom is transformed into a controlled performance space. The methodology utilizes “tactile anchors,” such as shared tension ropes and cooperative muscular bracing, intended to provide physical stability while allowing students to kinesthetically embody astrophysical forces like core thermal pressure and gravitational contraction. Ultimately, this paper proposes that structural mechanics borrowed from dramatic arts and physical theatre may help reduce sensory-spatial barriers in special education. As a low-cost, adaptable instructional blueprint, it offers humanities and science educators a testable method intended to support conceptual retention and equitable, embodied science education for diverse learners. The framework has not yet been implemented; the paper therefore reports no effectiveness data and instead specifies the target population, a reproducible protocol, and safety and evaluation plans for future testing.

Keywords: Theatre-in-Education (TIE), Somatic Mapping, Inclusive Pedagogy, Vestibular Dysfunction, Stellar Evolution, NEP 2020

EMBODIED AND EXPERIENTIAL APPROACHES TO SCIENCE EDUCATION FOR LEARNERS WITH DISABILITIES IN INDIA: A PRELIMINARY EVIDENCE MAP OF EMERGING EVIDENCE AND RESEARCH GAPS

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Abstract

These initial findings point to the fact that literature on inclusive science education in India is currently focused on the adaptation of science education for sensory disabilities, especially visual and hearing impairment, in which ongoing efforts by institutions have resulted in tactile sciences education resources and a growing vocabulary in the ISL in STEM domain. Assistive technologies using gestures constitute a new technological stream that currently focuses only on math and communication, not science education. Movement and dance-based methods have been observed to be practiced in Indian disability education for autistic learners and learners with intellectual disabilities; however, there was no direct connection in the literature found in this search to science concept learning in these learners. Two implications arise from this. First, considering the limitations of this preliminary scan, a more extensive and transparent systematic review – ideally a registered one using the PRISMA-ScR approach with two independent screeners and full access to subscription databases, including grey literature and regional language sources – is required to verify whether the gap persists when a more thorough search is performed. Second and separate from the verification process mentioned above, the theoretical basis for embodiment as a form of learning, combined with current evidence of the feasibility and popularity of movement-based approaches among Indian special educators, constitutes a compelling case for pilot studies in the area of moving-to-learn science even at this early stage of investigation: structured, discipline-specific movement or gestural tasks based on specific scientific concepts and measured by specific science concept tests among children with autism spectrum disorder and intellectual disability. These pilot studies would benefit most from a collaboration between special educators, dance/movement specialists and science teachers – an unusual but highly promising combination of expertise in the Indian special education literature. Filling this gap would allow the benefits of such teaching methods to be enjoyed by the disabled, who, according to existing research in this domain in India, have been underrepresented thus far. Filling this gap would allow the benefits of such teaching methods to be enjoyed by the disabled, who, according to existing research in this domain in India, have been underrepresented thus far.

Keywords: ISL in STEM, PRISMA-ScR, Indian Special Education Literature

EXPERIENTIAL AND EMBODIED LEARNING APPROACHES IN TEACHING SOME ABSTRACT CALCULUS-RELATED CONCEPTS IN THE HIGHER SECONDARY CLASSES FOR THE LEARNERS WITH INTELLECTUAL DISABILITIES

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Abstract

Calculus concepts such as limits, continuity, differentiation, integration, rate of change, and area under a curve can be difficult for higher secondary students with intellectual disabilities because these ideas are abstract. In this experiential and embodied method, students learn mathematics through movement, touch, observation, simple activities, real-life situations, objects, pictures, graphs, and digital tools such as GeoGebra. For example, rate of change can be explained by walking at different speeds, slope can be shown using ramps, limits can be explained by moving closer to a fixed point, and integration can be introduced by measuring and adding small areas. These activities help students see, touch, move, and experience mathematical ideas before learning symbols and formulas. This approach encourages active participation, repeated practice, and learning according to individual needs. It can improve students' understanding, confidence, communication, mathematical thinking, and ability to connect mathematics with everyday life. In this paper we will discuss how the experiential and embodied learning can make Calculus concepts simpler, more concrete, enjoyable, and inclusive for learners with intellectual disabilities.

Keywords: Experiential Learning, Embodied Learning, Calculus, Intellectual Disabilities, Inclusive Mathematics, Higher Secondary Education, Multisensory Learning, GeoGebra, Active Learning.

TRACING DESIGN THINKING MINDSETS IN SCHOOL SCIENCE: A CONTENT ANALYSIS OF NCERT SCIENCE TEXTBOOK ACTIVITIES

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Abstract

The present study analysed the representation of Design Thinking (DT) mindset dimensions in activities included in the NCERT Grade 9 Science Textbook. Design Thinking has gained increasing attention in science education for its potential to foster creative, collaborative, inquiry-oriented and problem-cantered learning. However, the extent to which school science curricula provide opportunities for developing the diverse dimensions of a Design Thinking mindset remains insufficiently examined. Drawing on the ten-dimensional Design Thinking Mindset framework proposed by Vignoli et al. (2023), a qualitative content analysis was employed to systematically code learner-directed activities, investigations, experiments and other task-based learning experiences. The analysis focuses on the frequency, explicitness and distribution of the ten dimensions across 67 activities. The findings indicate an uneven representation of the ten DT mindset dimensions, with learning orientation, experimentation and critical questioning more strongly represented, while empathy, creative confidence and other human-cantered dimensions were less visible. The findings provide curriculum- level insights into the existing gaps in DT development in school science and inform the design of pedagogical interventions that complement existing curricular provisions.

Keywords: Design Thinking; Science Education; NCERT Textbooks; Content Analysis

WARLI ART-BASED LEARNING OF GEOMETRICAL CONCEPTS AMONG STUDENTS WITH INTELLECTUAL DISABILITIES

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Abstract

Education is a basic human right. Mathematics is an important subject in the school curriculum for all students. Geometrical concepts are an essential part of mathematics. However, students with intellectual disabilities may find it difficult to understand and remember geometrical concepts. They need teaching methods that are simple, meaningful, and suited to their learning needs. Warli art can provide an interesting and hands-on way of learning these concepts. Warli painting is a traditional tribal art form from Maharashtra, India. It mainly uses simple geometric shapes such as circles, triangles, and squares to create different figures, objects, and patterns. Using Warli art in teaching can give students an opportunity to learn through drawing, observing, and creating. The present study aimed to examine the effect of Warli art on the learning of geometrical concepts among students with intellectual disabilities. The study focused on line concepts, shapes, and patterns. A total of sixteen students with intellectual disabilities were selected using purposive sampling. A researcher-developed questionnaire was used to assess their understanding of geometrical concepts. Descriptive statistics were used to analyse the data. The findings showed that the use of Warli art helped improve the students' understanding of geometrical concepts. The study suggests that Warli art can be used as a simple, creative, and experiential teaching approach to make the learning of geometrical concepts more interesting and meaningful for students with intellectual disabilities.

Keywords: Warli Art, Geometrical Concepts, Students with Intellectual Disabilities

NEP-ARISE: AN AUGMENTED REALITY–MEDIATED EXPERIENTIAL FRAMEWORK FOR SOCIAL-EMOTIONAL RESILIENCE AMONG LEARNERS WITH DISABILITIES UNDER NEP 2020

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Abstract

India's National Education Policy 2020 (NEP, 2020) asks schools to move toward experiential, competency-based and inclusive learning, yet classroom practice often remains centred on delivering content. Learners with disabilities can be left with few chances to act, explore and reflect. Augmented reality (AR) is frequently proposed as a remedy, but research on it tends to ask whether AR improves a skill rather than how it shapes experience, and social-emotional resilience is rarely the outcome of interest. This conceptual paper proposes NEP-ARISE, a framework that treats AR as a mediator within the experiential learning cycle and places resilience at its centre. Through a critical thematic synthesis of literature on AR in education, AR for learners with disabilities, affect and motivation, social-emotional learning and resilience, inclusive design, and Indian policy, the paper draws on experiential learning theory, sociocultural theory, self-determination theory, socio-ecological resilience theory and Universal Design for Learning. The framework has five layers (access, experience, reflection, relationship and enabling conditions), each mapped to NEP 2020 and paired with an inclusion safeguard. Four untested propositions follow: AR contributes most when embedded in the whole experiential cycle; adjustable AR tasks can broaden participation; resilience develops primarily through safe practice and supportive relationships; and all of this depends on teacher readiness, accessible devices, and ethical safeguards. The paper closes with implications for teachers, teacher educators, institutions, and policymakers, as well as a research agenda.

Keywords: augmented reality; experiential learning; social-emotional resilience; inclusive education; learners with disabilities; NEP 2020

NATURE AS A LIVING SCIENCE: EXPLORING MINDFUL ENGAGEMENT IN NATURE AMONG PROSPECTIVE TEACHERS

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Abstract

The National Education Policy (NEP) 2020 promotes a comprehensive and learner-centred approach to education by focusing on mindfulness, and environmental consciousness created by the teachers for the development of the learners. Mindfulness in nature has emerged as a potential pathway for strengthening human- nature connectedness, and psychological well-being. Understanding mindful engagement with nature among preservice teachers is important, as they play a significant role in shaping students' interaction with the nature. The present study aimed to assess the level of mindful engagement in nature among preservice teachers. A survey method was adopted, and data were collected from 129 prospective teachers through simple random sampling method using the Mindful Engagement in Nature Scale (MEINS), a validated self-report instrument comprising three sub-facets: Mind and Body in Nature, Noticing Nature, and Interbeing with Nature. The findings revealed a moderate level of mindful engagement in nature among preservice teachers, indicating their capacity to attend to, experience, and develop a sense of connectedness with the natural environment. The study highlights the importance of incorporating nature-based mindfulness practices into teacher education programmes to strengthen preservice teachers' nature-specific mindfulness among future learners.

Keywords: Mindful Engagement in Nature, Nature connectedness, Prospective teachers

EFFECTIVENESS OF ACTIVITY-ORIENTED REMEDIAL INSTRUCTION IN ENHANCING LEARNING READINESS AND ACADEMIC ENGAGEMENT AMONG STUDENTS WITH MILD INTELLECTUAL DISABILITY IN INCLUSIVE SETTINGS

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Abstract

The present study clearly demonstrates that Activity-Oriented Remedial Instruction (AORI) is an effective instructional approach for enhancing learning readiness and academic engagement among students with mild Intellectual Disability in inclusive settings. The study concludes that Activity-Oriented Remedial Instruction is an effective and practical instructional approach for enhancing learning readiness and academic engagement among SwMID in inclusive settings. The structured, experiential, and learner-centred nature of AORI promotes active participation, improves classroom involvement, and supports meaningful learning experiences. The findings highlight the importance of integrating activity-based remedial strategies within inclusive classrooms to address the diverse learning needs of students with Intellectual Disability.

Keywords: SwMID, Activity-Oriented Remedial Instruction (AORI)

ROLE OF THE NATIONAL DIGITAL LIBRARY OF INDIA (NDLI) IN PROMOTING TEACHING, LEARNING AND RESEARCH IN LIGHT OF NEP 2020

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Abstract

Libraries have traditionally served as important centres for accessing knowledge and supporting education and research. However, the growing use of digital technology has changed the way learners' access and use information. The National Digital Library of India (NDLI) is an important initiative in this changing environment, providing access to a wide range of educational resources through a single digital platform. It enables learners to search and access resources such as textbooks, journals, videos, audio materials, lectures, dissertations, and other learning content from different sources. This study focuses on analysing the electronic resources available through NDLI, identifying its organisational and subject-wise resources, and examining the learning materials provided for school education, particularly those developed by NCERT. The study also considers the role of NDLI in the context of the National Education Policy (NEP) 2020, which gives considerable importance to the use of technology, digital learning, equitable access to quality education, and learner-centred education. In this context, NDLI can serve as a useful platform for connecting learners with diverse digital resources and supporting learning beyond the traditional classroom. The study highlights the potential of NDLI to make educational resources more accessible, convenient, and inclusive, while also contributing to the broader goals of digital education and the effective implementation of NEP 2020.

Keywords: NEP 2020, NDLI, NCERT, Learners with Diverse Digital Resources

ROLE OF NEMETH-BASED LEARNING APPROACH IN IMPROVING MATHEMATICS AND SCIENCE NOTATION ACHIEVEMENT FOR STUDENTS WITH VISUAL IMPAIRMENT

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Abstract

This review article explores the impact of the Nemeth learning strategy on mathematics and science notation attainment of students with visual impairments (VI). The Nemeth Braille Code was developed in the 1940s by Abraham Nemeth, and is a system used by visually impaired learners to read and write mathematical and scientific symbols more accurately. It is a key element of equitable access to STEM (Science, Technology, Engineering and Mathematics) education and is vital for academic inclusion and success. The current literature reviewed in this paper shows that instruction using the Nemeth method has a significant effect on student achievement, conceptual understanding and confidence in math and science. Students who have been taught Nemeth demonstrate better results in mathematical fluency, spatial reasoning and problem-solving than their counterparts who have learned standard literary Braille. However, there are still some obstacles to be overcome, such as the lack of instructional materials, inadequate teacher training, and technological limitations. The review reflects the importance of a comprehensive approach to professional development, access to braille compatible technology, and revised instructional materials to support the effective implementation and equitable STEM education for the visually impaired learner.

Keywords: Nemeth Braille Code, Visual Impairments, STEM Education

REIMAGINING MATHEMATICS EDUCATION THROUGH INDIGENOUS KNOWLEDGE: A THEMATIC EXPLORATION OF INCLUSIVE APPROACHES FOR STUDENTS WITH LOW VISION

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Abstract

Mathematics education is essential for developing logical reasoning, analytical thinking, and problem-solving skills. Students with low vision face challenges, however, when mathematical concepts are communicated mostly through non-visual means, such as traditional print texts and poorly adapted instruction. Indigenous knowledge provides opportunities for relating maths learning to traditional measuring practices, cultural patterns, local games and problems in everyday life. This article examines the intersection of accessibility in mathematical education, Indigenous knowledge, multi-sensory pedagogy, cultural relevance and teacher preparation. The conversation gathers five themes that emerge from the literature: accessibility challenges in mathematics education; Indigenous knowledge as a resource for mathematical learning; multisensory and accessible pedagogies; and teacher preparation for inclusive mathematics education. The article suggests a comprehensive approach that can bring together Indigenous mathematics practices, curriculum goals, learning resources that are available to students, participatory pedagogies, and ongoing assessment. It suggests that culturally significant learning experiences should be provided in addition to individualised accessibility support, not as a replacement for provision of specialised education. The proposed framework offers an outline for further research on the potential feasibility of the framework and the impact it might have on mathematical understanding, engagement, anxiety, and achievement in students with low vision.

Keywords: Indigenous Knowledge, Mathematics Education, Low Vision, Inclusive Pedagogy, Multisensory Learning

LIVING HERITAGE IN SCHOOL PHYSICAL EDUCATION: A STUDY OF NCERT'S KHEL YATRA TEXTBOOKS

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Abstract

The National Education Policy (NEP) 2020 and the National Curriculum Framework for School Education (NCF-SE) 2023 envision an education system that is experiential, multidisciplinary, and rooted in India's cultural heritage. Reflecting this vision, the revised NCERT Khel Yatra Physical Education textbooks for the Middle Stage extend the scope of physical education beyond physical fitness by incorporating traditional games, yoga, regional movement important practices, cooperation, and reflective learning. Although these elements are integral to the curriculum, their significance from the perspective of Intangible Cultural Heritage (ICH) has received limited scholarly attention. This paper argues that school Physical Education has the potential to serve as a meaningful space for engaging with intangible cultural heritage through embodied learning. Based on a qualitative analysis of the revised NCERT Khel Yatra textbooks, the paper examines how traditional games, yoga, and culturally embedded movement practices reflect key dimensions of living heritage and contribute to cultural learning alongside students' physical and social development. By interpreting these curricular components through the framework of ICH, the paper highlights the role of movement as a medium for fostering cultural awareness, identity, and continuity. It further argues that recognizing the heritage dimension of Physical Education broadens existing discussions on heritage education and offers a fresh perspective on the educational value of movement within contemporary school curricula.

Keywords: Intangible Cultural Heritage, Physical Education, Heritage Education, Embodied Learning, NCERT, Cultural Identity.

FROM PANCHAKOSHA TO POSITIVE EDUCATION: A PANCHAKOSHA–POSITIVE EDUCATION INTEGRATIVE FRAMEWORK (PPEIF) FOR STUDENT WELL-BEING

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Abstract

The increasing emphasis on student well-being has prompted a global shift towards educational models that promote holistic human development alongside academic excellence. While Positive Education has advanced evidence-based approaches to flourishing, resilience, and social-emotional learning, the integration of Indigenous Knowledge Systems with contemporary educational sciences remains limited. Addressing this gap, this conceptual paper introduces the Panchakosha–Positive Education Integrative Framework (PPEIF), an interdisciplinary model that synthesizes the Panchakosha philosophy of the Taittiriya Upanishad with counselling psychology, positive psychology, educational neuroscience, and holistic pedagogy. The framework conceptualizes student development through five interrelated dimensions—Annamaya (physical well-being), Pranamaya (self-regulation and vitality), Manomaya (emotional and psychological well-being), Vijnanamaya (reflective wisdom and ethical cognition), and Anandamaya (meaning, purpose, and flourishing). PPEIF aligns these dimensions with developmental competencies, pedagogical strategies, counselling-informed interventions, and educational outcomes, offering a culturally responsive approach to whole-child development. By integrating ancient Indian wisdom with contemporary educational theory and practice, the framework extends existing Positive Education models beyond psychological well-being to encompass physical, emotional, cognitive, ethical, and existential dimensions of learning. The paper discusses the implications of PPEIF for curriculum design, teacher education, school counselling, and physical education, and proposes the framework as a foundation for future research and innovation in holistic education.

Keywords: Panchakosha, Taittiriya, Manomaya, Vijnanamaya, Pranamaya, Anandamaya

FROM DEFICIT TO DIFFERENCE: AN EMBODIED APPROACH TO LEARNING

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Abstract

Learning disability is often viewed through a deficit-based perspective, focusing mainly on learners' difficulties and limitations. This paper proposes a shift towards understanding these learners through the concept of embodied learning difference, where learning is shaped by the interaction of body, mind, experience, and environment. In education, this perspective recognises that learners may develop understanding through different pathways and forms of engagement. The paper explores the potential of embodied and experiential approaches to support reasoning and concept formation among learners with disabilities by creating opportunities for learning through experience, action, movement, and sensory engagement. Aligned with the vision of NEP 2020, the approach seeks to promote inclusive and meaningful learning. The paper aims to shift from viewing learning differences as limitations towards recognising them as diverse ways of learning and knowing, providing a foundation for more inclusive teaching practices.

Keywords: Embodied Cognition, Inclusive Education, Learning Differences, Reasoning

ENHANCING SCIENCE LEARNING AMONG EMERGING LEARNERS AT THE MIDDLE LEVEL THROUGH ACTIVITY-BASED TEACHING, MINDFULNESS AND POSITIVE REINFORCEMENT

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Abstract

This study examines how activity-based science teaching, a daily mindfulness routine and a star-based reward system can support emerging learners in a Class 8 government school classroom in Pondicherry. The study focused on twelve students who showed hyperactive and aggressive behaviour, abusive language, irregular attendance, low learning levels and limited participation, although all 45 students in the class took part in the activities. Over thirty days, students practised breathing exercises, yoga and meditation for fifteen minutes each day, engaged in five categories of science activities, and received stars and gifts for positive behavioural change. Behaviour was monitored through a daily observation checklist and a five-criterion star rubric, while conceptual understanding was measured through a pretest and post-test of twenty marks. The findings indicate improved conceptual understanding, calmer and more concentrated classroom behaviour, a gradual decline in abusive language and aggression, better hygiene and more regular attendance. The study concludes that combining mindfulness, hands-on learning and positive reinforcement offers an inclusive and effective approach for supporting emerging learners in science classrooms.

Keywords: Emerging Learners, Activity-Based Learning, Mindfulness, Positive Reinforcement, Inclusive Education, Science Teaching

FROM POLICY PROMISE TO LINGUISTIC JUSTICE: REIMAGINING INCLUSIVE MULTILINGUAL EDUCATION UNDER INDIA'S NATIONAL EDUCATION POLICY 2020

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Abstract

The National Education Policy (NEP) 2020 emphasizes equity, inclusion, and multilingualism as foundations for social justice and national development. This conceptual paper critically examines the policy's language-education vision, focusing on mother-tongue or home-language-based multilingualism, the flexible three-language formula, and the gap between policy intentions and implementation. Defining equity as fairness, inclusion as participation, and multilingual education as the integrated use of learners' linguistic resources, the paper examines policy provisions alongside debates on language hierarchy, linguistic disadvantage, and the challenges faced by tribal, minoritized, and minority-language learners. The analysis identifies NEP 2020 as an opportunity to recognize learner agency, linguistic diversity, and the pedagogical benefits of early education in familiar languages. However, flexibility alone cannot ensure inclusion amid restrictive state language policies, examination frameworks, uneven teacher capabilities, inadequate resources, and the dominance of English and major Indian languages. The paper advocates an integrated, context-responsive multilingual framework grounded in critical language awareness, systematic language mapping, bilingual and translanguaging pedagogies, locally developed resources, and diverse assessment practices. It concludes that NEP 2020's transformative potential depends not only on policy aspirations but also on institutional arrangements that ensure equitable linguistic recognition, resources, and opportunities in everyday classrooms.

Keywords: NEP 2020; Inclusive Multilingual Education; Linguistic Justice; Mother-Tongue-Based Education

Theatre and Art-Based Pedagogy: Fostering Creativity, Collaboration, and Critical Thinking

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Abstract

Theatre and Art-Based Pedagogy is an innovative teaching approach that integrates drama, visual arts, music, storytelling, and other creative forms into classroom learning. This research paper explores how these pedagogical practices promote active participation, creativity, critical thinking, communication skills, and emotional development among learners. Unlike traditional lecture-based teaching, theatre and art-based methods encourage experiential learning, collaboration, and self-expression, making education more meaningful and inclusive. The study examines the theoretical foundations of these approaches, their classroom applications across different subjects, and their impact on students' cognitive, social, and emotional growth. It also discusses the challenges teachers face in implementing these methods, including limited resources, insufficient training, and curriculum constraints. That integrating theatre and art into education creates engaging learning environments, improves student motivation, and supports holistic development. It recommends teacher training, curriculum integration, and institutional support to promote creative pedagogical practices in schools and higher education.

Keywords: Art-Based Pedagogy, Critical Thinking, Creative Thinking, Inclusive Education, Holistic Development, Self Expression

MIME AS AN ART FORM OF TEACHING SCIENCE THROUGH ONLINE MODE AT SECONDARY LEVEL TO A DIVERSE LEARNER - A CASE STUDY

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Abstract

Teaching science is an art to the science teacher with explanations and experimentations as an experiential learning through physical mode. However, the teaching science through online is cumbersome to the diverse learners, whereas the theatre art can replace the physical experimentation through mime and actions to represent, engage, explore and for expression of diverse learners in the class. The present study explores the use of mime as an art-based teaching strategy for teaching science to the student through online mode. A case study method was adopted to examine the learning experience of a selected single subject taught through online mode. Selected science concepts such as invisible living world, health, magnetic and heat effect, exploring forces were presented through structured mime activities. Data were collected through test administered before and after teaching the science lesson by asking simple questions to evaluate the knowledge gained. The findings of the study indicate that the teaching through mime created a support system to the subject in understanding and recalling the science concepts with interactive participation by responding to the questions. The study concludes that mime can serve as an effective teaching methods to teach science through online mode which may help the teachers to make abstract concepts more concrete. The study recommends the systematic mime as a teaching strategy to teach not only science but the other subjects through online and offline of inclusive classroom as well.

Keywords: Mime, Science, Online, Diverse Learner

INTEGRATING GAMIFICATION AS A TOOL OF ASSESSMENT

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Abstract

e-Game is a type of structured activity that contains certain instructions, challenges and rewards to engage participants. Assessment is the tool to track learners' understanding. This paper aims to bring these ideas together. The purpose of this study is to create e-games, demonstrate the features, in which ways teachers can implement simple gamification techniques into their daily assessment of a class, topic, or unit. Also, it aims how gamification can help students, teachers and institutes. Additionally, the study will be able to give teachers practical, low-effort ways of making assessments more interesting for students. The approach will be exploratory and directed towards teachers. As an example, selected teachers will implement them in the class. Games will be collected from existing educational websites and resources or designed by artificial intelligence by the researchers. Observations from teachers and classroom-level observations will be utilized to assess whether these activities are useful or not. The study is aimed to provide tools for gamified assessment that teachers can adapt to different types of classrooms. It may potentially encourage greater student engagement, offer instant feedback, decrease routinized evaluation, and enable educators to conduct engaging formative assessment using minimal resources.

Keywords: Gamified Learning, e-Game as a Tool for Assessment, Technology in Assessment of Learners

EXPLORING CREATIVE MATHEMATICS AND SCIENCE LEARNING THROUGH MEDIA TECHNOLOGY AND AI TOOLS FOR MIDDLE-STAGE LEARNERS

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Abstract

The increased application of digital technologies in the field of education has opened up new opportunities to support Mathematics and Science education among middle level students. However, it has been observed that the middle level students always find it difficult to understand the concepts of Mathematics and Science subjects; hence, it becomes necessary to offer them proper learning facilities so that they are able to comprehend those difficult concepts. The current study is an example of the study carried out on creative learning of Mathematics and Science subjects through media technology and application of Artificial Intelligence (AI). The study is carried out among the students from English, Odia, and Kannada mediums. For conducting this research, a mixed-method design was chosen using 478 students, 276 teachers, and 219 parents. In terms of the utility of the AI-enabled assistants to produce multiple solutions, the scores were 65.5% for Kannada, 72.4% for Odia, and 73.5% for English-medium students. The self-use of AI is estimated at 19.5%, 20.9%, and 54.1% for each of these groups, respectively. Conversely, the AI dependency is considered as one of the most problematic issues and accounted for 52.9%, 59.0%, and 65.8% for Kannada, Odia, and English-medium learners, respectively. In addition, the qualitative analysis uncovered negative features such as spread of misinformation, lack of accuracy, distraction, trouble with prompt formulating a question, poor internet connection, and failure to think independently. It is evident that the use of technology is effective provided that it goes hand in hand with teachers' guidance and digital skills.

Keywords: AI in Education, Media Technology, Mathematics Instruction, Science Instruction, Middle-Stage Students, Mixed-Method Study, Creative Instruction

MUSIC AND ART PEDAGOGY FOR ENHANCING CLASSROOM INTERACTION AMONG DIVERSE LEARNERS

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Abstract

Classroom interaction facilitates students' learning with reciprocal communication, shared attention, negotiation, collaborative problem solving and recognizing learners' contribution. However, traditional talk-based learning approaches may benefit students who speak rapidly, speak the language of the dominant group in the classroom, or behave in a manner that is consistent with the classroom's sensory and behavioral norms. Music and visual-art pedagogy could provide wider participation with opportunities for the expression and sharing of ideas through the senses of hearing, sight, touch, kinaesthesia, symbolization, and technology. This systematic review-based article brings together writings about inclusive music education, arts integration, collaborative art learning and music-based social interaction from 2016 to October 2026. This review paper addresses three questions with five themes that emerged from the findings. The review finds that inclusion is not a by-product of music and art; they contribute to inclusion in accessible ways, through learner agency, reciprocal uptake by peers and reflective evaluation.

Keywords: Music Education; Art Education; Classroom Interactions; Inclusive Education; Arts Integration; Diverse Learners; Peer Collaboration

ARTIFICIAL INTELLIGENCE AS A CATALYST FOR PROMOTING INCLUSIVE SCIENCE EDUCATION AT SECONDARY LEVEL

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Abstract

Inclusive education seeks to guarantee that every student, no matter what their learning ability, background or physical or cognitive challenges may be can receive learning in the same classroom. In context where, teaching science in secondary schools is still hard for teachers who must meet many different learning needs while having little time, training and resources. This study looks at how Artificial Intelligence can become a catalyst for inclusive science education at the secondary level. Artificial Intelligence tools such as learning platforms, speech-to-text and text-to-speech systems, intelligent tutoring systems, simulations and visual and audio aids powered by Artificial Intelligence can tailor learning for students who have learning disabilities, visual or hearing problems or who learn more slowly. A quantitative survey will be used to measure how much Artificial Intelligence tools are used by science teachers in both government and private secondary schools. The paper also explains how Artificial Intelligence can help teachers by easing their workload tracking each student's progress and offering strategies for every learner. While there are benefits the paper points out key challenges, such as insufficient infrastructure, lack of teacher training, cost and ethical issues, like protecting data privacy when using Artificial Intelligence in inclusive classrooms. Based on the results this research will suggest ways to add Artificial Intelligence responsibly and effectively into inclusive science classrooms.

Keywords: Education, Secondary Education, Inclusive Science Education, Artificial Intelligence (AI), AI-Based Tools, Inclusive Classroom

PERCEPTION OF TEACHERS ABOUT BARRIERS IN IMPLEMENTATION OF INCLUSIVE EDUCATION FOR CHILDREN WITH DISABILITIES IN STATES OF ANDHRA PRADESH AND TELANGANA - A COMPARATIVE STUDY

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Abstract

Inclusive education for children with disabilities (CwDs) is mandated in India by the right of children to free and compulsory education (RTE) Act, 2009 and the rights of persons with Disabilities (RPwD) Act, 2016, yet its success depends on how school teachers perceive and negotiate barriers to its implementation. This comparative study examined the perceptions of 200 secondary and higher secondary school teachers drawn from 63 government schools (Zilla Parishad High Schools, Mandal Parishad Upper Primary Schools and basic primary Schools) in Vizianagaram district of Andhra Pradesh (n = 100) and Kumram Bheem Asifabad district of Telangana (n= 100). A 30-item perception scale organised into three domains, physical, administrative and attitudinal barriers, adapted from Bala (2018), was administered after translation into Telugu and back-translation. Data were analysed using descriptive statistics, Cronbach's alpha, independent samples t-tests with Mann-Whitney U confirmation, repeated-measures ANOVA with Friedman and Wilcoxon follow-up tests, Kruskal-Wallis tests and multiple regression. The instrument showed high internal consistency ($\alpha = .93$ overall). Overall perceived barriers were low to moderate (M = 1.37 on a 3-point scale). Attitudinal barriers (M = 1.43) were perceived as significantly stronger than administrative barriers (M = 1.58), while physical barriers (M = 1.43) did not differ from attitudinal barriers. Teachers in Telangana reported significantly higher barriers than teachers in Andhra Pradesh across all three domains (overall d = 0.91). Novice teachers with fewer than five years of experience (M = 1.58) and teachers of urban schools (M = 1.64) perceived significantly greater barriers than their experienced and rural counterparts. In regression analysis, the state difference persisted after controlling for school location, experienced, age and professional qualification. The inaccessibility of toilets and playgrounds, the belief that CwDs should be taught only in special schools, and assignment of CwDs to special teachers alone emerged as the most pressing concerns. The study recommends targeted infrastructure audits, structured orientation of head teachers, in-service training for novice teachers and sustained attitude-change programmes. Findings are relevant to policy makers, school administrators, parents and rehabilitation professionals working towards inclusive education in compliance with legislative mandates.

Keywords: Inclusive Education, Children with Disabilities, Physical Barriers, Administrative Barriers, Attitudinal Barriers, Teacher's Perception

LEVEL ENHANCING SCIENCE EDUCATION THROUGH ART AND MEDIA BASED LEARNING RESOURCES AT THE MIDDLE STAGE

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Abstract

In middle science education, it is necessary to adopt pedagogical approaches that can help students relate scientific concepts that they cannot see in the real world with their experiences and observations in the real world. Learning resources for Art and Media-based learning provide opportunities to communicate scientific knowledge visually, in theatre, through storytelling, music, animation, educational videos, digital simulations and student-produced media. The present thematic paper will focus on the pedagogical potential of using these resources in the middle level in science education, particularly in relation to the development of conceptual understanding, students' engagement, scientific communication, experiential learning and inclusive participation. Based on previous literature on science–arts integration, science theatre, STEAM learning and multimedia learning, the paper suggests that the use of art and media representations in the learning of science can be used so that it enriches science learning if it is used with explicit scientific objectives and accompanied by inquiry from the teacher. The proposed Art and Media-Integrated Science Education (AMISE) framework is a new framework that connects the concepts of science, multimodal representation, experiential exploration, scientific communication and reflection. The paper also highlights problems of implementation such as inequalities in resources, preparedness of teachers, access, assessment and even misconceptions. The future research trajectory is supported by the controlled classroom interventions, the longitudinal studies, the inclusive resources design, and the studies of low cost and culturally responsive approaches in Indian middle-stage classes. The paper concludes that art and media should be used as meaningful pedagogical tools rather than as an ornament to science teaching.

Keywords: Art Integration, Media-Based Learning, Middle-Stage Science Education, STEAM Education, Experiential Learning and Inclusive Pedagogy

FOSTERING SOCIAL WELL-BEING VIA PHYSICAL EDUCATION: ITS ROLE IN BUILDING PEER RELATIONSHIPS AND REDUCING ISOLATION AMONG STUDENTS AT RIE MYSURU

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Abstract

Physical education and organized games provide repeated opportunities for students to communicate, coordinate actions, share responsibility, and develop relationships with peers. Nevertheless, sport does not automatically create inclusion: team selection, differences in perceived skill, informal hierarchies, and the treatment of mistakes may also reproduce exclusion. This qualitative study is designed to explore how actively participating first- and second-year students at the Regional Institute of Education (RIE), Mysuru, understand the role of games in building peer relationships and shaping experiences of social connection or isolation. The proposed purposive sample comprises 20 students who actively participate in games and demonstrate substantial peer interaction. Five focus-group discussions (FGDs), each with four participants, provide a group structure consistent with the requested sample. Data are intended to be examined using reflexive thematic analysis, with attention to belonging and friendship, communication and mutual support, inclusion and exclusion, and student-led recommendations for improving games-based practice. The article provides an expanded thematic analysis framework, sample discussion prompts, illustrative comments for coding demonstration, and an implementation plan for RIE Mysuru. The illustrative comments are not actual participant quotations and do not constitute empirical results. A final empirical report should replace them with verified excerpts from the recorded or documented discussions. The study's central practical proposition is that the social value of physical education depends not only on participation, but also on whether the playing environment is respectful, equitable, and structured to enable every student to contribute.

Keywords: physical education, social well-being, peer relationships, social isolation, focus-group discussion, student games, thematic analysis, RIE Mysuru

A CRITICAL REVIEW OF PHYSICS CHAPTERS IN NCERT'S EXPLORATION (GRADE - 9) IN THE LIGHT OF NEP 2020 AND NCF-SE 2023

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Abstract

Textbooks translate curricular intentions into the learning experiences available to students. This thematic critical review examines the physics-focused chapters of NCERT's Grade 9 Science textbook Exploration (2026) in relation to the National Education Policy 2020 (NEP 2020) and the National Curriculum Framework for School Education 2023 (NCF-SE 2023). Rather than treating the textbook as a collection of scientific topics, the review considers the relationship among content, competency development, activities, assessment, visual communication, inclusion and additional learning features. The analysis focuses on Chapters 4, 6, 7 and 10 and considers features such as Think It Over, Pause and Ponder, think as a Scientist, meet a Scientist, India's Scientific Contributions, Bridging Science and Society, at a Glance, Ready to Go Beyond, Revise, Reflect & Refine and The Journey Beyond. The textbook provides several opportunities for contextual, activity-oriented and multimodal learning. However, the educational value of these features depends on the cognitive work they invite learners to undertake and on the coherence between activities, explanations, exercises and curricular competencies. The review therefore distinguishes visible design features from demonstrated pedagogical alignment and identifies areas requiring careful implementation and further examination.

Keywords: NCERT; Exploration; Physics Education; Textbook Review; NEP 2020; NCF-SE 2023; Competencies; Assessment

INTEGRATING SPORTS PEDAGOGY TO ENHANCE CLASSROOM ATTENTION AMONG COLLEGE STUDENTS

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Abstract

Classroom attention is an essential component of effective teaching and learning in higher education, influencing students' engagement, information processing, participation, and academic performance. However, prolonged lectures, sedentary learning environments, cognitive fatigue, and limited opportunities for active participation may reduce students' ability to sustain attention during classroom instruction. Sports pedagogy offers a promising educational approach by integrating movement-based activities, cooperative games, physical challenges, and experiential learning strategies into teaching practices. This review-based paper examines the potential of sports pedagogy to enhance classroom attention among college students by synthesizing relevant theoretical perspectives and existing literature on physical activity, cognitive functioning, student engagement, and active learning. Drawing on embodied learning, experiential learning, and self-determination theory, the paper explores how structured movement breaks, sport-inspired learning tasks, team-based challenges, and game-based instructional strategies may support attentional engagement, motivation, and classroom participation. The review also considers the importance of inclusive pedagogical practices that accommodate students with diverse abilities, interests, and learning needs. Furthermore, it discusses practical strategies for integrating sports pedagogy across academic disciplines without compromising curriculum objectives or instructional time. The paper argues that sports pedagogy should be understood not merely as a physical education approach but also as a complementary instructional framework that can promote active, participatory, and student-centred learning in higher education. Nevertheless, its effectiveness depends on appropriate activity selection, implementation, accessibility, and alignment with learning outcomes. The paper concludes by identifying implications for college teachers, teacher educators, and educational researchers and recommends further empirical investigation into the relationship between sports-based instructional practices and sustained classroom attention among college students.

Keywords: Sports Pedagogy, Classroom Attention, College Students, Physical Activity, Active Learning, Student Engagement, Embodied Learning, Higher Education

REIMAGINING CHEMISTRY EDUCATION IN THE LIGHT OF NEP 2020 AND NCF 2023: TOWARDS EXPERIENTIAL, COMPETENCY-BASED AND TRANSFORMATIVE LEARNING

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Abstract

The National Education Policy (NEP) 2020 and the National Curriculum Framework for School Education (NCF-SE) 2023 envision a paradigm shift in chemistry education, fostering conceptual clarity, scientific temper, and meaningful knowledge construction. These transformative frameworks advocate experiential, inquiry-driven, and competency-based pedagogies that transcend rote memorisation and promote critical thinking, creativity, and scientific reasoning. Integrating laboratory investigations, project-based learning, interdisciplinary perspectives, and real-world applications can make chemistry more engaging, relevant, and accessible. Contextualising chemical concepts through environmental sustainability, green chemistry, and everyday phenomena further strengthens scientific literacy and responsible citizenship. This paper examines the pedagogical implications of NEP 2020 and NCF 2023, highlighting innovative teaching strategies, authentic assessment practices, and emerging opportunities for learner-centred, inclusive, and future-oriented chemistry education.

Keywords: Chemistry Education, Experiential Learning, Competency-Based Education, Inquiry-Based Pedagogy, Constructivist Approach

ROLE OF ART AND ART-INTEGRATED CLASSROOMS FOR SCHOOL STUDENTS

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Abstract

Art plays a significant role in the holistic development of school students by fostering creativity, critical thinking, emotional expression, communication, collaboration, and meaningful learning experiences. In contemporary education, art-integrated learning has emerged as a learner-centred pedagogical approach that connects artistic activities, such as drawing, painting, music, dance, drama, storytelling, and craft, with the teaching of different school subjects. This paper examines the role and educational significance of art and art-integrated classrooms in promoting students' academic, cognitive, social, emotional, and creative development. It explores how integrating artistic experiences into classroom instruction can make abstract concepts more accessible, encourage active participation, enhance motivation, and accommodate diverse learning styles and abilities. The paper also discusses the relevance of art-integrated pedagogy in promoting experiential learning, inclusive education, cultural awareness, and the development of twenty-first-century competencies among school students. Particular attention is given to the role of teachers in designing meaningful artistic learning experiences that align with curricular objectives and provide opportunities for student expression, exploration, and collaboration. Furthermore, the paper highlights challenges associated with implementing art-integrated classrooms, including limited resources, inadequate teacher preparation, time constraints, and the tendency to treat art as an extracurricular activity rather than an integral component of teaching and learning. It emphasises the need for appropriate teacher training, supportive school environments, interdisciplinary lesson planning, and inclusive assessment practices to strengthen the implementation of art-integrated education. The paper concludes that art-integrated classrooms can contribute to more engaging, inclusive, and holistic educational experiences when artistic processes are meaningfully connected with curricular learning outcomes. It recommends greater institutional support and further empirical research to examine the long-term educational benefits of art-integrated pedagogy across diverse school settings.

Keywords: Art Education, Art-Integrated Learning, School Students, Creative Learning, Experiential Learning, Holistic Development, Inclusive Education, Learner-Centred Pedagogy

INCLUSIVE ON PAPER, EXCLUSIVE IN PRACTICE? A SCHOOL-LEVEL SURVEY OF DISABILITY ACCESSIBILITY IN SCIENCE LABORATORIES UNDER NEP 2020

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Abstract

The National Education Policy 2020 envisions an inclusive science education in which learners with disabilities engage in hands-on, experiential laboratory work alongside their peers. However, curricular inclusivity does not automatically translate into physically and pedagogically accessible laboratory spaces. This study examines whether school science laboratories are genuinely inclusive for students with visual, hearing and physical disabilities, with the investigation centred on the physics, chemistry, and biology laboratories of 14 schools in the Kannur district of Kerala. A mixed-methods design was adopted. A Laboratory Accessibility Checklist, based on Universal Design for Learning (UDL) and established accessibility benchmarks, was used to rate infrastructure, apparatus design, safety provisions and staff support in 14 laboratories. A questionnaire completed by 14 science teachers and laboratory staff recorded awareness, preparedness and challenges. The laboratories were Adequate on average ($M = 1.97$ on a 0 to 3 scale) but uneven, with hearing access ($M = 1.72$) and visual access ($M = 1.88$) lagging behind physical access ($M = 2.06$). The most common gaps were accessible toilets, Braille labels, assistive listening systems and sign language support. In the questionnaire, half of the respondents were only “Slightly familiar” with relevant policies, seven had “Never heard of” UDL or did not use it, eleven had received no training or one short session only, and seven rated their school as slightly prepared or not prepared. Staff named training, staffing and infrastructure as their first priorities. The study argues for a shift from curriculum-level inclusion to infrastructure- and practice-level inclusion, recommending concrete design and training interventions to make school science laboratories in Kannur district, Kerala genuinely accessible spaces for all learners.

Keywords: Inclusive Education, Laboratory Accessibility, Universal Design for Learning

ENHANCING FAMILY PROFESSIONAL PARTNERSHIPS THROUGH COMMUNICATION, TRUST AND RESPECT IN PRESCHOOL SPECIAL EDUCATION

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Abstract

Family professional partnerships are central to early childhood care and education. Parents and professionals collaborate to understand the developmental needs of children with disabilities, plan appropriate support, and encourage learning across home and preschool settings. Good communication, trust, and respect help parents feel comfortable sharing concerns and taking part in decisions. This study examined whether a structured intervention focused on communication, trust-building, respect, and collaboration strengthens family-professional partnerships in a preschool setting. A single-group pretest-post-test design was employed with 30 parents of preschool children with disabilities, selected through purposive sampling. An intervention module developed by the researchers was implemented over two months. It comprised sixteen structured sessions addressing communication, trust, respect, and teamwork, using guided discussions, role-play, active listening exercises, and collaborative problem-solving activities. Partnership experiences were measured before and after the intervention using the 32-item Family Professional Partnership Rating Scale. Pre- and post-intervention scores were analysed using means, standard deviations, and paired-samples t-tests. The findings provide evidence of the usefulness of a structured approach to strengthening family-professional partnerships in services for preschool children. Communication improved following the intervention and parents reported increased trust and respect. Total partnership scores increased from. Families and professionals developed a better understanding of each other's perspectives and worked together more effectively.

Keywords: Family Professional Partnerships; Communication; Building Trust; Respect; Working Together; Children with Disabilities; Preschool Special Education

FROM ROTE LEARNING TO COMPETENCY-BASED ASSESSMENT IN CHEMISTRY EDUCATION: IMPLEMENTING THE VISION OF NEP 2020 AND NCF-SE 2023

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Abstract

The National Education Policy (NEP) 2020 and the National Curriculum Framework for School Education (NCF-SE) 2023 emphasise a fundamental transformation in science education, shifting the focus from content memorisation towards conceptual understanding, scientific inquiry, competency development, and the application of knowledge in real-life contexts. In chemistry education, this transformation requires a reconsideration of conventional teaching practices, which often prioritise the reproduction of definitions, chemical equations, formulae, and theoretical concepts over meaningful learning. This paper examines the pedagogical implications of competency-based chemistry education, with particular emphasis on aligning learning outcomes, classroom transactions, laboratory experiences, and assessment practices with the vision of NEP 2020 and NCF-SE 2023. Drawing on policy documents and relevant literature on chemistry education, the paper explores inquiry-based experiments, problem-solving activities, contextualised learning, interdisciplinary connections, and formative assessment as strategies for developing chemical literacy and higher-order thinking skills. It also highlights the importance of competency-based questions that assess students' abilities to interpret experimental observations, explain chemical phenomena, analyse evidence, and apply scientific principles to unfamiliar situations. Furthermore, the paper discusses challenges associated with implementing these approaches, including examination-oriented teaching, limited laboratory resources, diverse learner needs, and the professional development of chemistry teachers. It argues that meaningful implementation of the national educational frameworks requires coherence among curriculum design, pedagogical practices, and assessment systems. Reorienting chemistry education towards demonstrated competencies rather than the mere recall of information can strengthen scientific temper, independent thinking, and the practical application of chemical knowledge among learners.

Keywords: Chemistry Education, NEP 2020, NCF-SE 2023, Competency-Based Education, Assessment Reform, Scientific Inquiry

PARENTAL SATISFACTION TOWARDS YOGA AND PHYSICAL EXERCISE ON THE ATTENTION OF PRE SCHOOL CHILDREN WITH DISABILITIES

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Abstract

Parents of preschool children with neurodevelopmental disabilities may face difficulties in managing their children's attention and self-regulation. Yoga and physical exercise are increasingly being considered as simple, non-pharmacological approaches that may help children improve their attention and participation in daily activities. However, there is limited availability of validated tools to assess parents' satisfaction with these practices. Therefore, the present study developed a Parental Satisfaction Rating Scale Towards Yoga and Physical Exercise on the Attention of Preschool Children with Disabilities and examined its use among parents attending the services at All India Institute of Speech and Hearing (AIISH), Mysuru. A descriptive survey design was used for the study. A 20-item scale was administered to 39 parents of children aged 3–6 years with ADHD, Autism Spectrum Disorder, Intellectual Disability, and Associated Communication Disorders, who were purposively selected. All the children with their parents had participated in integrated yoga and physical exercise sessions for at least four weeks. The collected data were analysed using SPSS. Descriptive statistics were used to examine the overall and subscale scores, while Cronbach's alpha was calculated to determine the internal consistency of the scale. The findings showed an overall mean satisfaction score of 3.96 (SD = 1.27), equivalent to 79.13 out of 100, indicating a high level of parental satisfaction. Parents reported greater confidence in practising yoga with their children and observed improvements particularly in their children's concentration and readiness for school. Among the different areas assessed, Attention Improvement and Parental Empowerment received more favourable ratings. The findings also highlight the importance of providing parents with proper orientation and guidance so that they can continue these activities at home. The developed scale may be useful for clinicians and researchers for assessing parental satisfaction with yoga and physical exercise programmes in rehabilitation settings.

Keywords: Parental Satisfaction, Yoga, Physical Exercise, Attention, Preschool Children with Disabilities



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ABOUT THE PROCEEDINGS

This volume contains the extended abstracts presented in the Two Days Symposium on “**Experiential and Embodied Learning Approaches in Special Education under NEP 2020: Integrating Theatre and Yogic Pedagogy in Science Education for Learners with Disabilities**”. The proceedings provide a valuable resource for educators, researchers, and policy makers working towards inclusive and transformative education in contemporary India.

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