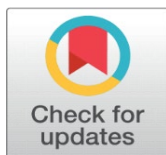
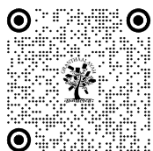


EXPLORING THE POSSIBILITIES AND CHALLENGES OF ART-INTEGRATED LEARNING IN EVS AND SCIENCE CLASSROOMS

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ABSTRACT

Children have innate curiosity towards music and colours in their immediate surroundings, which is evident through their engagement in games such as 'Ghar-Ghar', 'Colour Hunt', and 'Rainbow Rangoli'. Initially, their creative expressions manifest in the form of scribbling on walls, serving as their first means of projecting their inner reality. As children grow-up, these artistic representations start to mirror their observations of the real world. Hence, the integration of art becomes vital in aiding students' comprehension of their world around. Art Integrated Learning within Environmental Studies (EVS) and Science pedagogy presents an avenue for enhancing learning experiences. This research investigates the possibilities and challenges associated with incorporating art into EVS and Science education at the middle and preparatory school levels. Twenty teachers were observed for their art integrated pedagogy for a duration of three months. This study highlighted insights into the varying degrees of art integration learning within EVS and Science curricula. The findings showed the multifaceted nature of art integration, revealing both successful implementations and instances where its incorporation was limited. By exploring the experiences of teachers and the efficacy of art-integrated activities, this research found the potential benefits and challenges simultaneously in merging art with EVS and Science classrooms.

Keywords: Art Integrated Learning, Art Integrated Pedagogy, Preparatory and Middle Classes, Science and EVS Learning



1. INTRODUCTION

"Art-integration is a cross-curricular pedagogical approach that will be embedded in classroom transactions not only for creating joyful classrooms, but also for imbibing the Indian ethos.... This art-integrated approach will strengthen the linkages between education and culture." (NEP, 2020, Sec 4.7, p12)

These lines from National Education Policy (2020) brings out the essence of integrating art in pedagogies. The various art forms like visual arts, music, dance, theatre, craft etc. are integrated into the teaching learning of different school subjects.

It is often observed that art education is taken as a separate subject by teachers, wherein children learn to draw, colour, paint and make origami and other forms of art. This necessity is explained and elaborated in the Position Paper of the National Focus Group on Arts, Music, Dance, and Theatre (NCERT, 2005, pp 7-8), advocating for art education as a mandatory subject in school curriculums up to the Grade X. Thus, Art Integration became prominent in Indian education discourse with the National Curriculum Framework (NCF) 2005, which emphasized making learning more child-centred, joyful, and connected with art. The National Education Policy (NEP) 2020 moved a step forward and strongly

institutionalized the term 'Art-Integrated Pedagogy' and 'Art Integrated learning' as a cross-curricular approach in all stages of schooling, especially promoting art integration with other subjects. The essence of Art Integrated Learning (AIL) can be understood as a pedagogical tool for making classroom experiences as engaging, and joyful. The activities connect children's cognitive capacities with their emotional and aesthetic experiences, thus, promoting holistic development of children. It also encourages creativity, critical thinking, and problem-solving.

Internationally, also, similar ideas had already existed under the terms - "Arts Integration" (US) and with the Gardner's (1983) Theory of Multiple Intelligences gave momentum to integrating arts in education. By integrating arts with EVS and Science, it would mean that using theatre or role play for understanding of water cycle by children or clay modelling the rainwater harvesting model. Thus, this paper is based on the experiences of teachers while integrating arts with Environment Science and Science at the preparatory and middle school level. Thereby various forms of art like visual art, fine art, performing art, music, drama, and other creative expressions are used for EVS and Science learning.

1.1. OBJECTIVES

- 1) To explore the teachers' readiness for the Art Integration Learning (AIL) in schools.
- 2) To investigate the impact of art integration on students learning in primary and middle school classrooms.
- 3) To assess the potential benefits and possibilities of implementing AIL in EVS and Science teaching.
- 4) To identify the challenges and barriers faced in effectively integrating art into EVS and Science education.

2. NEED FOR THE STUDY

NCERT's position paper on Art Education (2006) advocated that every high school student should be engaged in a craft which would enhance their personal growth and potential career paths. However, there is a noted lack of emphasis on art by educators, parents, and students, leading to a decline in art education quality within schools. The document highlighted that young children show a keen interest in artistic activities initially, this enthusiasm wanes by the time they reach the 6th grade. This decline is attributed to factors such as excessive focus on academic subjects, insufficient teacher training, and a lack of awareness regarding career opportunities in the arts. Integrating art across various subjects necessitates skilled teachers, as art education often does not rely on traditional textbooks, highlighting the critical role educators play in this process. It also advocated for making art education mandatory from the pre-primary to secondary stages. It discussed two primary approaches to incorporating art into the school system: integrating art with core subjects such as language, mathematics, and science, and treating art as a distinct subject. A few recommendations include establishing "Bal Bhavans" across the country to provide sustained support, offering training programs for teachers, and maintaining art as a separate subject until the 10th grade. These initiatives aimed to reinvigorate art education, ensuring its longevity and significance within the educational framework.

NCERT (2015) the Training Package on Art Education for Primary Teacher delves deep into the significance and methodology of integrating art in primary education with a focus on enhancing teachers' skills and understanding. It included specific such as ice breaking exercises, group discussions, role-playing, art-based projects, or museum visits and hands-on art projects to engage teachers and facilitate learning. It provided guidelines for master trainers on delivering effective training sessions and covers various topics essential for successful art education integration. It emphasized on practical approaches, divergent thinking, and experimentation to equip teachers with critical skills necessary for effective art education delivery. It showcased specific examples of interdisciplinary art projects for a deeper understanding of the reader.

The National Education Policy (NEP) 2020 places a big focus on the importance of including art in education. It believes that art helps students become more creative, think better, and understand and appreciate their culture more deeply thereby, helping them grow in all areas of their lives, including how they think, feel, and understand the world. The policy suggests that subjects like art should not be kept separate from other subjects. Instead, art should be mixed into the regular curriculum, making lessons more interesting and helping students see connections between different areas of knowledge. Thus, students would learn India's rich arts and crafts forms. It suggests bringing local artists and crafts people into schools as guest teachers and students can learn directly from experts in their fields. This helps keep traditional skills alive and gives students a practical understanding of art. Thus, students would not only achieve academic success but also develop a deep love and understanding of art and culture.

The National Curriculum Framework for School Education (NCFSE) 2023 emphasizes the significance of Art Education in school curricula, recognizing its potential to develop creativity, aesthetic sensibilities, and cultural literacy in all students. It highlights the importance of integrating art education with other subjects to enhance the overall learning experience. The framework stresses that Art Education should not be limited to product-based assessments but rather focus on the process of creative expression. It encourages teachers to provide age-appropriate content, encourage critical thinking and questioning, and ensure the inclusivity of students in the Arts. Additionally, the framework encourages the use of traditional and contemporary practices in the Arts and emphasizes the importance of assessment in Art Education, believing that all students have the potential to be creative. The NCFSE 2023 provides a comprehensive framework for Art Education in school curricula, highlighting its role in fostering creativity, cultural literacy, and inclusivity, thereby providing a holistic and comprehensive learning experience for students. However, the implementation of Art Education in schools remains a challenge, with limited time and resources allocated for Art classes, and a lack of planning, organizing, and assessment in Art teaching. The framework provides guidelines and principles for overcoming these challenges and ensuring quality Art Education for all students.

The Art Integrated Learning (AIL) Handbook for teacher of classes VI to VIII (2023) provides a comprehensive guide for educators on implementing AIL pedagogy in the classroom. It emphasizes the combination of art with teaching and learning across different curricular areas. The focus is on creating inclusive and vibrant classrooms using arts as a means to learn. The implementation of AIL pedagogy emphasizes the role of the teacher/facilitator in constantly motivating students to participate in activities, experiment, and explore while freely expressing themselves. It also stresses the importance of planning AIL activities in advance, working as a team with other teachers for multidisciplinary learning thus, promoting the use of cost-effective and local-specific resources for activities. The focus of AIL is more on the process than the product, and it is used as an assessment tool to evaluate student work without being judgmental. It provides insights into classroom management, resource generation, community involvement, and assessment techniques to facilitate the seamless integration of art into learning. The handbook provides suggested activities for various subjects like Mathematics, Social studies, English, Hindi and, science. For science, the suggested activities cover diverse topics such as Plants and their Functions, Transportation in Animals and Plants, Acids, Bases and Salts, Light, and Force and Pressure. These activities are designed to integrate art experiences with the learning of scientific concepts, providing a practical framework for educators to implement AIL in their science classrooms.

3. REVIEW OF LITERATURE

Jaakko, Outi, and Maija (2017) conducted a study on the perceptions and practices of Finnish science teachers regarding integrated education and arts integration. An e-survey was conducted to collect data from 66 Finnish science teachers at both lower and upper secondary levels. This research found a shift of STEM education towards STEAM education, signifying the integration of art into STEM. A number of intervention studies on art and science integration are increasingly being reported, favouring art integration, while everyday science lessons.

Tameka (2016) conducted a study on art integration and its impact on student learning, especially in the context of science pedagogy. The research objectives include analysing arts integration as an effective creative pedagogy and examining its impact on student learning in a middle school setting. The study specifically compares academic achievement in subjects such as Reading, Mathematics, and Science, before and after the implementation of arts integration using a STEAM instructional model. The results showed that students did better in Reading and Science after integrating arts, but scores in mathematics didn't change.

Debbie and Anne (2014) conducted a study to investigate the impact of an integrated place-based environmental science experiment on elementary students' understanding. The study was conducted on 24 elementary students, and their classroom teacher. The data were collected from student journals, in-depth interviews with students, a teacher interview, and pieces of artwork produced by the participants. Three main themes emerged from the data analysis: (1) students' perceptions of their own abilities, (2) scientific misconceptions held by students, and (3) the development of students' critical thinking skills. It was found that elementary students had enhanced confidence after active participation in their learning process. The study explored students' perceptions of environmental change over time. Scientific misconceptions identified from student interviews included beliefs such as 'the sun being less sunny 200 years ago, the sun rots slowly nowadays, and there were fewer plants 200 years ago due to a lack of people to grow and water them'. The study revealed that students possessed a diverse range of prior knowledge and ideas related to understanding

scientific issues. Participating in visual representations, such as creating paintings and answering interview questions, allowed students to articulate their perceptions of the local environment effectively.

Nompula (2012) investigated on the strategies for art-integrated learning in Grades 7-9, KwaZulu Natal, South Africa. The research analysed the challenges faced by teachers and learners. The methodology employed a grounded theory approach and included data collection through documentary analysis, teacher interviews, and group discussions with Zulu and English-speaking participants. The phenomenological methods, such as participant observation, interviews, and group discussions, were instrumental in gathering field data. The findings highlighted the challenges faced by educators due to the lack of adequate art materials and resources, impacting the integration of theory with practice.

Inan (2010) conducted a study on the role of art in science education in a preschool setting. The study was based on the Reggio Emilia approach, which highlights that preschool education involves many basic scientific skills, such as observing, predicting, measuring, comparing, categorizing, collecting, and communicating. In this study, was conducted on 18 preschool children aged 3 to 5, along with 10 teachers. The research included observing students' art activities, paintings, and conducting interviews with the students about their artwork. The study showed that students were happily engaged in their work and were able to incorporate scientific concepts into their paintings, making joyful learning for children.

Karen and Terry (2002) carried out a study on impact of art integration on students' learning. The study identified strategies for integrating arts education, particularly focusing on enhancing pedagogical methods and the practical application of arts content in schools. The researcher interacted with drama teachers and learners who displayed remarkable creative work, including school plays, poems, murals, choreography, and songs. The findings emphasized the need for recognizing and validating learners' creative efforts through public exposure and support. It study highlighted the challenges faced by art educators, such as the lack of adequate materials and appropriate venues, which hinder the integration of theory with practical learning. The data obtained from interviews and group discussions revealed important aspects related to pedagogy, content, and effective learning environment, emphasizing teaching methods, learners' preferences for group or individual work, and concerns regarding the learning environment.

In nutshell, studies conducted in Art Integration provided valuable insights into integrating arts education, pedagogical methods, and the impact on student learning, supporting research on art-integrated EVS/ science pedagogy.

4. METHODOLOGY

The methodology involved a mixed method approach gathering quantitative and qualitative data. It was a multifaceted approach to gather insights on integrating art into Environmental Studies (EVS) and Science education. Observations were made in middle and primary school classrooms to observe teachers' utilization of art. Interviews were conducted with teachers and special educators to understand their methods of art integration. Questionnaires were distributed to school students to gather their feedback. Art integrated lesson plans were analysed and observed to assess their impact on student learning. A special attention was given to investigate how art can benefit students with special needs in EVS and Science education.

SAMPLE

The sample of the research consisted of 20 teachers from five different government funded schools of Delhi located in Rohini, Samaipur, Shakur Pur, and Janak Puri and Moti Bagh. Ten teachers were teaching EVS to grades 3 to 5 (Preparatory Level) and 10 were teaching Science to grades 6 to 8 (Middle School). The purpose of research was explained to all teachers and they willingly consented to participate in the research. Their classes were observed for the duration of 12 weeks and they were interviewed.

INTERVIEW SCHEDULE

The following are the pointers of interview schedule of semi structured interview: What is your teaching experience of teaching Environmental Studies (EVS) or Science? Have you received any training in art-integrated pedagogy for EVS/ Science? If yes, please describe. How often do you incorporate art activities into your EVS/ Science lessons? What objectives do you aim to achieve by integrating art into EVS/ Science lessons? In your experience, how does art integration affect student engagement in EVS/ Science classes? Did you observe any differences in the enthusiasm and participation of students when using art-integrated pedagogy? Have you observed any improvements in students' understanding of EVS/Science concepts as a result of art integration? Can you share any instances where art activities

have enhanced students' retention and application of knowledge in EVS/Science? What challenges, if any, have you encountered when implementing art-integrated pedagogy in EVS/Science classes? Are there any specific resources or materials you find particularly helpful for integrating art with EVS/Science? Do you receive support or professional development opportunities for art integration in EVS/Science? How has the experience of using art-integrated pedagogy influenced your teaching philosophy or approach to EVS/Science instruction? What are the best practices and strategies of art-integrated pedagogy for EVS/ Science? What advice would you offer to teachers who are considering incorporating art into their EVS/Science lessons?

PROCEDURE

The Education Department of School Education has implemented a progressive initiative by introducing a dedicated day for school students to showcase their creativity. To ensure the seamless execution of this endeavour, the education department dispatches a monthly syllabus outlining the prescribed activities for every Wednesday. These activities are thoughtfully designed to align with the students' Environmental Studies (EVS) concepts, encompassing themes such as drawing on pollution, educating on safety measures during an earthquake, engaging in various art forms like Mandala, Mahbubani, Warli, etc. This concerted effort provided a platform for young children to creatively explore and express their understanding of EVS themes, fostering a holistic approach to learning.

Thus, the preparatory school teachers were observed every Wednesday and middle school teachers were observed once a week for duration of three months. The data was collected in the form of field notes, and pictures of classrooms activities. Teachers were interviewed and feedback from school students were collected.

DATA ANALYSIS

All teachers were qualified as per the norms set by the recruitment agency (Delhi State Selection Board, DSSB). Teachers have diverse qualifications ranging from D.El.Ed (Diploma in Elementary Education), B.El.Ed. (Bachelor of Elementary Education) and B.Ed. (Bachelor of Education). Teachers experience ranges from 2 to 29 years. It shows a wide spread in terms of their experience.

14 teachers didn't receive any training in Art Integration, whereas 6 teachers from the middle school received training from "Diksha" portal of the NCERT which is a national platform for teachers and students. The portal gained importance during covid times as it provided school education through remote learning.

Teacher's Perception of the Importance of Art integrated EVS Teaching



Nine teachers reported noticeably higher levels of enthusiasm and participation among students during Art-integrated learning, while eleven teachers mentioned moderately increased levels, referring to some positive impacts like taking leadership in group tasks and peer collaboration. This suggests that incorporating art activities into EVS/ Science lessons can boost student engagement and motivation. The responses also revealed that the experience of using art integration can transform a teacher's teaching philosophy. A teacher commented, 'I always thought that art can't be integrated with science. Art is only for free period. But, the training on Disha portal helped me in realizing the potential of art integration. Now I see drastic change in my students' attitude in science classes'.

Only a single teacher felt a minimal influence on her teaching philosophy. This suggests that art integration can have a profound impact on a teacher's approach to teaching and learning, leading to more student-centred activities. Professional development opportunities for art integration in EVS/ Science are also crucial for effective implementation. Almost all teachers mentioned their areas for improvement, such as including more hands-on art activities, providing opportunities for student creativity, and emphasizing art-based assessments

Influence on Students' Learning

Teachers mentioned various resources and materials used for art integration like audios, videos, craft material, art works, worksheets, models, smartboards and playgrounds, science kits, AV aids, and nature – plants, insects, flowers etc. These resources and materials provide a variety of ways for teachers to support art integration in EVS/ Science, including technology, hands-on activities, and materials from the natural environment.

The majority of teachers (12/20) incorporate art activities into their EVS/ Science lessons daily, while six teachers reported incorporating art activities weekly. Only two teachers reported incorporating art activities on monthly basis. This suggests that mostly teachers understand the importance of art integration learning and prioritize the inclusion of art activities in their EVS/Science lessons. When asked about the impact of art integration on student engagement in EVS/Science classes, eleven teachers reported that it significantly enhances engagement. This suggests that teachers in our sample group found positive effect on students' learning.



Student Engagement and Learning Outcomes through Art Integration



The classroom was carefully observed during art integrated learning of science and EVS. The results were remarkable. It was evident that students were more engaged when art was incorporated into the pedagogy. Additionally, students showed increased interest in subjects - EVS and science. It proved to be an effective tool in comprehension of abstract science concepts like light, reflection etc. Students displayed eagerness and curiosity to explore new topics, fostering a vibrant learning environment. In preparatory classes, Wednesdays were dedicated to art activities, providing students with a day filled with enjoyment and creativity. The energy and excitement among students on these days were palpable, reflecting their enthusiasm for artistic expression.

5. CHALLENGES FACED

Teachers highlighted several challenges of art integrating learning in their classrooms - limited time duration of classes (10 teachers), lack of adequate resources like colourful papers, stationery (10 teachers), insufficient training on how to implement art integration in classrooms (7 teachers), and curriculum constraints as a lot of syllabi to be covered, which leaves with no space for art integration (4 teachers). These challenges highlight the need for support and resources to help teachers effectively integrate art into their EVS/ Science lessons. A Special Educator was observed and interviewed. She mentioned that a few teaching learning materials related to hand-washing, personal hygiene are available in the school but these are neither sufficient nor adequate for students.

6. CONCLUSION AND RECOMMENDATIONS

The research based on direct classroom observations and interviews with educators, found that Art Integrating Learning in EVS and Science lessons have a positive impact on student engagement, participation, learning and confidence.

However, teachers faced challenges when implementing art-integrated pedagogy, which should be addressed through providing adequate resources in schools and provisions for in-service training, and support. It was also found that Art Integrated Learning (AIL) had a significant impact on the teachers' philosophy, they tend to be more student-centred and creative. Despite of challenges, teachers looked for alternatives and were open to suggestions and feedback for their further improvement. It was observed that teachers used to discuss and reflect their experiences with their fellow colleagues and researcher and were seeking resources and support to successfully implement AIL in their classrooms.

Teachers recommended several strategies for implementing art integration in EVS and Science lessons. Firstly, they emphasized the importance of practical implementation, thereby focussing on hands-on activities and real-world applications. Such activities tend to enhance learners' participation, engagement, interaction and enthusiasm in the classrooms.

Secondly, teachers recommended that students should be encouraged for 'out of box solutions' for real-world challenges, which would help in fostering problem-solving skills and encouraging innovation. It was observed in one of the classes how students came up with the solution of a pin-hole camera in a science class on light. This involves being creative and using unconventional methods to teach complex concepts.

Thirdly, the teachers recommended an age-appropriate use of teaching leaning material (TLM). A teacher said that 'sometimes, TLMs are too simplistic for the cognitive level of children, and at times those were not attractive'. Thus, TLMs should be chosen judiciously. This involves selecting TLMs which align with the lesson objectives and using them effectively to facilitate learning.

Fourthly, the teachers emphasized the importance of providing a friendly atmosphere in the classroom where students have the freedom to express their ideas and thoughts through various forms of art, such as drawing, painting, and sculpture. The AIL approach centred around hands-on activities and projects rather than conventional lectures and drills, making classes joyful and students look forward to such classes.

Looking ahead, the research paves the way for future exploration into effective strategies for art integrating learning, the impact on diverse learning styles, and comprehensive approaches to the identified difficulties, Ultimately, the conclusion reinforces the need for art integration to foster holistic and engaging learning experiences, leaving a lasting impression on learners.

CONFLICT OF INTERESTS

None.

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- Sarvodaya Kanya Vidyalaya, Moti Bagh, Delhi.

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