ASSESSING THE IMPACT OF ART-BASED ECOLOGICAL EDUCATION PROGRAMS ON CHILDREN ENVIRONMENT AWARENESS IN NANJING

Rui Wang¹

ABSTRACT

Objectives: The main goal of architectural design is to create high-quality, comfortable spaces for people, ensuring that the area has a favourable effect on them. Studies on learning environments have produced broad guidelines for school design that should accommodate a variety of learning modalities (LM) in order to attain high-quality learning and teaching. The primary objective of the research is to expand Post-Occupancy Evaluation (POE) studies for school building assessments by using the notion of Learning Modalities.

Methods: One crucial component for environmental comfort for educational institutions is the space's teaching role. Encouraging education by combining environmental sciences with artistic endeavours is a fun and inventive approach to get young people interested in both science and art. The results of a learning endeavour that students in Nanjing completed served as the basis for this investigation. The initiative included carrying out a number of activities that explored ideas pertaining to science, art, and solidarity.

Results: The project's efficacy was evaluated based on the level of student participation, the calibre of the exchanges, and the final outputs. As per the students' perspectives, their involvement in this project was thrilling and enhanced their comprehension and enthusiasm towards environmental matters.

Conclusion: This research emphasises how crucial it is to use artistic endeavours as a means of teaching and learning environmental science. This work attempts to examine educational research articles that have been published in the field of environmental artistic instruction with the goal of identifying the most influential element and shedding light on how it might enhance the policies put in place.

Keywords: Environments, Art, Environmental Science, Educational Project, School, Learning Modalities, Architectural Design’s, Nanjing Students.

¹ College of International, Krick University, Bangkok, Thailand. E-mail: ruiwang2024@126.com
Orcid: https://orcid.org/0000-0003-4314-0321
Assessing the Impact of Art-Based Ecological Education Programs on Children Environment Awareness in Nanjing

Resultados: A eficácia do projeto foi avaliada com base no nível de participação dos alunos, no calibre dos intercâmbios e nos resultados finais. De acordo com as perspectivas dos alunos, o envolvimento deles nesse projeto foi emocionante e aumentou a compreensão e o entusiasmo em relação às questões ambientais.

Conclusão: Esta pesquisa enfatiza o quanto é fundamental usar esforços artísticos como meio de ensinar e aprender ciências ambientais. Este trabalho tenta examinar artigos de pesquisa educacional publicados no campo do ensino artístico ambiental com o objetivo de identificar o elemento mais influente e esclarecer como ele pode melhorar as políticas implementadas.

Palavras-chave: Ambientes, Arte, Ciência Ambiental, Projeto Educacional, Escola, Modalidades de Aprendizagem, Projetos Arquitetônicos, Estudantes de Nanjing.

EVALUACIÓN DEL IMPACTO DE LOS PROGRAMAS DE EDUCACIÓN ECOLÓGICA BASADOS EN EL ARTE SOBRE LA CONCIENCIA MEDIOAMBIENTAL DE LOS NIÑOS DE NANJING

RESUMEN

Objetivos: El principal objetivo del diseño arquitectónico es crear espacios confortables y de alta calidad para las personas, garantizando que el área tenga un efecto favorable sobre ellas. Los estudios sobre entornos de aprendizaje han dado lugar a amplias directrices para el diseño de escuelas que deben dar cabida a diversas modalidades de aprendizaje (LM) con el fin de lograr una enseñanza y un aprendizaje de alta calidad. El principal objetivo de la investigación es ampliar los estudios de evaluación posterior a la ocupación (EPO) a las evaluaciones de edificios escolares utilizando la noción de modalidades de aprendizaje.

Métodos: Un componente crucial para el confort ambiental de los centros educativos es la función docente del espacio. Fomentar la educación combinando las ciencias medioambientales con las actividades artísticas es un enfoque divertido e inventivo para despertar el interés de los jóvenes tanto por la ciencia como por el arte. Los resultados de una iniciativa de aprendizaje llevada a cabo por estudiantes de Nanjing sirvieron de base para esta investigación. La iniciativa incluía la realización de diversas actividades que exploraban ideas relacionadas con la ciencia, el arte y la solidaridad.

Resultados: La eficacia del proyecto se evaluó en función del nivel de participación de los estudiantes, la calidad de los intercambios y los resultados finales. Desde el punto de vista de los alumnos, su participación en este proyecto fue emocionante y aumentó su comprensión y entusiasmo por las cuestiones medioambientales.

Conclusión: Esta investigación pone de relieve lo fundamental que es utilizar los esfuerzos artísticos como medio de enseñanza y aprendizaje de las ciencias medioambientales. Este trabajo trata de examinar los artículos de investigación educativa publicados en el campo de la educación artística medioambiental con el objetivo de identificar el elemento más influyente y aclarar cómo puede mejorar las políticas aplicadas.

Palabras clave: Entornos, Arte, Ciencia medioambiental, Diseño educativo, Escuela, Modalidades de aprendizaje, Diseños arquitectónicos, Alumnos de Nanjing.

1 INTRODUCTION

The actual school building environment has a critical role in how well learning and instruction are carried out. This process and the conduct of users—especially students—are
significantly impacted by the quality of this environment. When instruction is of a high calibre and the surroundings are conducive to the demands of the learners, students do better academically.

The main objectives of architectural design are to ensure that users are in comfortable surroundings and that the place has a good impact on them. This also applies to educational buildings. Students need to feel as at ease at school as they would at home in order for learning to take place. School projects are influenced by several elements that may be created, rebuilt, or reformed, such as technical and practical concerns, public policy-related project trends, and the accessibility of resources and procedures.) Criticise educational structures that prioritise technical factors such as energy efficiency, square footage, and standards, neglecting to address aesthetic concerns and other intricate conversations that include innovation, imagination, and functionality.

Other design choices, like identity and context, implantation, exterior site considerations, qualities related to the selected pedagogy and learning concept, temporality and durability, and—above all—the structure and operation of the building—might also be of concern. Additionally, a wide range of opinions from various stakeholder groups and an excessive number of individuals have an impact on building design. Different Report Word expectations cannot always be considered independently, despite the fact that they are vital.

Studies have produced broad guidelines for school design that should complement the various Learning Modalities (LM) outlined by educational paradigms and systems in order to provide a high-quality learning and teaching environment. There are three different levels of modalities: group learning via the presentation of information, experiments, and experiences; active learning through projects and group labour (large or small); and focused solo activities. Design Patterns are presented to accommodate these forms of communication in the physical world. Air. These serve as flexible rules of thumb while making decisions throughout the design process. Design patterns are regarded as crucial elements in architectural curricula and may serve as essential cornerstones in the process of teaching and learning.

Health, social relationships, behaviour, productivity, physical comfort, and user satisfaction may all be positively or negatively impacted by the built environment's quality (functional, beautiful, comfortable, and well-maintained). These problems have the potential to disrupt instructional procedures, reduce building operating costs, and have an adverse effect on the atmosphere in schools. This study discusses educational space including its functional excellence as a crucial aspect of environmental comfort.

People depend on Earth's environments for the whole of their lives, and they now confront some of the most difficult ecological issues facing the planet. In the context of the
environmental catastrophe, we are losing the capacity to expand. "Our climate cannot meet the needs for food, water, animation, or holy inspiration." Although there is scientific evidence to explain the ecological catastrophe, the conduct causing the serious issues we confront has not altered much. Even while environmental issues are being covered more in news, publications, and television, the public and business communities continue to receive our ecological knowledge with unsolved challenges.

Nonetheless, there are a lot of environmental issues that society faces that need to be addressed. Only with widespread community backing can this be possible. As recommended, environmental education is necessary to make sure that greater support is provided to start group action and behaviours change in regard to environmental issues.

The goal of environmental education is to encourage environmentally conscious decision-making and change human behaviour into acts that are beneficial to the environment, based on interdisciplinary knowledge. Its goal is to change social conduct in order to accomplish environmental conservation, restoration, and regeneration. In addition to helping to change these situations, environmental education may be a significant factor in resolving the world's most pressing ecological issues.

In addition, the dissemination and diffusion of scientific knowledge, public education, and dominant paradigms are all ways in which art is seen. Artists create art to bring attention to important environmental issues. These days, it's thought that art may effectively engage people with environmental issues. One method to do this is via art instruction. The effect of ecological learning via art instruction may be reinforced by environmental education as well. For instance, the school curriculum need to include ecological literacy. In this sense, researchers support the need for environmental education. The main reason it should be taught in schools is because, in addition to changing kids' perspectives, it may also enable society to address environmental problems. Encouraging diverse pedagogical techniques to teach pupils about the world around them will contribute to winning their hearts and minds.

This strategy will be supported by new research on subjects like eco-art education and environmental art education. Environmentally art education is an amalgam of many fields, including science, art, and environmental education, rather than existing as a separate discipline. An alternative term for this is eco-art education. It consists of components like outdoor and environmental learning and artistic education. The goal of eco-art education is to raise people's consciousness and concern for environmental values like sustainability. Environmental art education is a relatively new field of study that is becoming more and more popular since social activities in high school and college curricula benefit greatly from the arts.
This newest trend, which draws inspiration from eco-art education, was sparked by environmental activists like Basia Irland, Joseph Beuys, and Mel Chin and their ideas and concerns. By presenting fresh approaches to environmental issues and inspiring the public or neighbourhood with their eco-art, these campaigners raise awareness. The arts, which have attempted to address environmental concerns in our day and age, are worthwhile investigating in order to discover solutions to the troubles the globe faces. The development of a sustainable society may benefit greatly from the creative process. Eco-art has the power to raise everyone's awareness since it may convey feelings and ideas. It is also recommended that pupils increase their cognitive abilities, and it is one of the greatest avenues for doing so. Developing environmental sensitivity also fosters a feeling of community.

This sensation might be characterised as an awareness of our surroundings and a kind of compassion. Students may develop this environmental knowledge and build an ecological model with the aid of eco-art education. The relationship between empathy and visual experience strengthens the connection between environmental art education and empathy.

Furthermore, different ecological viewpoints that are offered by the interwoven connection between the artist and the object of art may enhance the empathy between the artist and the audience. Experience-based learning has the power to change students' perception of their place in the world. An environmentally conscious art curriculum that emphasises the chance to learn concerning eco-art and address environmental issues has been developed by researchers. In order to preserve the value of eco-art instruction at schools and to enable students to consider and investigate significant concerns in modern society, educational conditions have raised study levels. Complex issues including social structures, the environment, public locations, shared capital items, and local links may all be included in eco-art concerns. These are problems that a lot of academics and researchers in the subject related to environmental art are now attempting to resolve.

More creative approaches to designing and executing programmes that address difficult environmental issues are being investigated by art educators. Place-based pedagogy is a creative approach to using eco-art education to address these environmental problems. The educational system is focused on locations, and it is supported by an ecological framework that connects all of the aspects. This emphasises the idea of "listening to the land" and existing peacefully with the environment.

In the sake of publicity, there are also eco-artists who are more firmly rooted in the pedagogical tradition. By using eco-art to concentrate attention, create, reclaim, enlighten, and reimagine, these artists view themselves less as instructing the public to adhere to a specific
interpretation of reality and more as catalysts for a democratic process of education. In fact, they hope that people who witness or create eco-art would sometimes just commune with environment as a method of comprehending it—spiritually, physically, and via all five senses. They also hope that their eco-art projects will be understood in varied ways by different demographics with unanticipated effects. Artists who focus on the environment try to:

- pay close attention to the intricate web of interactions that exists in our surroundings, including the biological, cultural, political, and historical facets of ecological systems;
- produce artworks using natural materials or interacting with elements of the environment like sunshine, wind, or water;
- restore, reclaim, and repair harmed environments;
- educate the public about ecological dynamics and the issues pertaining to the environment that we confront;
- rethink ecological interactions by coming up with innovative ideas for coexistence, sustainability, and healing.

The "trans-species" eco-art of American artist Lynne Hull, who makes art for non-human animals as well as humans, demonstrates the possibility of using eco-art as a pedagogy in the realm of public awareness. As said, "I think that artists' creativity can be applied to real-world issues and can have an impact on pressing social and environmental concerns." For animals, my sculptures and installations provide space, food, shelter, and water as an ecological atonement for the habitats they have lost due to human expansion. In order to do this, Hull collaborates with local communities, landscape architects, environmental scientists, and interpreters to produce artworks in sometimes inaccessible natural settings that are suitable for both people and animals.

The goal of environmental education is to encourage environmentally conscious decision-making and change human behaviour into acts that are beneficial to the environment, based on multidisciplinary information. Its goal is to change social conduct in order to accomplish environmental conservation, restoration, and regeneration. In addition to helping to change these situations, environmental awareness may be a significant factor in resolving the world's most pressing ecological issues. In addition, the dissemination and diffusion of scientific knowledge, public education, and dominant paradigms are all ways in which art is seen. Artists create art to bring attention to important environmental issues. These days, it's thought that art may effectively engage individuals dealing with environmental issues.
Educating via art is one method to succeed. The effect of ecological learning via art education may be reinforced by environmental learning as well. For instance, the school curriculum need to include ecological literacy. In this sense, researchers support the need for environmental education. The main reason it should be taught in schools is because, aside from to changing kids' perspectives, it may also enable society to address environmental problems. Encouraging diverse pedagogical techniques to teach pupils about the surroundings will contribute to winning their hearts and minds.

This strategy will be supported by new research on subjects like eco-art education and environmental art education. Environmentally art education is an amalgam of many fields, including science, art, and environmental education, rather than existing as a separate discipline. An alternative term for this is eco-art education. It consists of components like outdoor and environmental education and art education.

The goal of eco-art education is to raise people's consciousness and concern for environmental values like sustainability. Environmental art education is a relatively new field of study that is becoming more and more popular since communal events in school and university curricula benefit greatly from the arts. This newest trend, which draws inspiration from eco-art education, was sparked by activists' ideas and worries about the environment. By presenting fresh approaches to environmental issues and inspiring the public or communities with their eco-art, these campaigners raise awareness.

The arts have attempted to address environmental issues in the age of environmental concerns, which are worthwhile investigating to discover solutions for the challenges the globe faces. The development of an environmentally friendly culture may benefit greatly from the creative process. Eco-art has the power to raise everyone's awareness since it may convey feelings and ideas. It is also recommended that pupils enhance their cognitive abilities, and it is one of the greatest avenues for doing so. Developing environmental sensitivity also fosters a feeling of community.

This sensation might be regarded as an awareness of nature and a kind of compassion. Students may develop this environmental knowledge and build an ecological model with the aid of eco-art education. The relationship between empathy and visual stimulation strengthens the connection between environmental art education and empathy. Furthermore, different ecological viewpoints that are offered by the interwoven connection between the artist and the object of art may enhance the empathy both the artist and the audience.

Experience-based learning has the power to change students' perception of their place in the world. An environmentally conscious art curriculum that emphasises the chance to learn
concerning eco-art and address environmental issues has been developed by researchers. In order to preserve the value of eco-art education in schools and to enable students to consider and investigate significant concerns in modern society, educational conditions have raised study levels. Complex issues including social structures, the environment, public locations, shared capital items, and local links may all be included in eco-art concerns. These days, a lot of researchers and professors in the subject related to environmental art are putting a lot of effort into finding solutions.

1.1 ECO-ART

Art explains how people value and perceive nature. The burgeoning environmental movement gave rise to environmental art. Previous iterations of environmental art were more closely associated with artistic ideas than with ecological concepts. Establishing a respectful relationship among the Earth and the observer may be achieved via environmental art. Activists utilise eco-art to highlight important societal, political, and environmental concerns. Teaching eco-art is a relatively new idea. It is a developing educational strategy that use art to teach ecology to pupils with the goal of encouraging a profound comprehension and compassionate attitude in them that will cause them to alter their long-term behaviours regarding the environment. An eco-art education researcher expressed their excitement, saying that eco-art provides a creative means of advancing the concepts of ecological literacy and education about the environment.

By incorporating the imaginative and experiential elements of art education, it also improves conventional environmental education. According to Inwood, there is not enough literature in this field, with the writings that are cited providing little attention to the methods and problems of eco-art instruction, especially in primary school. Less curriculum development will take place in the industry.

Consequences of being green in art classes include employing eco-friendly cleaning supplies, reducing the use of synthetic substances, saving energy by turning off lights, and using non-toxic methods and materials. Artists should choose non-toxic materials that won't hurt others or have an adverse effect down the road. Helping students incorporate sustainability throughout their artistic creations also involves teaching them the value of and methods for comprehending the lifespan cycles of resources and goods. To create art that has little influence on the environment, the author recommends using natural artefacts and encourages the use of unconventional resources and upcycling of items like cardboard, plastic, and CDs.
In order to promote eco-friendly behaviours, educators will help kids make decisions while they are producing art. Students are able to produce as a result of practice and observation. According to researchers, these decisions will affect the environment down the road. The first step in implementing greener practices is to assess how best to teach students regarding eco-art; this is the most important part of eco-art education.

1.2 EXAMINE THE PROBLEM'S IMPORTANCE

Public education of significant environmental problems benefits greatly from environmental education. said that children's environmental education wouldn't progress unless it was included into a larger range of subject areas, including art. Environmental literacy is a kind of literacy that can and deserves to be cultivated in children via art education. Many educators believe that environmental literacy is crucial to the continuation of human life on Earth. Examples from other projects, such as the "Wetlands Environmental Art Project," also showed the importance of this approach in terms of environmental education through art, while also addressing both positive and negative environmental impacts. This is because the project highlighted organic aquaculture and revealed concerns about the environment associated with food production.

1.3 EXPLAIN THE APPLICABLE SCHOLARSHIP

In addition to being able to impact attitudes, beliefs, and knowledge, art may help explain complicated topics in understandable ways. It is essential that scientists and artists may collaborate creatively to provide new and relevant information. Certain scientists used techniques and expertise from their respective domains to get fresh perspectives on the creation and reception of art. Uncovered the connection between neuroscience and art. It is crucial to emphasise that, in relation to human brains, artists made some discoveries that are just now becoming known.

Several writers have discussed how art might be used to alleviate environmental issues like the anthropogenic biodiversity catastrophe. According to McCullough and colleagues, putting "Green Walls in Schools" into practice is a highly beneficial tactic that blends science and art. The project's outcomes showed that green walls, which integrate project-based learning techniques with environmental education, are essential for developing critical thinking.
Unsustainable human behaviours and views have been connected to the depletion of natural resources and the rise in waste creation. An article describes creative projects that students do using repurposed and recycled materials, culminating in the building of a garden of sculptures on the school grounds. Additionally, some artists investigate the relationship between their work and their search of solutions to environmental issues.

The world's biggest waste dump, located faraway from Rio de Janeiro, provided the materials for this artist's artwork. Students may practise, observe, value, analyse, synthesise, and communicate their knowledge of and connection to nature via the use of art.

1.4 STATE HYPOTHESES AND HOW THEY ALIGN WITH THE RESEARCH PLAN

Effective collaboration between environmental scientists and artists is essential to producing new, relevant information. Given that this project aims to use the existing body of knowledge in both science and art, we asserted that by using this methodology, we would:

a) develop scientific interest in kids as well as critical thinking and attitudes;

b) encourage creativity;

c) promote environmental awareness;

d) arise students’ knowledge about art;

e) encourage entrepreneurial attitudes;

f) instigate collective action through involvement of the School Community.

This project's efforts involve some fieldwork and experimentation mixed with practical art. Students' understanding of Portuguese forests and native plants will be activated by this exercise, which will also expand their understanding of material recycling and reuse as a means of advancing sustainability. The purpose of the programmes was to encourage the connections between environment science and art. The activities were evaluated qualitatively, with a primary emphasis on the processes rather than the final outcomes.

This essay's goals are to examine the emerging subject of eco-art instruction and clarify how it inspires environmental awareness in our children. Research articles have been examined and described in light of the main findings and features of studies on effectiveness and teaching methods, within a wide range of frameworks for instruction and with regard to the comments made at some point by subject-matter experts. It is hoped that by examining the findings of multiple researchers, we will be better able to plan and design new investigations, that scholars and educators will pay closer attention to their own practices and identify emerging trends and difficult situations for eco-art education, while fresh inquiries will be raised about what will be
done in the future. This highlights the value of empathy, pro-environmental conduct, and art education in eco-art place-based learning. The purpose of this study is to improve pupil compassion for nature and encourage lifelong pro-environmental habits by using art to teach environmental literacy.

1.5 OBJECTIVES OF THE STUDY

- examine how much more engaging art-based learning is for kids when it comes to environmental issues than when it comes to conventional teaching techniques;
- examine how well children who participate in art-based education programmes retain and apply the environmental information and practices they are taught over time;
- determine which particular creative approaches and endeavours have the most influence on promoting children's environmental consciousness and pro-environmental viewpoints;
- examine how art-based ecological education initiatives might encourage children's creativity, intellectual curiosity, and solving problems with regard to environmental challenges.

2 METHOD

In order to enhance the innovative design process of school buildings, two research approaches are used: a literature search and the conversion of curricular and design principles into visual representations. The study's foundation is the idea of learning modalities. There's a presumption that the more inclusive and diverse learning experiences that learning LMs enable in the context of skill development, the more functional spaces become, providing comfort beyond just the three environmental aspects of temperature, sound, and lighting. The research was focused on:

- six suggested learning modalities;
- presented Design Patterns;
- several intelligences to facilitate various learning modalities and the need for diverse places;
- school environmental comfort, with an emphasis on utilitarian elements;
- POE techniques to aid in the creation of a creative design process and an architectural programme;
- the conversion of theoretical ideas into visual aids.

2.1 FUNCTIONALITY-BASED LEARNING MODALITIES AND ENVIRONMENTAL PLEASURE

The learning modalities that will be covered in-depth throughout the article need modern schools to exhibit contemporary architectural trends (Table 1) and make sure that their spaces are functional in accordance with the demands of the learning-teaching process and associated activities. It is essential to assess the area, listen to users, note their degree of satisfaction, and consider what may be done to raise it in order to guarantee that the effectiveness is reached.

<table>
<thead>
<tr>
<th>Design Patterns.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Classrooms, Learning Studies, Advisories And Learning Entry.</td>
<td>4. Home Base and Individual Storage</td>
</tr>
<tr>
<td>2. Welcoming Entry</td>
<td>5. Science Labs, Arts Labs and Life Skills Area</td>
</tr>
<tr>
<td>3. Student Display Space</td>
<td>6. Art, Music and Performance</td>
</tr>
</tbody>
</table>

Source: Prepared by Authors (2024)

Particularly in the context of learning environments, students’ uniqueness in relation to Multiple Intelligences (MI) has to be considered. Theorised in 1999 that educators should investigate MI in the classroom, particularly for high school students, in order to better prepare them for the range of responsibilities, opportunities, and experiences that await them in the actual world of the twenty-first century. Even if curriculum and intelligences are closely associated, the space and how it functions unquestionably affect the results. The idea of learning paradigms organises space design by taking into account the variety of activities that the intelligences demand.

Promotes the idea that a successful educational project should support as many different modalities as possible, replacing outdated venues that specialised to a limited number of options with ones that attended multiple, emphasising the importance of variety. Every activity needs a particular layout of space, or sometimes even areas set aside only for that purpose. Thus, various learning modes and styles are inextricably tied to the way a place is constructed, which is
connected to the purpose it serves. As a result, tasks may be completed as effectively as possible, improving user comfort.

2.2 TAKING LEARNING MODALITIES INTO ACCOUNT IN THE ARCHITECTURAL PROGRAMME, DESIGN PROCESS, AND POE

In order to provide varied learning environments in schools, architects must consider one of the two factors listed below, whether they are designing a new school or renovating an existing one. In the event of a remodelling project, the first consideration is the particular needs of the location and its users: What works and what doesn't in that environment has to be assessed. Second, the basic requirements of 21st-century schools, which are based on techniques for learning and fashion patterns, must be given precedence when creating new designs.

3 RESULTS AND DISCUSSION

Table 2 is a graphic depiction of the application that was created to help visualise it and explain how Learning Modalities may be used to enhance thinking in terms of usefulness and, therefore, Environment Comfort of the Built Environment. The drawings depict people's potential behaviours and their relationships to one another in each modality. They also provide suggestions for how the space may be used, which connects to potential concerns for conducting a POE and advances the development of an architectural plan.

As shown in Table 2, depending on the needed degree of focus, several learning modalities may even occur at the same location at different periods. As an example, it is feasible to bring up modalities 1 (independent study) or 4 (one-on-one learning with instructor), as well as 2 (peer tutoring) and 3 (team collaborative work), which may even occur simultaneously. Sites that facilitate those particular modalities might be considered ideal environments for the development of intellectual abilities such as verbal-linguistic, analytical mathematical, musical, and bodily-kinaesthetic.
Table 2

6 Learning Modes and Their Interpretations.

<table>
<thead>
<tr>
<th>Mode</th>
<th>Interpretation</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Independent study</td>
<td>oral</td>
<td>Classroom setting with individual desks and chairs. Students work alone.</td>
</tr>
<tr>
<td>2. Peer tutoring</td>
<td></td>
<td>Students sit in pairs or small groups, discussing and collaborating.</td>
</tr>
<tr>
<td>3. Team collaborative work in small and mid-size groups (3–6 students)</td>
<td></td>
<td>Students work in teams of three to six, sharing and discussing ideas.</td>
</tr>
<tr>
<td>4. One-on-one learning with the teacher</td>
<td></td>
<td>Students have personal instruction from the teacher in a quiet setting.</td>
</tr>
<tr>
<td>5. Lecture format with the teacher or outside expert at centre stage</td>
<td></td>
<td>Lecture setting with the teacher at the center and students taking notes.</td>
</tr>
<tr>
<td>6. Project-based learning</td>
<td></td>
<td>Students work on projects, guided by the teacher, in groups or individually.</td>
</tr>
</tbody>
</table>

Source: Prepared by Authors (2024)

Table 3

Learning styles: the connection between methods of instruction and multiple intelligences.

<table>
<thead>
<tr>
<th>MI</th>
<th>Characteristics of Students</th>
<th>Students’ Needs</th>
<th>Relation with Learning Modalities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verbal-linguistic</td>
<td>They have a verbal way of thinking and like reading, writing, storytelling, and theoretically grounded study.</td>
<td>Book-related activities, typing stations, writing supplies, notepads, and conversations.</td>
<td>May Occur via the following modalities: 1, 2, 3, 4, 9, and 10.</td>
</tr>
<tr>
<td>Logical mathematical</td>
<td>They are logical thinkers who like calculations, logical games like puzzles, experiments, and inquiries.</td>
<td>Work with manipulative materials, conduct scientific experiments, and engage in other projects. Visit science museums and planetariums.</td>
<td>May occur via 1, 2, 3, 4, 6, 7, 9, 13, modalities.</td>
</tr>
<tr>
<td>Musical</td>
<td>They like listening, singing, playing instruments, pounding their hands and feet, and thinking in terms of rhythms and melodies.</td>
<td>Singing exercises, going to performances, and using instruments to learn.</td>
<td>Is possible via the following modalities: 1, 2, 3, 4, 6, 8, 9, 10, and 11.</td>
</tr>
<tr>
<td>Bodily Kinaesthetic</td>
<td>They consider sensations analytically and have an interest in building, racing, dancing, and gestural expressiveness.</td>
<td>Events that include athletics, movement, hard labour, theatre productions, and element creation.</td>
<td>Can happen through the modalities 1, 2, 3, 4, 6, 10, 11, 13.</td>
</tr>
</tbody>
</table>

Source: Prepared by Authors (2024)
4 CONCLUSION

Our learned environmental protection-related awareness, knowledge, attitudes, and skills via this job. We also emphasised the relationship that exists between environmental science and art. Students were also able to learn a new model of a scientific, inventive, and entrepreneurial culture via this initiative. Students’ participation in this initiative has improved their cognitive, emotional, and fine motor abilities. As a result of strengthening their communal behaviours, pupils also grow more lonely and conscious of the value of sharing. In order to demonstrate the advancements in learning about the environment over the last many years, this study concentrated on eco-art education research.

An architect's goal while developing a project is to create areas that, in some manner, make his inhabitants feel "at home" and comfortable, so that these surroundings have a beneficial impact on people. Taking care of this component in public spaces is made more challenging by the diversity of users, each with their own views and interests. The activities taking place, including the quantity, frequency, length, and kind of activities, all have a significant impact on the solutions related to environmental comfort. The functional element remains unchanged, and learning modalities may aid in understanding the proper form for the area. In turn, POE may be a useful tool for comprehending all the subtleties of what takes place there, always taking into account the variety of activities that can be done there as well as the comfort needed to grow each one and switch it up.

While codes and specifications undoubtedly play a significant role in school projects, there are other factors that also play a role: public policies, material and technical requirements, practical and technological considerations, and the advocacy of qualitative standards for an architectural design which encourages school functioning and learning. This assertion acknowledges that, among other things, design choices should be centred on elements like identity, context, and traits associated with pedagogy and learning ideas.

REFERENCES


