



SEED-BASED GANESHA: A STUDENT-LED APPROACH TO SUSTAINABLE ENVIRONMENTAL PRACTICES AND BIODIVERSITY CONSERVATION: CASE STUDY

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ABSTRACT Seed-based Ganesha making represents an innovative, experiential and culturally rooted approach to promoting environmental sustainability, biodiversity conservation and responsible resource use among students. The present initiative was conceptualized around the theme “Seed-Based Ganesha: A Student-Led Approach to Sustainable Environmental Practices and Biodiversity Conservation”, with the message “Made with Seeds – Connected with Tradition. The activity aimed to integrate cultural traditions with environmental education by encouraging students to prepare Ganesha idols using a diverse range of seeds, grains, pulses and other naturally available materials. The programme was designed to create awareness regarding eco-friendly festival practices, highlight the agricultural and ecological importance of seeds, promote appreciation for crop diversity and seed conservation, and enhance students' creativity, teamwork and environmental responsibility. A student-centred experiential learning approach was adopted, in which participants selected suitable agricultural materials, planned their designs and creatively arranged different seeds and grains to develop Ganesha idols. The activity provided students with direct exposure to variations in seed size, colour, shape, texture and diversity, thereby connecting classroom concepts related to agriculture, biodiversity and sustainability with practical experience. Beyond artistic expression, the initiative encouraged students to recognise seeds as valuable biological resources associated with food production, agricultural diversity, traditional knowledge and future food security. The activity also demonstrated how cultural celebrations can become effective platforms for communicating sustainable environmental practices and encouraging responsible consumption of natural resources. Seed-based Ganesha making can therefore serve as a replicable educational model that connects culture, agriculture, creativity, biodiversity and sustainability through student participation. The initiative highlights the potential of educational institutions to transform traditional celebrations into meaningful opportunities for environmental awareness, seed conservation and experiential learning. Systematic assessment through pre- and post-activity surveys, documentation of seed diversity and evaluation of student learning outcomes can further establish the educational and environmental effectiveness of this approach.

KEYWORDS : Seeds, Eco-friendly Celebrations, Seed Conservation, Biodiversity; Environmental Education

1. INTRODUCTION

Festivals provide an important social and educational context through which environmental values can be communicated to students and communities. Ganesha Chaturthi is widely celebrated in India and provides an opportunity to promote environmentally responsible practices while respecting cultural traditions. Conventional idol-making and decorative practices may involve materials that create challenges for sustainable waste management. Therefore, educational institutions can play a significant role in encouraging alternatives based on natural, biodegradable and locally available resources.

2. Concept and Rationale

The seed-based Ganesha initiative was conceived as a student-centred activity in which seeds and agricultural materials become the principal creative resources. The concept combines cultural expression with an appreciation of agriculture and biodiversity. Instead of treating seeds only as food or planting material, the activity presents them as valuable biological resources representing crop diversity, traditional knowledge and future food security.

3. Core Message of the Programme

The programme was conducted with the central message ““Made with Seeds – Connected with Tradition””. The message communicates that cultural traditions can be celebrated while simultaneously promoting environmental responsibility. Students were encouraged to understand that sustainable celebration does not require abandoning tradition; rather, tradition can be connected with conservation, creativity and responsible use of natural resources.

4. Objectives

The major objective of the programme was to create awareness among students about the preparation and promotion of eco-friendly Ganesha idols using seeds and other natural materials. Specific objectives were to: (i) create awareness about environmentally friendly festival practices; (ii) explain the importance and value of seeds in agriculture and biodiversity; (iii) encourage seed conservation and appreciation of crop diversity; (iv) develop creativity, design skills and innovation among students; (v) promote the responsible use of natural and biodegradable materials; and (vi) provide an experiential learning opportunity linking agriculture, culture and environmental sustainability.

5. Materials Used

Students used a variety of seeds, grains, pulses and natural materials available through agricultural and household sources. Depending on design requirements, materials may include rice, millets, pulses, maize, sorghum, legumes and other locally available seeds. Natural binding and decorative materials can also be incorporated where appropriate. The use of such materials provides students with direct visual and tactile exposure to crop diversity while reducing dependence on synthetic decorative materials. Examples of the resulting seed-based designs are shown in Fig. 2 and Fig. 3.



Fig. 2. Ganesha Made with Different Pulse Seeds



Fig.3. Ganesha Made with Different Vegetable Seeds

The activity followed a participatory, student-led approach. Students were first introduced to the concept of seed-based Ganesha making and the environmental significance of sustainable festival practices. They then planned their designs, selected suitable seeds and natural materials, and developed the idols through manual arrangement and creative techniques. Faculty members provided guidance on material selection, safe handling and the broader agricultural and environmental significance of seeds. Students were encouraged to work collaboratively, exchange ideas and document their designs and learning experiences. The student-led preparation process is illustrated in Fig. 1.



Fig. 1. Students Making Ganesha with Different Seeds

7. Student Participation and Experiential Learning

The activity transformed students from passive participants into creators and communicators of an environmental message. During the preparation process, students observed differences in seed size, shape, colour, texture and form. These characteristics were used creatively in idol design. Such hands-on learning can strengthen observation skills, teamwork, problem-solving, communication and appreciation of biological diversity. The activity also provides an informal platform for students to discuss seed storage, crop diversity, traditional varieties and the role of agriculture in sustainable development.

8. Environmental Significance

The use of natural and biodegradable materials supports the broader principle of reducing environmentally undesirable materials during festival activities. A seed-based approach encourages students to think about material selection, waste generation and post-event management before undertaking a cultural activity. The concept also promotes the idea that environmental sustainability can be incorporated into everyday cultural practices through small, practical behavioural changes.

9. Seed Conservation and Biodiversity Awareness

Seeds represent the foundation of crop production and are important carriers of agricultural biodiversity. Exposure to diverse seeds through a creative activity can help students recognise the value of crop diversity and traditional agricultural resources. The programme can therefore be expanded into a seed-awareness activity by displaying different seed types, explaining their crop identity and documenting their local or traditional significance. Where feasible, selected seeds can subsequently be separated, labelled and incorporated into an

educational seed collection or seed bank, subject to their viability and suitability for storage.

10. Creativity and Innovation

A major educational value of the activity is the transformation of ordinary agricultural materials into a culturally meaningful artistic form. Students had to consider colour combinations, seed arrangement, texture, shape and structural stability while preparing the idols. This process encourages design thinking and innovation. It also demonstrates that agricultural products can have educational, cultural and creative applications beyond their conventional uses.

11. Educational Outcomes

The activity supports multidisciplinary learning. From an agricultural perspective, students learn about seed diversity, crop identity and the importance of conservation. From an environmental perspective, they learn about biodegradable materials, responsible consumption and waste reduction. From a social and cultural perspective, they learn how traditional celebrations can be connected with contemporary sustainability goals. From a personal-development perspective, the activity encourages creativity, teamwork, leadership, communication and responsibility.

12. DISCUSSION

The seed-based Ganesha model illustrates the potential of experiential learning to convert environmental concepts into practical action. A classroom explanation of biodiversity may remain abstract for some learners, whereas handling and identifying different seeds during a creative activity provides a direct learning experience. The cultural context additionally increases the relevance of the activity. The initiative can therefore be considered a practical educational model for integrating agriculture, environmental education and cultural awareness.

13. Scope for Expansion

The activity can be developed into a broader annual sustainability programme. Institutions may establish a "Seed Ganesha and Seed Conservation Corner", conduct seed identification demonstrations, organise seed exhibitions, document traditional crop varieties, conduct awareness sessions on home seed saving, and connect the activity with campus biodiversity programmes. Students may also prepare educational labels describing the crop name, botanical name, seed characteristics and agricultural importance of the materials used. Such documentation can create a continuing educational resource rather than limiting the activity to a single festival event.

14. Limitations

This article describes the educational concept and implementation model rather than presenting a controlled experimental study. Quantitative claims about changes in student knowledge, attitudes, environmental behaviour or waste generation should be supported by pre- and post-activity surveys, participant numbers, material quantities and appropriate statistical analysis. Future studies can therefore strengthen the evidence base by systematically measuring learning outcomes and environmental indicators.

15. Recommendations for Future Research

Future research may assess student knowledge before and after participation, measure changes in environmental attitudes, document the types and quantities of seeds used, assess material recovery and waste reduction, and evaluate student perceptions through structured questionnaires. Comparative studies may examine seed-based idols, clay-based idols and other eco-friendly approaches using clearly defined environmental and educational indicators. Researchers may also investigate whether such programmes influence students' subsequent participation in seed conservation, kitchen gardening, biodiversity documentation or sustainable agricultural practices.

16. CONCLUSION

Seed-based Ganesha making provides a meaningful bridge between tradition, agriculture and environmental sustainability. The use of seeds, grains, pulses and natural materials turns a cultural activity into an experiential learning opportunity and creates a visible message about conservation and responsible resource use. The programme's emphasis on seed importance, seed conservation, creativity and eco-friendly practices makes it particularly relevant for educational institutions. With systematic documentation and measurable learning indicators, the initiative has potential to serve as a replicable student-led model for sustainability education and biodiversity awareness.

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