Practice of 'Learning of New Skills by Doing' at Klorofeel School, Brahmapur

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1. Introduction

The Klorofeel School, Brahmapur initiated its journey in 2019 to practice the profound ideas of great Indian thinkers such as Rabindranath Tagore: "You can't cross the sea merely by standing and staring at the water", Swami Vivekananda: "Educate our people, so that they may be able to solve their own problems", Mahatma Gandhi: integrated curriculum of education involving "Hand, Heart and Head", Sri Aurobindo: "to work from the near to the far, from that which is to that which shall be", Gijubhai Badheka: learning by weaving through "new ideas, failures, disgrace and solutions", and Jiddu Krishnamurty: of learning in a "fear-free environment".

The operational purpose of education at the school revolved in having an enabling teaching and learning environment so that the students can build their foundation for having sustainable livelihood security in future, besides being responsible citizens of the country. Accordingly, starting with Foundational Literacy and Numeracy (FLN), building competency in written and oral communication, analytical capacity, and teamwork, respecting diversity and hands on experience in vocational skills inside school and local enterprises in the neighbourhood have been integral to school's curriculum.

Combining the ideas of thinkers and operational purpose, Klorofeel School coined an inspirational and fun-filled motto of education, i.e. Karke Dekho (Learning by Doing). Following this motto, to start with, the students acquire the skills of expected learning outcomes in a subject, by experiencing in the physical environment. Since the socio-cultural environment is closely interconnected with the physical environment, they also learn to respect manual work and dignity of labour. At the end, students are exposed to the theoretical knowledge and its application in different areas. The learning process starts with 'How?" and continues with "Why?". This process of 'experience preceding what would be learned' is in line with John Dewey's concept of the Pragmatism in education.

In this paper an attempt has been made to briefly describe the practices followed at the school to impart 'skill-integrated education' with an aim of making the students productive and good citizens of the country, which pleasantly has been the 'aim of education' in National Education Policy (NEP) 2020.

2. Method and Approach

At present, the school provides education up to Class 10, under affiliation of the Central Board of Secondary Education (CBSE). Its curriculum is based on textbooks and supporting documents published by the National Council of Education Research and Training (NCERT) and CBSE, including recommendations of the NEP 2020, National Curriculum Framework for Foundation Stage (NCF-FS) 2022 and National Curriculum Framework for School Education (NCF-SE) 2023. Based on Dimensions of Development, Curricular Goals, Competencies and Learning Outcomes expected for each Subject of each Class, the activities are undertaken. Each such activity is expected to develop competencies in specific knowledge, skill and disposition to undertake it. Since our approach to teaching starts from experience, hence skill and attitude development get the precedence over knowledge acquisition. An example of the method and approach is presented in Table 1.

Table 1: Method and Approach Followed in Developing Competency in Environmental Study

Curricular Goal (CG)	Competency (C)	Learning Outcome (LO)	Chapters Covered	Activities in Living Lab
CG2: Environmental Interdependence: Develops an understanding of the relationship and interdependence between living organisms (plants/humans) and their physical environment (soil, water, sunlight).	**C2.1: Observation & Agricultural Literacy:** Explores and documents the process of food production and identifies the physical factors required for healthy plant growth.	**LO 2.1.1:** Successfully plant a seed **LO 2.1.2:** Documenting stages of growth (seed, sprout, sapling, mature plant) **LO 2.1.3:** Explaining how soil quality, water, and sunlight directly affected in development from seed to plant	Chapter 2: Diversity in the Living World Chapter 10: Living Creatures: Exploring Their Characteristics Chapter 11: Nature's Treasures	**Soil Preparation & Sowing:** Students physically turn the soil, mix in compost, and plant seeds. **Observation:** Groups monitor a specific square foot section of the patch, watering it and maintaining a weekly "growth journal" (measuring sprout height, leaves, and insect visitors). **Harvest & Reflection:** Students harvest mature plants and discuss the journey from soil to plate.

Note: Adapted from National Council of Educational Research and Training. (2024). Curiosity: Textbook of Science for Class 6. NCERT

The socio-economic profile of the students at the school is such that majority of students are likely to pursue higher education at graduate and postgraduate level. For such students, objective of the school is developing an attitude of dignity of labour, and capacity to meet the needs of household level such as plumbing, general maintenance, kitchen garden, energy and water conservation, etc. For about one-third of the students who are likely to pursue vocational education immediately after secondary and/or higher secondary education, adequate exposure and experience is provided in local context specific vocations, as a part of the curriculum. In both the cases, students are exposed to the application of modern technology, elimination of drudgery, operation in clean and hygienic environment, application of green practices through reduction of carbon footprint and minimisation of food-mile for sustainable socio-economic development, and ownership of enterprises from a mix of caste, religious and gender categories, in different vocational possibilities.

There are facilities inside the campus for skill-integrated education and acquiring mastery in certain skills, with possible lifelong vocation in future. Additionally, the school students work with a network of local enterprises and individual entrepreneurs who have established successful enterprises in different vocations. A brief description of facilities and enterprises involved in skill development of students are described next.

2.1 Facilities Inside School

The facilities in the 15-acre campus and adjacent 7-acre residential area for skill integrated education are divided into three segments: Living Lab, Sustainability Practice System and other Skill Development Units.

2.1.1 Living Lab in the campus

The Living Lab includes Nurseries, Kitchen Gardens, Sacred Grove and Tree Families, Shrubs and Herbs Garden and Duckery Unit.

Nurseries and Kitchen Gardens

The Plant Nursery is in an open, airy and sunny patch of land in the campus of about 2000 square feet. Students, in groups, learn all the steps required for developing a nursery. Similarly, there is a dedicated space of 4000 square feet for students to acquire skills for setting up a Kitchen Garden.

Both operate in line with Curricular Goal 1 (CG 1): "Develop in-depth basic skills and allied knowledge and their associated materials/procedures" for the Middle Stage (Class 6-8), according to NCF-SE 2023. These include measurement and demarcation of the plot, soil bed preparation by loosening soil, weeding, levelling for drainage, sowing seeds, watering, providing fertiliser, controlling pests, and putting a shade net. Students learn safe use of tools, management of water and land, teamwork, record keeping, and basic economics of developing a sapling (Figure 1).



Figure 1: Students Engaged in Nursery and Kitchen Garden

Sacred Grove and Tree Families (Clusters of Trees of Same Variety)

The concepts of Sacred Grove and Tree Families are borrowed from traditional knowledge of tribal communities of South Odisha to promote biodiversity conservation linked to spiritual values. A small patch of land, earmarked as a Sacred Grove, holds reasonably rich floral and faunal resources. Starting from this grove, tree clusters from forests of Odisha are grown in "families" (5 to 6 plants of the same variety together) across the 500-meter length of the school boundary. This introduces students to effective plant communication through 'kin recognition'. In about 7 acres of land, students plant and take care of their own sapling, developing an emotional link with a living entity (Figure 2).



Figure 2: Sacred Grove and Plant Kin Clusters

Shrubs and Herbs Garden

Students of the Foundation Stage (Nursery to Class 2) and Preparatory Stages (Class 3 to Class 5) are taught thematically. For the theme *Plants and Animals*, a dedicated space called Symphony Garden is used to acquire skills across multiple dimensions of development:

- **Physical:** Walking on rough surfaces, balancing, digging, planting, and watering.
- **Socio-Emotional:** Caring for friends and exploring together.
- **Cognitive:** Observing, comparing, questioning, exploring, matching, sorting, and patterning.
- **Language and Literacy:** Building vocabulary, showing and talking, drawing, painting, and writing (Figure 3).



Figure 3: Students engaged in the Shrubs and Herbs Garden

Duckery Unit

To introduce animal husbandry as an opportunity for entrepreneurship and livelihood security, the school initiated a modest Duckery Unit. The ducks consume surplus food, fruits, vegetables from the school kitchen, and edible insects from the campus. Students learn daily caring and feeding (providing a balanced diet and fresh water); housing and hygiene (cleaning the duck coop regularly); and health and growth monitoring (observing behaviors to spot signs of weakness, injury, or illness, and recording weight updates) (Figure 4).



Figure 4: Students Engaged in Feeding Foods to the Ducks

2.1.2 Sustainability Practice System

Following sustainable practices, Klorofeel School has moved from safe waste disposal to a system of Circular Economy. Excess food and biomass generated on campus are converted to vermicompost for nurseries and kitchen gardens. Electricity from solar energy, rational use of energy, and rainwater harvesting are integrated into construction and operational practices. These initiatives inform and induce students for future employment and entrepreneurial opportunities.

Vermi-compost Production Unit

The school practices vermicomposting using kitchen waste and dry leaves generated within the campus. The compost produced is used for campus plants, creating a practical circular system where waste is transformed into a useful resource. Students actively engage in making vermicompost to understand decomposition, soil enrichment, and waste reduction through direct experience rather than merely reading about them (Figure 5).



Figure 5: Vermicompost Unit

Energy Conservation System

For Energy Audits, students collect data on equipment like lighting, ventilation, air conditioning, lifts, transport, and water pumping. They document electricity purchased or generated, diesel and petrol consumed, and analyze energy-saving opportunities, cost implications, and payback periods. Simple practices like switching off lights and fans are promoted by class monitors. This helps students experience data collection, analysis, and execution of action plans.

Water Conservation System

For Water Audits, students estimate water consumption and identify areas of wastage. They inspect water-use points including taps, toilets, kitchens, and gardens to record leakages. They explore possibilities of conservation by changing fittings, plugging leaks, and reusing water.

2.1.3 Other Skill Development Units

Weather Station

An Analogue Weather Station on campus allows students to learn daily conditions through direct observation and measurement using maximum-minimum thermometers, dry/wet bulb thermometers, hygrometers, anemometers, and rain gauges. Students collect data twice a day and share it with the India Meteorological Department (IMD). This activity develops instrument handling, observation, and interpretation skills, enabling interdisciplinary learning across Mathematics, Science, Geography, and Language (Figure 6).



Figure 6: Students are Engaged in Weather Station

Pottery Unit (Clay Modelling)

Pottery is an important activity for children to improve hand, eye, and mind coordination while developing creativity, imagination, and motor skills. By making clay models, they understand shapes, measurements, calculations, and soil conditions. Children learn to make maps, landforms with clay relief, historical monuments, and traditional clay toys. Working with natural clay enhances love and respect for nature and the potters' community (Figure 7).



Figure 7: Students are Engaged in Clay Modelling

Drama

Drama is used as an effective method for teaching academic concepts and life skills. At first, students' bodies, voices, and minds are modulated to prepare them for performance. Working in groups, they develop intra-personal and inter-personal skills, including teamwork, patience, leadership, public speaking, and independent decision-making. Some students have strengthened their foundation to visualize future professional roles such as directors, actors, playwriters, set designers, and make-up artists (Figure 8).



Figure 8: Students are Engaged in Drama

2.2 Network of Enterprises Connected to the School

The school has roped in sole entrepreneurs to assist children in their journey of transition to an economically productive life in the future:

- **Nursery:** Taaj Nursery (Khajuria, 12 km away), run by Mr. Nazmul Shaik, provides experiential learning in nursery management systems to teachers and students.
- **Horticulture and Fishery Farm:** Matru Krupa Farm (Martha Palli, 4 km away), founded by Mr. Ashish Subudhi, includes horticulture and fishery units within the same campus and encourages students to replicate the enterprise.
- **Goat and Sheep Rearing Unit:** Situated at R. Chandipadar village (700 m away), owned by a parent, Mr. Niranjan Patro, who takes deep interest in educating children on commercial livestock rearing.

3. Findings

NEP (2020), NCF-FS (2022) and NCF-SE (2023) have provided an operational framework for realizing stage-specific competencies in school education. In a CBSE school like ours, where the majority of students intend to pursue higher education, the objective is developing an attitude of dignity of labour and capacity to meet domestic needs (plumbing, maintenance, gardening, resource conservation). For the students who intend to pursue vocational education immediately after secondary schooling, adequate exposure is provided in local context-specific vocations.

School's in-house facilities and collaboration with entrepreneurs have been well-accepted. Students find vocations exciting when setups are clean, technology-intensive, manual drudgery is lower, and profit is reasonable. There is an ongoing need to sensitize children from attaching specific vocations to caste or religion. Instead of traditional aspirations being limited to medicine, engineering, or law, students have started thinking about career options in design, painting, performing arts, high-value agriculture, animal husbandry, waste management, and energy or water conservation. The school is training instructors and bringing in local entrepreneurs to mentor students through the possible transition to some vocations in due course.

4. Concluding Remarks

Transitioning from traditional education to skill-integrated school education based on the NEP 2020 is a work-in-progress at Klorofeel School. The school develops stage-specific competencies through activities following NCERT textbooks and using labs and external setups.

It is generally observed that the acquisition of academic knowledge is relatively easier for students when practical experience precedes the teaching of concepts. Students' attitudes toward manual work have improved, and their willingness to pursue careers in design, energy conservation, water conservation, and waste-to-wealth has gained acceptance. Furthermore, their span of attention, capacity to observe, and curiosity have improved.

While students have shown keen interest, the same level of understanding from the faculty is not always visible. Therefore, alongside creating facilities for vocational education, systematic faculty development has become essential for a meaningful and effective skill-integrated school education system across the country.

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