

Sustainable Future Green School Ecology: Prevents Future-Pandemic Improving Biomedicines-Physiology Health Technology Biodiversity World Policy Development Studies

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Article History

Received: 10 October, 2022

Revised: 13 December, 2022

Accepted: 5 January, 2023

Published: 8 January 2023

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Abstract

The various lockdowns due to the severe acute respiratory syndrome coronavirus 2/3 (SARS-CoV-2/3) – 2019 (COVID-19 diseases) from March 2020 to up-to-date 2022, and the recent; ‘Freshwater-Living-Pathogens’, infectious viruses ‘hitchhike’ on latching onto microplastics, missing our helpful guts-microbes, and the outbreak of Monkeypox, etc., and the ‘Future Pandemic’, has badly affected a worldwide school education; straightforward teaching, health, nutrition, research, and well-being due to their epidemic potentiality and insufficient countermeasures or vaccines or weakening the ability of vaccines to prevent diseases caused by pathogens. So, in the year of ‘Azadi Ka Amrit Mahotsav’, to overcome it, the main objective is to develop ‘Sustainable Future Green School Ecology’ for sustainable teaching practices during any future pandemic. The survey-based/design study has mainly conducted in the Kanchannagar D. N. Das High School (HS), and the students has identified patterns, trends and problems in lockdowns based on interaction-survey among themselves, teachers, and communities, and mentions some of the solutions deployed to overcome the problem by innovative ideas regarding hybrid learning, health, infrastructure, and biodiversity conservation wildlife for joyful environment with treatment clues against diseases or infectious disease diagnostics, surveillance, vaccine development, and therapeutics, that will enable a to prevent any global pandemic, and take more advantage of modern environment-friendly technologies to continue teaching during any lockdowns for; “Understanding Eco-System for Health and well-being” and “Fostering health, nutrition, and well-being/Technological innovation for ecosystem and health with the steady reopen opening”, and the ‘School will be the mirror of the society by improving ‘Sustainable Future Green School Ecology’ forming the ‘Common-Activity-Based-Eco-friendly-Complex-Ecosystem-Model’ that prevents any future pandemic improving “Biomedicines-Physiology-Health-Technology-Biodiversity-World Policy and Development-Studies”. And it will encourage children to find local-level problems and take initiatives for developing local technological solutions from green technology, appropriate technology, information and communication technology, or improvising traditional biomedicines-physiology technology based on the principles of frugal innovation.

Keywords: Sustainable-future-green-school-ecology; Prevent; Future-pandemic.

1. Introduction

The various lockdowns due to the severe acute respiratory syndrome coronavirus 2/3 (SARS-CoV-2/3) – 2019 (COVID-19 diseases) from March 2020 to up-to-date 2022, and the recent; ‘Freshwater-Living-Pathogens’, infectious viruses ‘hitchhike’ on latching onto microplastics, missing our helpful guts-microbes, and the outbreak of Monkeypox (Figure 1), etc., and the ‘Future Pandemic’, has badly affected a worldwide school education; straightforward teaching, health, nutrition, research, and well-being due to their epidemic potentiality, reinfection risk, and insufficient countermeasures or vaccines or weakening the ability of vaccines to prevent diseases caused by pathogens, and we want to prevent pandemics? Stop spillovers (Ash, 2022; Crisanti, 2012; Filho *et al.*, 2020; Khanal and Duttaroy, 2022; Vora *et al.*, 2022). The ‘Azadi Ka Amrit Mahotsav’ (76th Anniversary of Indian Independence), primarily tried to steadily reopen the opening of different research-educational-institutions immunization against ‘Future A to Z Diseases’ (Datta, 2020a;2021a;2021b;2022a;2022b).

1.1. Problems

The different ‘COVID-19 lockdowns’ caused by the pathogens-SARS-CoV-2 or Coronavirus-2/3 from December 2019 to up-to-date, and the recent spread of Monkeypox, etc. caused by various ‘Global Pathogens’, are impacted by the most critical global education, student lives, physical activity, and sedentary behavior, food habits, etc., that intricately linking chronic diseases, public health risk due to their epidemic potentiality and insufficient

countermeasures or vaccines or weakening the ability of vaccines to prevent pathogens causing diseases. Now, the significant problem, “Want to prevent pandemics? Stop spillovers! “Understanding Eco-System for Health and well-being” and “Fostering health, nutrition, and well-being/Technological innovation for ecosystem and health with the steady reopen opening” (Datta, 2020a;2021a;2021b;2022a;2022b).

1.2. Objectives

- The main aims and objectives are to develop ‘Sustainable Future Green School Ecology’ through sustainable teaching practices during any future pandemic, to “Understand Eco-System for Health and well-being” and “Fostering health, nutrition, and well-being/Technological innovation for ecosystem and health with the steady reopen opening”, by engaging students in inquiry project-based joyful-learning applying methods of science or technology in their own local contexts preventing or tackling environmental degradation by innovative ideas regarding hybrid learning, health, infrastructure, and biodiversity conservation wildlife for the joyful environment with treatment clues against diseases or infectious disease diagnostics, surveillance, vaccine development, and therapeutics.

- To encourage children to find local-level problems and take initiatives for developing local technological solutions from green technology, appropriate technology, information and communication technology, or improvising traditional technology based on the principles of frugal innovation.

- Moreover, we shall try to find out or understand the educational and human impacts on ecosystems affecting education, research, health, and well-being is also quite important.

- Try to know how our activities disturb the ecosystem functions leading to various negative impacts on health and overall well-being, and also to see that our daily activities at all levels need rectification and re-designing to reduce the negative impacts on the ecosystem and thereby achieve ecosystem sustainability, health safety, and security as well as well-being for all.

- To inspire the students to make a scientific inquiry and survey, in their own localities, about the situation of education and health, nutrition, and well-being and will also encourage them to make efforts to identify ways and means to fortify and foster the situation ensuring health-education safety and security, nutritional security and well-being at individual, family and community levels.

- Exploring and understanding ecosystem(s) in their neighborhoods and taking initiatives for ecosystem conservation and restoration;

- Making inquiry into the interlink-green technology of an ecosystem with education, health, nutrition, and well-being along with their implications;

- Taking initiatives for experimentation, based on the ecosystem approach, for local level natural resource management, farm, and non-farm-based production, and finding out ways for food, nutrition, livelihood security, health safety, and developing resilience and adaptation towards climate change and disaster risk reduction.

- Looking into innovative S&T green solutions for ecosystem conservation and restoration, nutrition, education, and health safety.

1.3. Work Plan

Here, the Class-IX to Class-XII, upper age group (age of 14+years to 17years) of the student's team act as ‘Child/Students Scientists’ with the proper understanding and definition of the school problem undertaken, and the students has identified patterns, trends and problems in lockdowns based on interaction-survey among themselves, teachers, and communities, and mentions some of the solutions deployed to overcome the problem by innovative ideas regarding hybrid learning, health, infrastructure, and biodiversity conservation wildlife, and take more advantage of modern environment-friendly technologies to continue teaching during any lockdowns forming the ‘Common-Activity-Based-Eco-friendly-Complex-Ecosystem-Model’ that prevents any future pandemic, and the help of senior students or guardian communities, under the guidance of a guiding teacher, and helping/visiting/treating doctors, team leader, and team member on the simple innovative, teamwork, and a practical project entitled, ‘Sustainable Future Green School Ecology’ among the school children’s, and communities, and visitors or outsiders based on the exploration of everyday life situations involving field-based data collection having definite outputs, arrived through scientific methodology which related directly to community work in the local community, and having follow-up future plans and activities for the better “Understanding Eco-System for Health and well-being, and Fostering education, health, nutrition, and well-being/Technological innovation for ecosystem and health with the steady reopen opening, and impact to projection schoolmates, neighborhood community that relevance of the original innovative simple practical creative proposal of ‘Sustainable Future Green School Ecology’, and find solutions i.e. in methodology and experiment design” (Datta, 2020a;2020b;2020c;2021a;2021b;2021c;2021d;2021e;2021f;2021g;2021h;2021i;2021j;2021k;2022a;2022b;2022c;2022d).

Figure-1. Sustainable future green school ecology with a COVID 19 report, vaccination, biomedicines, and biodiversity



Source: The New York Times, B.B.C. News, Nature News, Web Pages, and Datta (2020b), etc.

2. Material and Method

2.1. Study Area with Weather

Kanchannagar D.N. Das High School (HS), Burdwan Municipality, Purba Bardhaman District, West Bengal, India, measuring 2229.67 sq meters (24,000 sq ft), where the temperature was $22\pm 5^{\circ}\text{C}$, relative humidity was $75\pm 5\%$, is situated near the Damodar and Banka river and is surrounded by ponds, forest, different trees, park, garden, playground, different storehouse, rice mill, markets, agriculture-horticulture-land, brave-yard, wildlife sanctuary, masjid, temples, etc. forming the ‘Location-Wise an Ideal Place’ for keeping-and-caring of ‘Wild Owls’, with the average rainfall was 150 millimeters, and it was the locality as ‘Sample Area’ for “Sustainable Future Green School Ecology” (Datta, 2020a;2021a;2021b;2022a;2022b).

2.2. Study Samples

The ‘Study Samples’ (Figure 1) were the different ‘Child/Students Scientists’, teachers, young guardians, and veteran members of the student community of the School (Datta, 2020a;2021a;2021b;2022a;2022b).

2.3. Duration of Study

The duration of study for all age groups was 4th-July 2022 to 20th-September 2022, and up-to-date (Datta, 2020a;2021a;2021b;2022a;2022b).

2.4. Ecology for Sustainable Future Green School

Kanchannagar D.N. Das High School (HS), Kanchannagar, Purba Bardhaman-713102, West Bengal, India, is situated beside the Damodar river and is surrounded by ponds- and agricultural fields. The school campus prevails the main old- and tall-tree the banyan tree (*Ficus bengalensis* L.) with other trees, a nutritional garden with a midday meal, exhibited an enriched faunal diversity comprising dogs, different types of cats (wild/fishing cats, etc), small mammals, squirrels, rat, mongoose, mice, reptiles, toads, pigeons, small birds, and insects. Due to the mid-day meal within the school campus and the owl's clear vision during the night, it preferred to consume a variety of rodents inhabiting the kitchen and the school campus. Food grains from mid-day meal attracts rodents resulting in a rapid increase of rats and mice but the presence of owl compel them to run away from the premises and they become guards for the cleanliness of the school. It can, therefore, serve as a useful "Healthcare Bio-Controller" i.e. Biological Bird of Prey. Their breeding helps to escalate the vegetation system of the school area and made the ponds clean; directly emphasizing the ecosystem. Evidently, the barn owl would ensure substantial management of the ecosystem for better growth of economically important crops and their management in agriculture, horticulture as well as pisciculture also. And improves midday meal by supplying quality vegetables also and it would not only be an easier way, easily available, and cheap but also conserve our biodiversity and improves the school environment which will contribute towards "Sustainable Climate, School Health, and Development with Joyful learning environment". They are also opening a path of research for the students of our school who are observing them closely. We are amazed to find the coexistence of predator and prey on the same platform where owls and pigeons are busy in incubation. It does not attack the pigeons. Owls do not cause any harm to the other resident birds within the campus also and directly or indirectly they are helping us in various ways (WebMD, COVID-19 and Wild Animals 2022; <https://www.webmd.com/lung/covid-19-and-wild-animals?print=true>). They realize the meaning of relationships so they did not feel irritated when visitors and school students went to meet them, and proofing "Only Environmental Science Act as Natural Bio-medicine Preventive Epidemic Model of 21st-Century Pandemic Diseases" (Datta, 2020b;2021c;2021d;2021e;2021f;2021g;2021h;2021i;2022c).

2.5. Group Formation and Content of Works

The 8 groups were formed from 343 'Child/Students Scientists; standard-9 to standard-12' with one team leader, one team member, 2 captains per 10 core students/group, and some senior ex-students-NGOs from the local communities, and the students, teachers, and communities engaged among themselves to identify the patterns, trends, and problems in lockdowns based on interaction-survey or question-answer or idea-based via direct face-to-face engagement regarding the use of online communication tools, the adequate infrastructure to continue to teach during the lockdowns, describes some of the solutions deployed to overcome the problem, and how teaching on sustainability may be improved in the future, taking more advantage of modern information technologies, mainly in the school campus (Datta, 2020c;2021j;2021k;2022d).

2.6. Sampling of Survey

An interaction-based survey based/design study on questions was developed on the contents, randomly asked, and interacted to collect answers with qualitative and quantitative data on teaching sustainable development issues during the COVID-19 pandemic, focusing mainly on personal views, opinions, and perceptions of the various respondents on the COVID-19 impacts, and collecting data mainly from teachers and students (Datta, 2020a;2020b;2021a;2021b;2022a;2022b; Filho *et al.*, 2020).

2.7. Covid Protocols

The school students, NGOs, and different young volunteers organized some social-awareness virtual camps (VC) among the communities in different ways; using masks mandate, cleaning hands with soap, maintaining physical distance, and avoiding touching eyes-nose-mouth, etc. (Datta, 2020a;2020b;2020c;2021a;2021b;2021j;2021k;2022a;2022b;2022d; Filho *et al.*, 2020).

2.8. Science Technology Communication Applications Ecology

The students, NGOs, scholars, researchers, artists, teachers, staff, community, photographers, different scientists, academicians, clinicians, administrators, institutions, farmers, media personnel, and visitors make the news of 'Sustainable Future Green School Ecology', and published it in different medical journals (Datta, 2020a;2020b;2020c;2021a;2021b;2021c;2021d;2021e;2021f;2021g;2021h;2021i;2021j;2021k;2022a;2022b;2022c;2022d).

2.9. Data Collection

The collection of various types of data based on interaction-survey among students, teachers, and communities; school-related reported reference data to use for clarification/conclusion, and direct observed interaction-survey daily data from the day-to-day activities at all levels were written or noted down by the students daily basis in the 'Logbook' and was authenticated by the guiding teacher Dr. S.C. Datta (Datta,

2020a;2020b;2020c;2021a;2021b;2021c;2021d;2021e;2021f;2021g;2021h;2021i;2021j;2021k;2022a;2022b;2022c;2022d).

2.10. Data Analysis

Here with the help of eminent bio-satiation and biologist cum educationalist, Dr. Tapan Mondal, Assistant Teacher in L. Sc., Ramnagar High School (HS), and our Assistant Teacher in Math, Purba Bardhaman, West Bengal, India, all the data were analyzed or followed here, the two ways of statistical analysis by the analysis of variance (ANOVA), critical analyzing the significant level $P < 0.01$ (<https://www.technologynetworks.com/informatics/articles/one-way-vs-two-way-anova-definition-differences-assumptions-and-hypotheses-306553>) were done (Datta, 2020a;2020b;2020c;2021a;2021b;2021c;2021d;2021e;2021f;2021g;2021h;2021i;2021j;2021k;2022a;2022b;2022c;2022d).

3. Observations

The observations of the ‘Sustainable Future Green School Ecology’ for ‘Sustainable Teaching Practices’ for any future pandemic-experimental-survey based on an interaction-based-survey among students, teachers, and communities in the Kanchannagar D.N. Das High School (HS) were impacted during COVID-19 lockdowns as follows (Table 1 and Table 2) (Datta, 2020a;2020b;2020c;2021a;2021b;2021c;2021d;2021e;2021f;2021g;2021h;2021i;2021j;2021k;2022a;2022b;2022c;2022d):

3.1. On Teaching-Learning Problems

- Online/ digital mode of teaching-learning,
- Assessment and task of teaching-learning,
- ICT-Infrastructure of school and students,
- Personal interactions/ communication,
- Teaching-learning resources,
- Motivation or interest,
- Practical hand-to-hand experiments,
- Development of new technologies,
- Financial or administration support, and
- Planning/other.

Table-1. Views of teaching-learning problems based on an interaction survey among students, teachers, and communities of Kanchannagar D.N. Das High for improving teaching-learning during any future COVID-19 lockdowns

NP	Statements of Main Problems	Percentage of Respondents (%)			Remarks
		S	T	C	
1.	Online/ digital mode of teaching-learning	95ax	98ax	100ax	Dislike e-learning
2.	Assessment and the task of teaching-learning	42bx	95ay	99ay	Not effective
3.	ICT-Infrastructure of school and students	99ax	83cy	99ax	Very poor/ not known
4.	Personal interactions/ communication	99ax	100ax	100ax	Lack remarkably
5.	Teaching-learning resources	97ax	82cy	23cz	Not used/ not known
6.	Motivation or interest	95ax	99ax	99ax	Lack remarkably
7.	Practical hand-to-hand experiments	99ax	87by	21cz	Not taken/ done
8.	Development of new technologies	35cx	96ay	07dz	No approach at all
9.	Financial or administration support	23dx	100ay	03ez	Not known
10.	Planning/ other	08ex	79dy	94bz	Not taken/ done
Total: 10	Average problems	69.2	91.9	64.5	Negative answer

‘NP’= Numbers of Problem, ‘S’= Students, ‘T’= Teachers, and ‘C’= Communities. ‘a,b,c,...’- different small letters in a column, and ‘x,y,z.....’ different small letters in a row show a significant difference by the analysis of variance ‘ANOVA’ ($P < 0.01$).

3.2. On Teaching-Learning Solutions

- Hybrid learning and shifting mode, digital classroom, digital board, Wi-Fi, CCTV camera, and air-purifier, seating 2 students/bench@12 bench/room,
- Assessment and task by ‘Google Forms’,
- ICT Infrastructure room/subject/ school and ICT community hall/local students,
- Personal interactions by ‘Zoom’,
- Use of different teaching-learning ICT resources,
- Motivation or interest grown animation, cartoons, play way, story-making methods, etc.
- Practical in both online and offline modes,
- Development and use of new technologies, infrastructure, health, biodiversity conservation,
- Administration support is needed, and

●Proper planning/other (Datta, 2020a;2020b;2020c;2021a;2021b;2021c;2021d;2021e;2021f;2021g;2021h;2021i;2021j;2021k;2022a;2022b;2022c;2022d).

3.3. On Ecosystem Biodiversity Conservation Sustainability, Health Safety, and Security

- The name, age, and consumption of the main midday meal,
- Measure the height and weight of the 14+ years to 17 years students,
- The understanding eco-system for nutrition, health, and well-being,
- The students were engaged collectively and effectively in a mindset for project-based joyful-learning applying methods of science or technology (hand-to-hand experiment) to prevent or tackle environmental degradation,
- The achievement of ecosystem sustainability, health safety, and security as well as well-being for all,
- The daily activities at all levels for rectification and re-designing to reduce the negative impacts on the ecosystem,
- The students to make a scientific inquiry, in their own localities, about the situation of health, nutrition, and well-being at individual, family, and community levels,
- Exploring and understanding ecosystem(s) in their neighborhoods and taking initiatives for ecosystem conservation and restoration, and
- The innovative S&T solutions for the ecosystem, biodiversity conservation, ecology socioeconomic impact, restoration, nutrition, and health safety (Datta, 2020a;2020b;2020c;2021a;2021b;2021c;2021d;2021e;2021f;2021g;2021h;2021i;2021j;2021k;2022a;2022b;2022c;2022d).

Table-2. Solution of teaching-learning problems based on interaction-survey among students, teachers, and communities of Kanchannagar D.N. Das High School for improving teaching-learning during any future COVID-19 lockdowns

NS	Statements of Main Solutions of Teaching-Learning	Percentage of Respondents (%)			Remarks
		S	T	C	
1.	Hybrid learning shifting mode, digital class room, digital smart board, Wi-Fi, camera, and air-purifier, seating 2 students/bench @ 12 bench/room	35cx	56fy	07ez	2.5h digital+0.5h reces+2h practical=5h total, and alternately shifting classes
2.	Assessment and task by 'Google form'	22ex	15hy	03fz	Effective/chapter/week
3.	ICT-Infrastructure room/subject/ school and ICT-community hall/local students	19fx	83cy	17cz	Very effectivefor poor& alternative of tab/mobile
4.	Personal interactions by 'Zoom'	29dx	60ey	09ez	Needed expertise
5.	Use of different teaching-learning ICT-resources	37cx	42gy	03fz	ICT-workshop/training with materials needed
6.	Motivation or interest grown animation, cartoon, play way, story making method, etc.	45bx	59fy	11dz	ICT-technology workshop/training needed
7.	Practical in both online and offline mode	85ax	98ay	23bz	Should be arranged regularly
8.	Developmentand use of new technologies, infrastructure,health, biodiversity conservation	85ax	86bx	12dy	Financial support needed
9.	Administration support needed	13gx	79dy	13dx	Different grant sanctioned
10.	Planning/ other; artificial nest, midday meals, kitchen garden, organic manure meaning, and bioflocfish farming in the school campus	05hx	84cy	44az	Staff & academic council
Total: 10	Average solution	37.5	66.2	14.2	Application

*'NS'= Numbers of solution, 'S'= Students, 'T'= Teachers, and 'C'= Communities. . 'a,b,c,....'- different small letters in a column, and 'x,y,z,.....' different small letters in a row show significant difference by the analysis of variance 'ANOVA' (P<0.01).

4. Results and Discussion

4.1. Impact or Problems on Teaching-Learning Practices

Table 1 shows the views of teaching-learning problems based on interaction-survey among students, teachers, and communities of Kanchannagar D.N. Das High for improving teaching-learning during any future COVID-19 lockdowns (Datta, 2020a;2020b;2020c;2021a;2021b;2021c;2021d;2021e;2021f;2021g;2021h;2021i;2021j;2021k;2022a;2022b;2022c;2022d);

- The average percentage of problem respondents was 91.9 (highest) in the case of teachers, 69.2% (medium) in the case of students, and 64.5% (lowest) in the case of the communities.

- The assessment and task of teaching-learning were not effectively responded to by more than 95% of the teachers, and communities.
- ICT-Infrastructure of school and students was responded (<83%) as very poor/ not known
- Personal interactions/ communication respondent was very poor or lack remarkably.
- The 97% of students-respondent were not used/did not know the teaching-learning resources.
- More than 95% of respondents mentioned a lack of motivation or interest remarkably,
- The 99% of students told practical hand-to-hand experiments were not taken/ done.
- 96% of teachers mentioned no approach at all regarding the development of new technologies.
- The 100% of teachers were not known regarding financial or administrative support.
- The 94% of guardians mentioned not making any plans.

4.2. Solutions to Teaching-Learning Problems

Table 2 shows the solution to teaching-learning problems based on interaction-survey among students, teachers, and communities of Kanchannagar D.N. Das High School for improving teaching-learning during any future COVID-19 lockdowns (Datta, 2020a;2020b;2020c;2021a;2021b;2021c;2021d;2021e;2021f;2021g;2021h;2021i;2021j;2021k;2022a;2022b;2022c;2022d);

- The average percentage of the highest solutions respondent was 66.2% in the case of teachers, medium 37.5% in the case of students, and the lowest 14.2% in the case of the communities.
- 56% of teachers, 37% of students, and 7% of communities liked; hybrid learning (2.5h digital+0.5h reces+2h practical=5h total, and alternately shifting classes) shifting mode, digital smart classroom, digital smart board, Wi-Fi connection, CCTV-camera, and air-purifier, seating 2 students/bench @ 12 bench/room.
- 22% of students and 15% of teachers liked assessments and tasks by 'Google Forms'
- 83% of teachers mentioned that the ICT-Infrastructure room, subject, school, and ICT-community hall for the local guardians of students would be very effective for the poor & alternative to tab/mobile.
- The 60% resource teacher needed the expertise to interact personally via 'Zoom'.
- 42% of teachers and 37% of students mentioned ICT workshops/training with materials needed for the use of different teaching-learning ICT resources.
- The ICT-technology workshop/training needed for the motivation or interest grown by animation, cartoons, play way, and story-making methods, etc. responded by 59% of teachers and 45% of students.
- The practical class in both online and offline mode should be arranged regularly and alternately was responded to by more than 85% of students and 98% of teachers respectively.
- More than 85% of students and teachers mentioned that financial support is needed for the development and use of new technologies, infrastructure, health, and biodiversity conservation.
- 79% of teachers said that the different grants should be sanctioned with the help of administrative support.
- 84% of teachers and 44% of communities mentioned the proper planning needed from the meeting of staff & academic council.
- And the other; artificial nests, old- and tall- trees, midday meals, kitchen gardens, different trees organic manure meaning, and biofloc fish farming in the school campus formed a typical 'Complex Wildlife Biodiversity Conservation Ecosystem'.

4.3. Ecosystem Biodiversity Conservation Sustainability, Health Safety, and Security

And in the other planning (Table 3 and Figure 1) like; midday meals, a kitchen garden, different trees old- and tall- trees, artificial nests, organic manure meaning, and diversity Conservation Ecosystem', and the biodiversity of 'Wildlife (Owl, wild cats, mongoose, and bats) Conservation' as follows (Datta, 2020a;2020b;2020c;2021a;2021b;2021c;2021d;2021e;2021f;2021g;2021h;2021i;2021j;2021k;2022a;2022b;2022c;2022d):

- Midday Meals (MDM)- Enriched biomedicines-physiology wildlife biodiversity conservation ecology sustainability, health safety, and food security boosting immunity.
- Kitchen Garden- Understanding eco-system for health and well-being, biodiversity, and fostering education, health, nutrition, and well-being also.
- Trees- Old- and tall- trees of the banyan tree with other trees for nutrition, shelter, wildlife biodiversity conservation ecology sustainability, health safety, and food security.
- Artificial Nests- Technological innovation for the ecosystem, biodiversity, and health with the steady reopening opening and impact to projection schoolmates, neighborhood community ecology forming the 'Common-Activity-Based-Eco-friendly-Complex-Ecosystem-Model' that prevents any future pandemic.
- Wildlife- Different types of wild/fishing-cats, bats, barn/bared owls, squirrels, rats, mongoose, mice, reptiles, toads, pigeons, birds, and insects, and biodiversity conservation wildlife for a joyful environment with treatment clues against diseases.
- Biofloc-Fish Farming- Improve socio-economy, and biodiversity conservation typical ecology sustainability, health safety, food security, and complex eco-system environment with treatment clues against diseases.
- Organic Manure- Making a pollution-free environment with nutrients of plants for enriching faunal diversity that will encourage children to find local-level ecology.

Table-3. Physical survey on typical complex-ecosystem wildlife biodiversity conservation sustainability, health safety, and security of Kanchannagar D.N. Das High School campus for improving teaching-learning problems during any future COVID-19 lockdowns

NCE	Item of Complex Ecosystem	Remarks: Campussurvey for any future COVID-19 lockdowns
1.	Midday Meals	Enrich wildlife biodiversity conservation ecology sustainability, health safety, and food security boosting immunity.
2.	Kitchen Garden	Understanding eco-system for health and well-being, biodiversity, and fostering education, health, nutrition, and well-being also.
3.	Trees	Old- and tall- trees of the banyan tree with other trees for nutrition, shelter, wildlife biodiversity conservation ecology sustainability, and health safety, and food security.
4.	Artificial Nests	Technological innovation for the ecosystem, biodiversity, and health with the steady reopening opening and impact to projection schoolmates, neighborhood community ecology forming the 'Common-Activity-Based-Eco-friendly-Complex-Ecosystem-Model' that prevents any future pandemic.
5.	Wildlife	Different types of wild/fishing-cats, bats, barn/bared-owls, squirrels, rats, mongoose, mice, reptiles, toads, pigeons, birds, and insects, and biodiversity conservation wildlife for a joyful environment with treatment clues against diseases.
6.	Biofloc-Fish Farming	Improve socio-economy, and biodiversity conservation typical ecology sustainability, health safety, food security, and complex eco-system environment with treatment clues against diseases.
7.	Organic Manure	Making a pollution-free environment with nutrients of plants for enriching faunal diversity that will encourage children to find local-level ecology.

'NCE'= Numbers of a complex ecosystem.

4.4. Solution to the Problem

The 'Sustainable Future Green School Ecology' can solve the different problems as follows (Datta, 2020a;2020b;2020c;2021a;2021b;2021c;2021d;2021e;2021f;2021g;2021h;2021i;2021j;2021k;2022a;2022b;2022c;2022d):

- To maintain sustainable teaching practices during any future pandemic.
- Enrich 'Education and Health' by the sustainable opening of intuitions,
- Prevent 'Global Pathogens' by boosting natural immunities.
- Improve students' lives, physical and mental activity, sedentary behavior, food habits, etc.
- Understand the ecosystem for health and well-being, fostering health, nutrition, and well-being, and technological innovation for ecosystem and health with the steady reopening opening.
- Improve 'Obesity-Sedentary-Life-Style, Food-Habits, Health-Hazards, and Bio-Medical-Physiology-Ecology-Research'.
- Offer appropriate opportunities, space, and time for students to gather experience.
- Allow them to reflect on these experiences to make connections and inter-linkages.
- Help students develop appropriate attitudes and behavior.
- Equip them to take positive actions for the environment.
- Provide opportunities to take their experiences and learning from school to home and community.
- The 'Sustainable Future Green School Ecology' acts as a 'Natural Social Vaccine for All' by improving midday meal and biodiversity conservation, and immunization in the most cost-effective eco-friendly easily-manufacture-able easily-applicable easily available, and side-effects-free ways.
- Plays a vital role in the socio-economic development of society, caste socialization, and origins from different communities mix, establishing a culture of unity and brotherhood.
- Enriched biodiversity conservation creates a joyful learning environment on the school campus.
- Helps to clue infectious disease diagnostics, surveillance, vaccine development, and therapeutics by the 'Wildlife (Owl, wild cats, mongoose, and bats) Conservation'.
- To solve local-level problems, take initiative and encourage students for developing local technological solutions from green technology, appropriate technology, information, and communication technology, or improvise traditional technology based on the principles of frugal innovation.
- To inspire the students to make a scientific inquiry and survey, in their own localities, about the situation of education and health, nutrition, and well-being and will also encourage them to make efforts to identify ways and means to fortify and foster the situation ensuring health-education safety and security, nutritional security and well-being at individual, family and community levels.
- Exploring and understanding ecosystem(s) in their neighborhoods and taking initiatives for ecosystem conservation and restoration;
- Making inquiry into the interlink-green technology of an ecosystem with education, health, nutrition, and well-being along with their implications;
- Taking initiatives for experimentation, based on the ecosystem approach, for local level natural resource management, farm, and non-farm-based production, and finding out ways for food, nutrition, livelihood security, health safety, and developing resilience and adaptation towards climate change and disaster risk reduction.

4.5. Future Plan

The present interaction-based-study of ‘Sustainable Future Green School Ecology’ should be published and aware, and proposed/ established/constructed for sustainable teaching practices with the sustainable opening of intuitions during any future pandemic; enriching ‘Education and Health’, preventing any ‘Global Pathogens’, and acts as a ‘Natural Social Vaccine for All’ by boosting natural immunization in the most cost-effective eco-friendly easily-manufacture-able easily-applicable easily available and side-effects-free ways. It will be more effective than “A Bivalent Omicron-Containing Booster Vaccine against Covid-19” (Chalkias *et al.*, 2022). And it will improve students’ lives, physical and mental activity, sedentary behavior, food habits, obesity-sedentary-life-style, health-hazards, bio-medical-physiology-ecology-research, etc. by understanding the ecosystem for health and well-being, fostering health, nutrition, and well-being, and technological innovation for ecosystem and health with the steady reopening opening (Datta, 2020a;2020b;2020c;2021a;2021b;2021c;2021d;2021e;2021f;2021g;2021h;2021i;2021j;2021k;2022a;2022b;2022c;2022d). And the integration of emerging technologies in education needs all educators adapting the changing learning environment, and flexibility in methodology enhances creativity and innovations in learning taking more advantage of modern information technologies focusing on the “deaths and sufferings are not a failure of technology or knowledge, but a failure of will”(Gonsalves, 2022).

5. Conclusion

The study has conducted in the Kanchannagar D. N. Das High School (HS), and the students has identified patterns, trends and problems in lockdowns based on interaction-survey among themselves, teachers, and communities, and mentions some of the solutions deployed to overcome the problem by innovative ideas regarding hybrid learning, biomedicines-physiology, health, infrastructure, and biodiversity conservation wildlife for joyful environment with treatment clues against diseases or infectious disease diagnostics, surveillance, vaccine development, and therapeutics, that will enable a to prevent any global pandemic, and take more advantage of modern environment-friendly technologies to continue teaching during any lockdowns for; “Understanding Eco-System for Health and well-being” and “Fostering health, nutrition, and well-being/Technological innovation for ecosystem and health with the steady reopen opening”, and the ‘School will be the mirror of the society by improving ‘Sustainable Future Green School Ecology’ forming the ‘Common-Activity-Based-Eco-friendly-Complex-Ecosystem-Model’ that prevents any future pandemic improving “Biomedicines-Physiology Health Technology Biodiversity World Policy and Development Studies” (Datta, 2020a;2020b;2020c;2021a;2021b;2021c;2021d;2021e;2021f;2021g;2021h;2021i;2021j;2021k;2022a;2022b;2022c;2022d). And it will encourage children to find local-level problems and take initiatives for developing local technological solutions from green technology, appropriate technology, information and communication technology, or improvising traditional technology based on the principles of frugal innovation (Gonsalves, 2022).

Acknowledgments

The students of class IX, Kanchannagar D. N. Das High School (HS), carry out the main work for the “30th National Children’s Science Congress (NCSC) 2022”; team leader- SNEHA MAJHI, team member- BIPASA BALA, and co-member-SONALI SHIT, with the help of all students, teaching staff, and communities. We thank the eminent scientist, educationist, and guide teacher, Dr. Subhas Chandra Datta, for their inspiration and guidance. I express my deep gratitude to all the students, teachers, staff, communities, and senior ex-students-NGOs for the help and arrangement of awareness for the ‘Sustainable Future Green School Ecology’. Last but not the least; I am thankful to the eminent Senior Consultant Physician, Dr. Ranjan Mukherjee, M.B.B.S., M.D., Ex-District Coordinator, M. O., MHT, H. O. D., Cardiac care, RTC, Reader (Pathology), MKHMCH (JKD), and Dr. Dipanitwa Malik, M.B.B.S. of Sishu Sathi Scheme at Department of Health and Family Welfare, and India, and the visiting doctors of the International Lions Clubs (BurdwanAgranee & Educare) for eye-and health- check-up.

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