THE GREEN SCHOOL CONCEPT - THE SUSTAINABILITY APPROACH TO EDUCATION

Dissertation submitted to

ST. TERESA'S COLLEGE (AUTONOMOUS)

ERNAKULAM

Affiliated to

MAHATMA GANDHI UNIVERSITY

In partial fulfilment of requirement for the

THE AWARD OF THE DEGREE OF MASTER OF SCIENCE IN

HOME SCIENCE (BRANCH B) RESOURCE MANAGEMENT AND INTERIOR DESIGNING

By

ASHIKA KC

(Register No. AM20HRM003)

Department of Home Science and Centre for Research

June 2022

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SIGNATURE OF HEAD OF THE DEPARTMENT

SIGNATURE OF THE GUIDE

DEPARTMENT OF HOME SCIENCE

ST. TERESA'S COLLEGE (AUTONOMOUS), ERNAKULAM

CERTIFICATE

This is to certify that the thesis entitled "The green school concept - the sustainability approach to education" is an authentic record of the original research work carried out by Ms. Ashika KC, under the supervision and guidance of Dr. Leena Leon, Assistant Professor, Department of Home Science, St. Teresa's College (Autonomous), Ernakulam.

Signature of the guide

Dr. Leena Leon, M.Sc., B.Ed., M.B.A, Ph.D.

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Ernakulam

Place: Ernakulam

Date:

DECLARATION

I hereby declare that the thesis entitled “The green school concept - the sustainability approach to education” is a bonafide record of research work done by me during the course of study, under the supervision and guidance of Dr. Leena Leon, Assistant Professor, Department of Home Science, St. Teresa’s College (Autonomous), Ernakulam.

Ms. Ashika KC

Place: Ernakulam

Date:

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Ashika KC

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ABSTRACT

The green school is a school that creates a healthy environment that is conducive to learning as well as saving energy, resources and money. A green school is more than curriculum and more than building. It teaches students sustainability and creates an environment to love and protect nature. The study entitled "The green school concept - the sustainability approach to education" was done to learn the relevance and existence of the green school concept in the Kerala educational sector. Objectives of the study are to know the significance of the green school concept, to assess awareness about the green school concept among subjects and to develop a booklet on the green school concept. For the study 5 govt UP schools were selected from Kannur, Kerala. Convenient sampling was used for the study. A structured questionnaire was used to collect the data, supported by field visit by the researcher. Based upon the data analysis and observation of the researcher it is found that only one school from the selected 5 schools had followed the green school practices mentioned in this study. The school stakeholders and students had only a little knowledge about the green school concept. Therefore, a booklet was developed to provide awareness and to popularise the concept of green schools among students.

Keywords: *Green school concept, Sustainable living, Recycling, Solar panels, Biogas plant, Vegetable garden, Nature club.*

Chapter 1

INTRODUCTION

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INTRODUCTION

The world has been facing the decrease of natural resources and climate changes in the past few decades. Human beings are exploiting and destroying the available resources and not bothered about preserving it for the future generation. Therefore, environmental protection has become a necessity for sustainability in every sense. In this case the young generation is the hope of nations as they are the potential leaders, policy makers as well as future developers. They are the inhabitants of the earth now and in the future. Thus, preparing them for a better environmental future is vital. Educating children about environmental sustainability is a persistent way to solve environmental pollution (Adi Suryani.et.al, 2019). As the students are the future generation it is very important to educate them about sustainability. By educating them about sustainability, we can build a future, who can approach our biodiversity in a sustainable and safe way.

We need to give students educational programs and physical places to encourage the development of environmentally conscious global citizens. Students spend the majority of their day in a school building, during their most crucial developmental years. The concept of sustainability has to be introduced to the children in their early stage of development. In this time of growth, schools must be a space for creative thinking, a source of inspiration, and a starting point for developing a sense of awareness and responsibility towards the environment. The journey to that goal begins with educating students in a healthy and sustainable environment. And this can be achieved by introducing the green school concept to the students.

“The green school is defined as a school building or facilities that create a healthy environment that is conducive to learning as well as saving energy, resources and money” (Mawar Haji Masri.et.al, 2010). The Green schools' healthy environment helps to create an atmosphere for students to learn better and adults to work better. In the energy conservation

point of view, it is beneficial for the schools by taking the green school approach for construction, renovation and maintenance of facilities. A green school building is designed to achieve a toxics-free environment, to create a healthy space for teaching and learning and to make the school environments healthier (Dr. Tak Cheung Chan, 2013).

A green school is more than curriculum and more than building. It teaches students sustainability and creates an environment to love and protect nature. In such an environment student's learning experiences are no longer confined to the classroom but extend outside the classroom in the field as well. The green school helps the students to approach their environment in a sustainable way. This is achieved by positively influencing the behaviour of children towards the environment. A green school encourages students to reduce waste and save water and energy. It improves the air quality and classroom atmosphere, encourages recycling and promotes habitat protection. A green school has a clean, healthy, protective and green surroundings. It promotes both the physical and psychosocial wellbeing of the students and teachers. A green school is not only beneficial for students but also beneficial for teachers, parents and the community.

Low water use, energy saving methods, solar power plants, low waste generation, maximum daylight use, harvesting and recycling of water, recycling of plastic waste, avoiding packaged and processed foods practising composting are some of the green school practices. A green school also provides programmes and services for good nutrition and physical activity. The green school reduces exposure to toxins by proper cleaning and proper pest management. As the pollution is less in green schools, the indoor air quality will be good and thereby diseases like asthma, allergy etc can be reduced. And the children are more healthier and productive in green schools. A student in a green school acquires more knowledge about sustainability than a student in an ordinary school. The green school concept focuses on students, teachers and the local community, to improve school environment and motivate students to find and solve environmental problems.

The students alone can't do any green school practices. Both the students and the school administrators have a role in adapting green school practices. The school administrator has to serve as the leader to guide students to practise the green school concept. They have the responsibility to develop interest in students and support them to build a sustainable environment. And the teachers can make changes in student's thoughts and behaviour. Students are studying about sustainability and conservation in their curriculum. But they don't normally get a practical exposure to that. And the green school can ensure the practical exposure of what the students are studying in theory. So if the students and teachers together are practising the green school concept, they can surely make a change in the world.

Countries other than India like Bhutan, Taiwan, Bali etc., had adapted the green school concept years ago. And they have started a sustainable way of living for a better future. They are introducing the concept of sustainability to the children in their growing stages. So that they can develop a future generation who are concerned about their environment. In northern India schools have started adapting the green school concept. But it is not as popular in Kerala as in other states of India. The condition in Kerala is getting worse each day. Pollution and exploitation of resources are increasing day by day. And this has brought serious changes in our climate. People who know about the present situation are not taking necessary measures to change the situation. So, giving awareness to the young generation can make some changes in this situation. This study is an initiative to assess the green school concept awareness in schools in Kerala and to popularize the green school concept.

Aim

Learning the relevance and existence of the green school concept in the Kerala educational sector.

Objectives

- To know the significance of the green school concept as a sustainable education system.
- To assess awareness about the green school concept among subjects.
- To get a better insight into the implementation of the green school concept.
- To develop a booklet on the green school concept - “Green School - A Sustainable Learning Environment”.
- To conduct awareness sessions to popularise the concept and its evaluation.

Chapter 2

REVIEW OF LITERATURE

CHAPTER 2

REVIEW OF LITERATURE

The review of literature of the study entitled **"The green school concept - the sustainability approach to education"** are discussed under the following headings:

2.1 Green School Definition

2.2 Green School Benefits

2.3 General Characteristics of Green School

2.4 Green school and Conservation of environment

2.5 Green school and sustainability

2.6 Green school as sites for outdoor learning

2.7 Green schools and waste management

2.1 Green School Definition

"The U.S. Green Building Council (USGBC) had defined a green school as school building or facilities that create a healthy environment that is conducive to learning as well as saving energy, resources and money". "Gordon states that green school is the physical result of the consensus process of planning, design, and construction that takes into account a building's performance over its entire 50- to 60-year life cycle". The green school is built so that it can provide clean fresh air, a comfortable temperature range, abundant light, and low distraction from unwanted noise while also maximizing resource efficiency, minimizing pollution, and teaching students the importance of innovation in the built

environment. The concept of sustainable development reflects an understanding that we must meet the needs of the present without compromising the ability of future generations to meet their own needs. A sustainable school not only embraces the concept of sustainability but is, in itself, a teaching tool for sustainability (Mawar Haji Masri.et.al, 2010).

The concept of 'green schools' was first introduced by the United States Green Building Council (USGBC). The Council launched the national green schools campaign in 2007, and in addition to the LEED (Leadership in Energy and Environmental Design) certification system established by the Council, the LEED Schools organization was created to measure and evaluate the environmental performance of school buildings (USGBC, 2009: 10). In 2010, the Center for Green Schools was established within the USGBC. The objective of the Center for Green Schools is to direct the transformation of all schools into sustainable and healthy places for living, learning, working and playing. In 2013, the Green Schools Project was initiated with the cooperation of the World Green Building Council (WGBC), the Center for Green Schools, and the National Green Building Councils (Sağra Çakır1 & Gökçe Tuna Taygun, 2021).

The Green schools offer a comfortable, attractive, and user-friendly environment that demonstrates the great importance our society places on learning and encourages students to excel (Dr. Tak Cheung Chan, 2013). As per the Green School Initiative (2013), the green school consists of four pillars: One - strive to be toxics free; Two - use resources sustainably; Three - create a green healthy space; and Four - teach, learn and engage. The future of human beings depends on protecting the earth we live in. So, it makes sense that we educate the children and provide knowledge and skills to face environmental issues of the future (Dr. Tak Cheung Chan, 2013).

The main objective of the Green School is to create a community in which we approach our Biodiversity in a sustainable and safe way. This is achieved by positively influencing

the behavior of children towards our environment, focusing on the subjects Biodiversity (school gardens and endangered species), Waste (reduce, reuse and recycle), Water and Energy (Mawar Haji Masri.et.al, 2010). Green school concept focus on a whole school approach which aims to include each and everyone (students, teachers and the local community), to improve the school environments (including the resource usage and the environmental footprint of the school), to motivate students to focus on environmental problems and seek resolutions particularly at a local level but also thinking globally, and to improve students' attitudes and behaviours as part of developing a sustainable mindset (Annette Gough, 2020).

2.2 Green School Benefits

According to Kats , green schools provide financial benefits that are 20 times larger than conventional schools. Green school design provides an extraordinarily cost-effective way to enhance student learning, reduce health and operational costs and, ultimately, increase school quality and competitiveness. The benefits of green schools are energy cost saving, emissions reduction benefits, water and wastewater benefits, health and learning benefits and financial benefits. Green schools will enable students to study in healthier indoor environments and help save energy and water. The green school also saves money in operational costs. Saving money in operations and maintenance of green school buildings is beneficial to the school community because it frees up those operational funds for more teachers, equipment and activities (Mawar Haji Masri.et.al, 2010).

In a survey by Turner Construction Company, one of the leading general builders in the U.S., the results show that green building costs less than what the general public thinks, but this misconception is still the primary obstacle for people to accept the construction of green building. Turner Green Building Survey in 2005 emphasized that the benefits of green school design can be divided into three. There are financial benefits, environmental

benefits and student, teacher and societal benefits. Similarly to Kats et.al (2005), green schools use an average of 33% less energy than conventionally designed schools. Typical energy performance enhancements include more efficient lighting, greater use of day lighting and sensors, more efficient heating and cooling systems and better insulated walls and roofs (Mawar Haji Masri.et.al, 2010).

A green school can reduce teacher turnover by as much as 5%, which improves student learning and school community, and can result in financial savings for the school. A lack of fresh air can reduce student attentiveness. Studies have shown that student test scores can improve up to 20% when kids learn in green classrooms that have more daylighting, improved classroom acoustics, and healthier paints and carpets that don't release toxic chemicals into the air. Students in green schools are absent less frequently. (https://bostongreenschools.org/what-is-a-green-school/). A healthier school environment is another benefit of green schools, beyond lower operating costs. Healthier school environments have been shown to improve student focus, retention, and test scores; enhance teacher performance; and lower absenteeism among both students and teachers (Douglas E. 2010).

The U.S. National Research Council added that green school design had estimated an average water use reduction of 32%. This reduction has direct savings for the building, as well as substantial societal benefits, such as reducing stormwater runoff, and transporting and treating wastewater. It is saving the cost of the school building as well as reduced pollution and decreased infrastructure and maintenance costs to deliver water and to transport and treat wastewater. Furthermore, green schools design provide additional benefits that are not quantified such as reduced teacher sick days, reduced operations and maintenance costs, reduced insured and uninsured risks, improved power quality and reliability, increased state competitiveness, reduced social inequity, and educational enrichment. The benefits were broad, ranging from the impact on student health, test scores, and teacher retention to reduce operational costs. Facility improvements directly

related to student performance improvements is additional daylight, improved indoor air quality, enhanced classroom acoustics, and comfortable and consistent indoor temperatures . The green school itself also serves as a teaching tool - demonstrating to students, faculty, and parent's practical ways and it can turn back the clock on global warming while creating healthier, more efficient, and less costly learning environments (Mawar Haji Masri.et.al, 2010).

2.3 General Characteristics of Green School

The Centre of Green School under the U.S. Green Building Council had emphasized the general characteristics of green school that are important in order to develop and to build the green school design (Mawar Haji Masri.et.al, 2010).

The characteristics are:

- Conserves energy and natural resources
- Improves indoor air quality
- Removes toxic materials from places where children learn and play
- Employs daylighting strategies and improves classroom acoustics
- Decreases the burden on municipal water and wastewater treatment
- Encourages waste management efforts to benefit the local community and region
- Conserves fresh drinking water and helps manage stormwater runoff
- Encourage recycling
- Promote habitats protection
- Reduced demand on local landfills

2.4 Green school and conservation of environment

Environment is inseparable from human life. Environment is defined as any physical, chemical as well as biological aspects external to humans and affects human behavior. Currently, global concern is directed to environmental issues since many environmental damages as the consequences of human activities are emerging. Environment is one of the alarming issues in the 21st century since all nations need to get adequate natural resources in good quality, balanced ecosystems and maintained plant and animal biodiversity (Adi Suryani.et.al, 2019).

The indictor, naturally green, is well related to the GNH (Gross National Happiness) pillar 'conservation of environment'. The pillar 'conservation of environment' talks about the nurturing, conserving and optimal use of mother earth, and educating the co-existence between nature and mankind. It talks about thinking beyond us and our time. It is thinking about future generations, about animals, about plants, and the environment they live in. As a similarity, the indictor 'naturally green' is all about learning through nature and appreciating nature. It is a way of learning and teaching children to keep school surrounding waste-free and greenery. It is the activity of planting and maintaining various parts of school grounds green and clean. Through education, students are taught to use the natural environment as the incorporating context for learning and taught to conserve the environment and sustain the natural environment of the nation. This way the GNH philosophy of conservation of environment is strongly supported by the indictor 'naturally green' (Dawa Drakpa.et.al, 20130).

Essential components of energy conservation in the LEED (Leadership in Energy and Environmental Design) standards consist of enhancing commissioning and management of energy, optimizing energy efficiency performance, measuring performance, and creating on-site renewable energy sources. School designers need to consider the school building and its site in terms of energy efficiency, resource conservation and user comfort. Other

strategies could include solar heating, use of natural light, high-performance windows and insulations and a ground-source geo-exchange system of heating and cooling. A school construction with zero net energy is gaining popularity. With zero net energy consumption and zero carbon emissions, buildings can be energy independent by using solar and wind devices on site to generate energy for school consumption (Dr. Tak Cheung Chan, 2013).

The sources of fresh water which can be used by humans in their daily lives are limited. With the rapid increase in population the demand for water is also growing. One of the main objectives of green buildings is to reduce water use and protect its quality. Water conservation during the whole lifespan of a building can be achieved by designing dual plumbing that recycles the water used in water closets and the water used to wash cars, using water efficient fittings and fixtures such as ultra-low flushing toilets, bidets and low flow shower heads. Other technologies such as rain water harvesting and recycling and reuse of greywater, etc. are also being used. Many different rating systems for green buildings have been developed by various countries around the world in order to rate the green buildings according to the degree of the environmental goals that have been achieved by them. Green buildings are rated based on their performances in energy efficiency, water conservation, indoor air quality, etc. (Oindrila Das.et.al., 2015)

2.5 Green school and sustainability

Discussions on sustainability have been revolving around ozone layer depletion, air and water pollution, contaminated land, biodiversity, habitat protection, limits of growth (limits of natural, social and built systems), ecological footprint, alternative methods of energy consumption, recycling, unemployment, poverty and fair distribution of income and revenue. Sustainable living is defined as “lifestyle that aims to reduce the use of natural resources”. Use of natural resources could be reduced in two ways; (1) by developing new technologies such as green technologies or renewable energy or (2) by adopting a lifestyle

that attempts to conserve and leave natural resources for future generations. Majority focused on the former, but the latter is far more challenging. Although habits hardly change in the short run, such changes are gradual (and we barely notice the difference) and inevitable in the long run (Ebru Cubukcu, 2013).

Embracing sustainable behaviors in the daily activities of a school requires the support of organizational culture. Organizational culture includes the shared values, norms and practices in an organization (Hill & Jones, 2008). In public school districts, principals play a significant role in creating school culture and may establish values and norms that are different from the district more generally (Deal, 1999). Schools face the same stumbling blocks as any other organization attempting to create an organizational culture that values sustainability (Chelsea Schelly.et.al, 2012).

Aligning educational objectives to encompass sustainability addresses concerns about the future in terms of quality of life and learning. Green building creates a context for students to learn about sustainability. If provided with green schools, a generation of students will have a chance to learn about sustainability, positioned to become environmental activists. Providing green schools for every child within a generation is the mission of the U.S. Green Building Council‘s Center for Green Schools. This generation of students will be sustainability natives – as a generation experienced in more sustainable lifestyles capable of driving global market transformation (Stephanie Kay Barr, 2011).

Green schools are not achieved through green building alone; all aspects of a school must embrace the same sustainability principles as their building‘s design. In essence, a holistic approach must be used to weave sustainability (Stephanie Kay Barr, 2011). McLennan in The Philosophy of Sustainable Design defined holistic thinking as a primary principle guiding sustainability. Holistic thinking attempts to widen the circle of understanding to comprehend the connections existing between all things and more specifically to aspects of the design process and the built environment (McLennan, 2004). The role of

sustainability in schools considers more than the building and site design; curriculum, operations, maintenance, organizational behavior, and community involvement are each of vital importance in the conceptualization of a truly holistic learning environment (Stephanie Kay Barr, 2011).

Based on the UN's Sustainable Development Goals (SDGs) perspective, the green school program is important for the formation of desirable personal qualities in improving knowledge, various norms, and ethics. Through education in the school environment, the program ensures an excellent collaboration between students, teachers, school leaders, and related parties. This program promotes the school community's awareness of the environment by developing a character responsibility for making an effort to save the environment and promote sustainable development. For students, the green school program is expected to be a laboratory, for the practice of environmental care activities to reduce waste (eg. plastic), conserve energy and conserve water, by promoting a healthy lifestyle, and developing active partnerships with communities. Thus, students get the opportunity to learn about the values of nature and environmental care so that they can be the development agents who are more oriented towards green sustainability (Wibowo Heru Prasetiyo.et.al, 2020).

2.6 Green school as sites for outdoor learning

Outdoor learning in natural areas can be an enrichment for children, enabling them to learn beyond the borders of their classroom, and has the potential to directly and indirectly strengthen primary school's educational practice. Most literature regarding outdoor learning is concerned with activities in natural areas outside the school's premises such as field trips, outdoor adventure activities, forest schools, school gardens, and nature education programs. Despite the promising potential of such extracurricular outdoor learning activities, teachers often feel hindered to facilitate and improve children's access

to these types of outdoor learning by factors related to transportation, curriculum requirements, and shortages of time and resources. With a growing number of primary schools redesigning their schoolyards into green schoolyards with natural features such as grass, hills, trees, flowers, bushes, sand, and water, opportunities arise to realize more easy-to-accomplish outdoor learning activities in natural areas on the school's own premises (Janke E.et.al, 2020).

Researchers have been shown that Primary and secondary schools linking with nature has provided opportunities for enhancing personal and social behavior. Green school can also connected with some subject matters of the program of study. The most significant impact on education in green schools comprises better self-confidence, inspiration towards learning, feel of responsibility and a greater connection between students and teachers. Majority of the primary and secondary school environments also often lack a natural environment in recent years. Study has also proposed that every added hour of viewing television considerably enhance solving the problems of social and emotional as an example low self-confidence. In addition, rising realization of the positive effect of outdoor education is an increasing understanding that various opportunities for students in outdoor learning have reduced substantially (Seyedehzahra Mirrahimi.et.al., 2011).

Particular cognitive, affective, interpersonal/social, and physical/behavioural impacts of outdoor learning that are occurring through three kinds of outdoor learning activities: (1) fieldwork and outdoor visits; (2) outdoor adventure education; and (3) school grounds and community projects. The benefits of outdoor learning are broad-reaching to students, teachers, and the wider community: for example, students who have had opportunities to engage in outdoor learning have demonstrated an increased ability to think creatively and critically and an improved performance on standardised tests, teachers have reported renewed enthusiasm for learning, and the community has benefited from having students who are active and engaged critical citizens (Janet E. Dyment, 2015).

Outdoor learning provides children with an opportunity to experience the interdisciplinary nature of the real world through interactions with each other and the planet. Geographical enquiry involves exploring the outdoors in an investigative capacity. Space, place and sustainability are three core concepts in primary geography, although sustainability is applicable to all curricular areas. For instance, primary geography programmes should include extensive outdoor learning initiatives using local sites such as the school grounds and the local area (Anne M. Dolan, 2015).

Outdoor learning has far reaching benefits for children, teachers, communities and society. Studies show that outdoor learning can improve children's social-emotional functioning and behavioral health, increase physical activity, enhance academic learning and cognitive functioning, and increase motivation for learning. Teachers can benefit from improved student-teacher relationships and classroom management during outdoor learning. The community can benefit because outdoor learning facilitates children's lifelong environmental stewardship (Eva Oberle.et.al., 2021).

2.7 Green schools and waste management

Unsanitary disposal of waste is one of the biggest challenges faced by developing countries. This issue is recorded by all countries at the 1992 Conference on Environment and Development (UNCED) as the major barrier path toward sustainability. Thus, proper waste management is needed to ensure the protection of the environment and human health. Sustainable waste management becomes an acute need to address the negative impact of waste and environmental preservation. Sustainable waste management is regarded as an effective measure to reduce the cost of collecting, transporting and processing waste. Sustainable waste management behavior is defined as an effort to reduce waste (reduce), reusing goods that are still feasible to use (reuse), recycling (recycle), and turning waste into energy sources (waste to energy) (Aria Gusti, 2016).

Solid waste management (SWM) is a critical environmental problem with direct effects on both environment, e.g., air, water, and soil, and public health. The increase in waste generation across the world greatly complicates proper waste management activities. Waste management is gradually considered a "basic human right", there is a rising demand to improve SWM in cities in the developing world due to the rural-to-urban surge of migration. This need is linked to at least 12 of the 17 Sustainable Development Goals (SDGs). The increase in waste creation has caused a severe shortage of landfills and higher costs for waste management. SWM is directly related to the circular economy, which are two basic concepts that have a crucial role in the 2030 Agenda, especially in SDG for sustainable cities and communities, responsible consumption and production, and life below water (Justice Kofi Debrah, 2021).

Assessing waste production in schools highlights the contribution of school children and school staff to the total amount of waste generated in a region, as well as any poor practices of recycling (the so-called separate collection of waste) in schools by the students, which could be improved through educational activities. Educating young people regarding the importance of environmental issues is essential, since instilling the right behavior in school children is also beneficial to the behavior of their families (Elena Cristina Rada.et.al, 2016).

Chapter 3

METHODOLOGY

CHAPTER 3

METHODOLOGY

A set of guiding principles and processes used to plan, manage, and execute projects is known as methodology. It comprised the theoretical analysis and associated principles related to the branches of the respective study. Research methods and techniques used for the study entitled **"The green school concept - the sustainability approach to education"** are discussed under the following headings:

3.1 Locality of the study

3.2 Selection of subjects

3.3 Selection of methods

3.4 Selection of tools

3.5 Collection of data

3.6 Analysis and implementation of data

3.7 Development of a booklet "Green School - A Sustainable Learning Environment".

1. Locality of the study

The area selected for the study was Kannur district. Kannur district was selected because of the ease of availability of samples and convenience of the researcher.

2. Selection of subjects

The sample size consisted of 100 upper primary students from 5 government UP schools. A subsample size of 20 teachers were also included in the study from the same schools for the study.

3. Selection of methods

- The method selected was survey method, collection of data from the subjects based on their responses to the researchers' enquiries.
- Field observation by the researcher.

4. Selection of tools

The tool used for the study was questionnaire. A KAP questionnaire was prepared in the Google Forms format. The questions included in the questionnaire were explained to the students in advance through a Google Meet and after that it was sent to the WhatsApp groups of the students and teachers. The questionnaire included the basic primary details like general details of the school, knowledge in green school concept, energy and water conservation method, waste management method, green school concept promotion initiatives by schools etc.

The field observation by the researcher was done to observe the school surroundings and green school practices initiatives in the schools.

5. Collection of data

The researcher herself visited the selected government UP school and met the teachers in charge. The researcher shared the google form link of the questionnaire to the teachers and the students.

Field observation was done personally by the researcher for clarification and collected enough information for the study.

6. Analysis and implementation of data

The data collected from the survey method were compiled, tabulated, analysed and interpreted using percentage analysis.

3.7 Development of a booklet titled "Green School - A Sustainable Learning Environment".

A booklet was developed after assessing the awareness of teachers and students regarding the green school concept. It was observed that the schools were aware of the green school practices. Though the teachers were familiar with the concept, the majority of the practices were not followed or implemented in the schools. So, a booklet was developed titled "Green School - A Sustainable Learning Environment" to popularise the green school concept among subjects. A checklist was also given to assess the feasibility of the booklet developed.

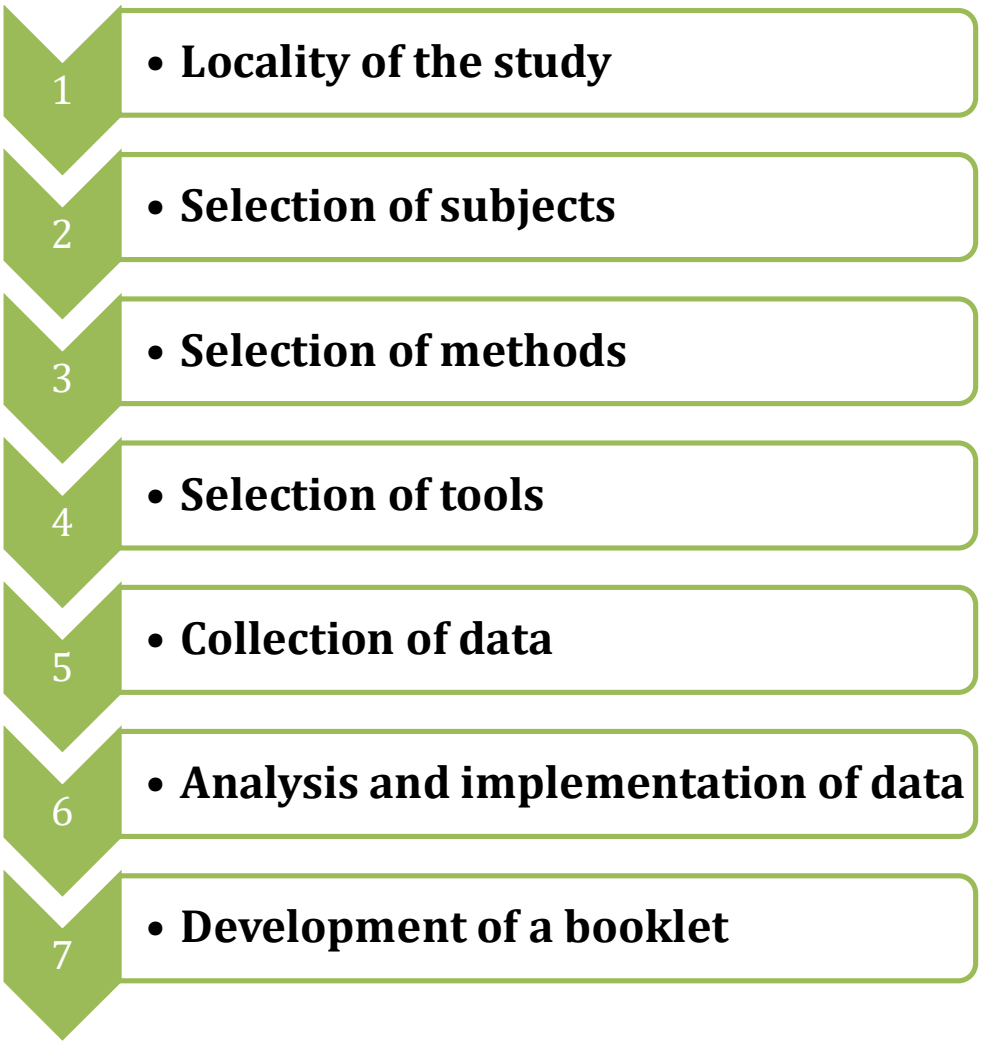

Figure 1. Research design

Chapter 4

RESULTS AND DISCUSSION

CHAPTER 4

RESULTS AND DISCUSSION

The result of the study entitled **"The green school concept - the sustainability approach to education"** are discussed under the following headings:

4.1 Preliminary information about school

4.2 Sustainable and green school concept knowledge

4.2.1 Students' and teachers' knowledge on sustainable living

4.2.2 Subjects awareness on green school concept

4.2.3 Opinion about green school practices implemented in schools

4.2.4 Various green school practices adopted in selected schools

4.3 Details of green school conservation practices

4.3.1 Water conservation practices

4.3.2 Energy conservation practices implemented

4.3.3 Health and nutrition aspects

4.3.4 Waste management practices

4.4 Green school concept promotion initiatives by schools

4.5 Awareness about green school practices and its benefits

4.6 Development of booklet and its evaluation

4.1 Preliminary information about school

A survey and field visit were conducted to collect the general details of the school, its locality, area and the strength of the school. A structured questionnaire was formulated and distributed to the teachers and students of 5 selected govt UP schools. Responses from 20 teachers and 100 students were collected through an online survey using Google Forms. The data from Google Forms studied for further analysis.

Five government schools from the Kannur district of Kerala were selected for the purpose of data collection for the study. Two of them are solely upper primary schools and three of them are integrated with higher secondary schools. The selected schools are Govt. Talap Mixed U.P. School (TGMUPS), Govt. U P. Thavakkara (GUPST), Peralassery AKGSGHSS (PAKGGHSS), Govt HSS Kuthuparamba (KGHSS) and GHSS Chala (CGHSS). The locale, strength of the students and area of the schools are given in table 1.

Table 1. Preliminary information of schools

Parameters		Responses from schools (N = 5)				
		TGMUPS	**GUPST**	**PAKGGHSS**	**KGHSS**	**CGHSS**
LOCALE	Urban	✓	✓	✓	✓	
	Suburban					
	Rural					✓
STRENGTH	Below 1000		✓			
	1000 - 2000	✓				
	2000 - 3000			✓	✓	✓

AREA	0 - 1 Acre	✓	✓			
	2 - 3 Acre			✓	✓	
	3 - 4 Acre					✓

Table 1 shows that the locale selected for the study were urban, suburban and rural areas in Kannur district. From the selected 5 schools, 4 schools (TGMUPS, GUPST, PAKGGHSS, KGHSS) are situated in urban area and only 1 school (CGHSS) is situated in rural area. No schools are situated in suburban area.

From the selected 5 schools, 1 school (GUPST) has student strength below 1000, 1 school (TGMUPS) has student strength in between 1000 - 2000 and 3 schools (PAKGGHSS, KGHSS, CGHSS) has student strength in between 2000 - 3000. From the selected schools, no school comes under the category of above 3000.

The total area of the schools varies from 0.52 acres to 3.1 acres. Table 2 shows that the school situated in the rural area has the highest area compared to the other schools (GHSS Chala). The schools situated in the heart of the city have the lowest area compared to the other schools (Govt. Talap Mixed U.P. School, Govt. U P. Thavakkara).

4.2 Sustainable and green school concept knowledge

4.2.1 Students' and teachers' knowledge on sustainable living

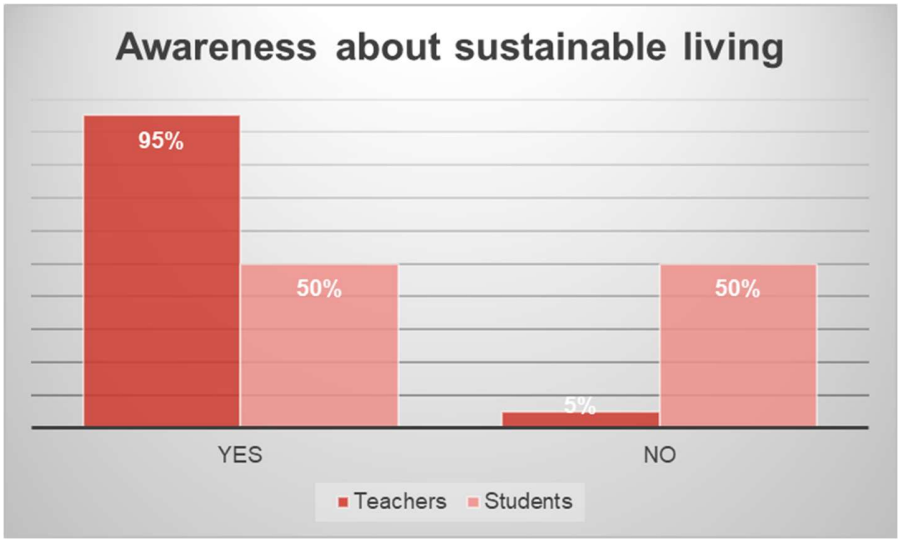

Figure 2. Awareness about sustainable living

Teacher's and student's awareness regarding sustainable living were studied. The result shows that 95 % of the teachers participated had very clear knowledge about sustainable living. But only 5 % of the teachers had very little knowledge about sustainable living. While considering the knowledge of students, 50 % were aware about sustainable living. And an equal number of students don't have any idea about sustainable living, though they were familiar with the terminology sustainable living. The United Nations defined sustainability as development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Sustainability improves the quality of our lives, protects our ecosystem and preserves natural resources for future generations.

4.2.2 Subjects awareness on green school concept

The awareness of subjects on the green school concept was studied and the result is shown in figure 3.

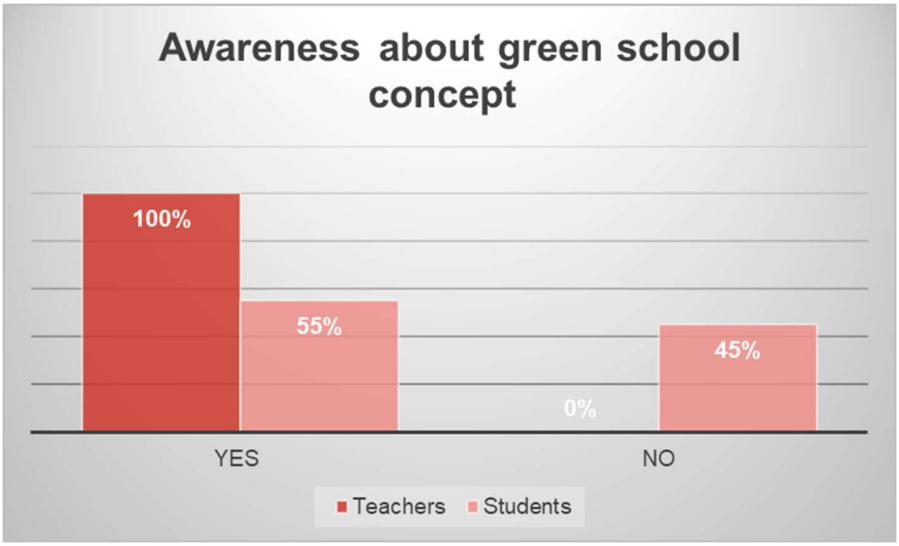

Figure 3. Awareness about green school concept

Awareness about the green school concept was studied and discussed in figure 3. It is found that all teachers participated had awareness about the green school concept. In the case of students, more than half (55 %) of the participants were aware of the green school concept. The remaining 45 % of the students have no idea about the green school concept.

4.2.3 Opinion about green school practices implemented in schools

Teachers' and students' opinions about existing green school practices implemented at school level are studied. Teachers' as well as students' opinions were collected and given in figure 4.

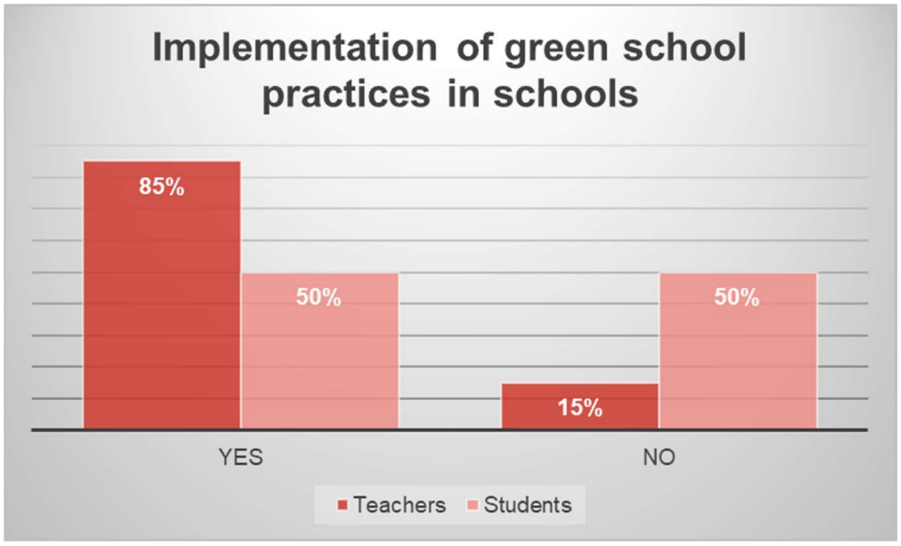

Figure 4. Implementation of green school practices

From teacher's responses it is found that the majority of them (85 %) implemented some green school practices in schools, but 15 % of the teachers are not much aware of the concept and they didnt follow green school practices in their schools. While considering students, 50 % of them thought that their schools have implemented green school practices and an equal number of students didn't have any idea about the green school practices implemented at their schools.

4.2.4 Various green school practices adopted in selected schools

The 5 selected schools adopted green school practices were verified using a checklist and it is shown in table 2. Various parameters are considered for the responses from the schools studied.

Table 2. Green school practices implemented in selected schools

Green school practices adopted	Responses from schools				
	TGMUPS	GUPST	PAKGGHSS	KGHSS	CGHSS
Rainwater harvesting	✓	✓			
Solar panels	✓	✓			
Biogas plant	✓	✓			
Tree plantation	✓	✓	✓	✓	✓
Waste management		✓	✓		
Providing nutritious food	✓	✓		✓	
Plastic reduction practices	✓	✓	✓	✓	✓
Awareness programme		✓			

*TGMUPS - Govt. Talap Mixed U.P. School
*GUPST - Govt. U P. Thavakkara
*PAKGGHSS - Peralassery AKGSGHSS
*KGHSS - Govt HSS Kuthuparamba
*CGHSS - GHSS Chala

Different green school practices implemented in schools were studied. The practices selected were Rainwater harvesting, solar panels, biogas plant, tree plantation, waste

management, providing nutritious food, plastic reduction and awareness programme. All the 5 schools studied had plant trees to inspire students to plant trees in their school compounds and took measures to reduce the usage of plastic. Among the 5 schools, 3 schools (TGMUPS, GUPST, KGHSS**)** keen to provide nutritious food to their students. Only 2 schools (TGMUPS, GUPST) have biogas plant and solar panels and following rainwater harvesting method. The waste management practices are adopted in only 2 schools (GUPST, PAKGGHSS). Frequent awareness programmes were conducting only in one school (GUPST). From the data it was observed that only one school (GUPST) among the 5 schools is following the green school practices that are listed above.

4.3 Details of green school conservation practices

Every school included in the study followed some green school practices. Some green school conservation practices followed are water conservation, energy conservation, waste management practices and health aspects were studied in detail. The study results are given in table 3, figure 4, figure 5, table 4 and figure 5.

4.3.1 Water conservation practices

Rainwater harvesting method was followed in some schools as a water conservation practice. Rainwater harvesting is a technology used for collecting and storing rainwater from rooftops, the land surface or rock catchments using simple techniques such as jars and buckets (Sonam Jakhar.et.al, 2018). The rainwater harvesting practices adopted are discussed in table 3.

Table 3. Rainwater harvesting method

Variables	Responses from schools	
	TGMUPS	GUPST
Rainwater harvesting plant at school	✓	✓
Usage of rainwater		
Cleaning	✓	
Watering plants	✓	✓

Among the 5 schools studied, the responses from teachers and students it was clear that rainwater harvesting method is adopted only in 2 schools (40 %). The harvested rainwater is used for watering plants in their vegetable gardens only in 1 school (GUPST) and the other school (TGMUPS) responded that harvested rainwater is used for cleaning as well as watering plants in their vegetable garden.

4.3.2 Energy conservation practices implemented

Table 4. Usage of solar panels

Variables	Responses from schools	
	TGMUPS	GUPST
Solar panel usage in schools	✓	✓

From the responses of students and teachers it was found that solar panels were inbuilt as a green school practice only in 2 schools (GUPST, TGMUPS). These schools used solar panels to meet various energy requirements instead of electricity.

Table 5. Usage of biogas plant

Variables	Responses from schools	
	TGMUPS	GUPST
Usage of biogas plants in schools	✓	✓

From both teachers' and students' responses it was clear that the majority of the schools didn't have biogas plants, because of the space shortage and high cost of its implementation and maintenance. A biogas plant is a facility that is commonly used as cooking gas. It can be used for the production of electricity. It can replace compressed natural gas for use in vehicles (https://www.vedantu.com/chemistry/uses-of-biogas). Building a biogas plant is very important because it is considered as a renewable source of energy. That means usage of conventional energy can be reduced through biogas plant. Biogas plant provide cooking gas for preparing mid-day meals in schools and effective biowaste management. The solid waste management through biogas plants would also give insights to children on keeping the premises of schools clean.

Table 6. Transportation mode preferred

Mode of conveyance preferred	Responses (%)	
	Teachers N =20	Students N = 100
Private bus	40	20
Own vehicle	55	-
School bus	-	21
Bicycle	-	20
Walking	5	19

Mode of conveyance of teachers and students are given in table 6. Considering teachers' mode of conveyance most of them (55 %) preferred their own vehicle for transportation. 40 % of the teachers preferred private bus for conveyance. Only 5 % of the teachers preferred walking as a mode of conveyance.

Considering the responses of students 20 % of them prefer private buses and 21 % of them preferred school bus as a mode of conveyance. Among the remaining students 20 % preferred bicycle and 19 % of the students preferred walking.

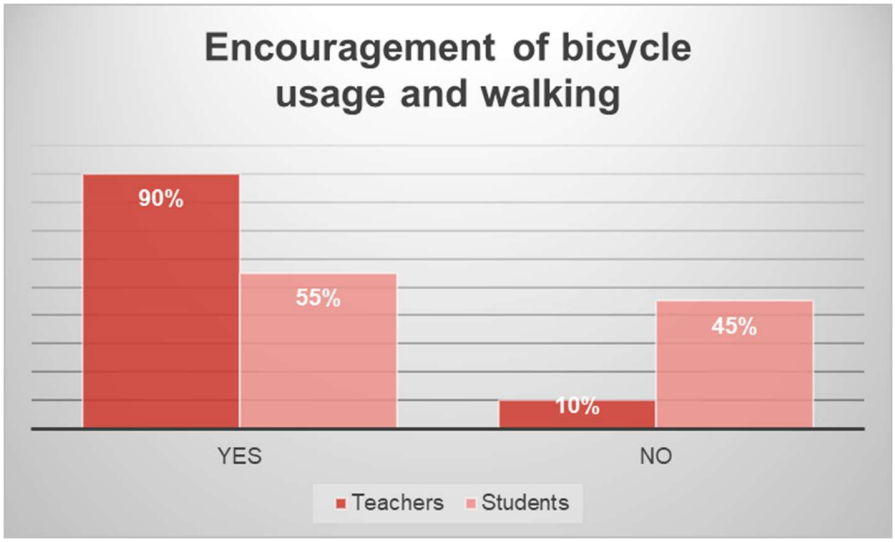

Figure 5. Encouragement of bicycle usage and walking in school

Encouragement of bicycle usage and walking in schools was studied. Figure 5 shows that 90 % of the teachers who participated encouraged the practice of walking and usage of bicycles, because both of them were considered to give good exercise for students, thus the students' health can be improved. Considering the opinion of students 55 % of the students agreed that they had got good support from school authorities regarding bicycle usage. While 45 % of the students opined that they didn’t get much support from the teachers.

4.3.2 Health and nutrition aspects

Health and nutritional aspects of the students studied and the data collected are given in table 5.

Table 7. Vegetable garden in school

Variables	Responses from schools		
	TGMUPS	GUPST	KGHSS
Vegetable garden in school	✓	✓	✓
Providing vegetables for students in their lunch	✓	✓	✓

Table 7 shows that only 3 schools had vegetable gardens. All the 3 schools agreed that the vegetables obtained from the vegetable garden were given to supplement their school lunch programme. It was observed that the schools knew about the importance of growing vegetable garden and popularising the importance of the green school concept in their school to improve the health and nutrition of students.

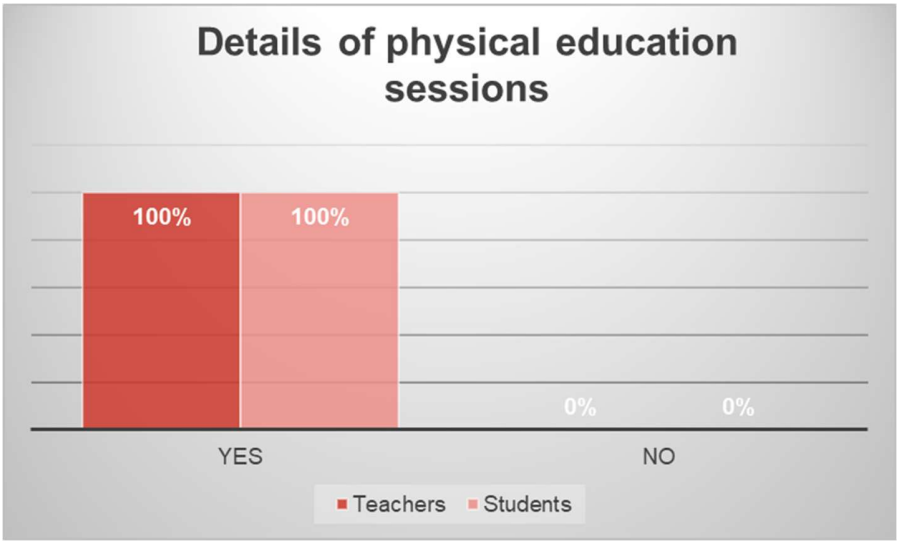

Figure 6. Details of physical education sessions

Table 8. Frequency of physical activity sessions

Frequency of physical activity sessions	Responses from schools				
	TGMUPS	**GUPST**	**PAKGGHSS**	**KGHSS**	**CGHSS**
Daily		✓			
In alternate days	✓				
Once in a week				✓	✓
Twice in a week			✓		

Table 8 shows the frequency of physical education activity sessions were conducted in all the studied schools. Out of the 5 schools observed, 2 schools (KGHSS, CGHSS) are conducting physical activity sessions once in a week. The remaining schools are conducting physical activity sessions daily, twice in a week and on alternate days.

4.3.3 Details of waste management practices

The waste management practices adopted in the selected schools were studied and it is found that all schools kept separate waste bins for paper, plastic, food waste etc. and teachers encouraged students to follow proper waste disposal.

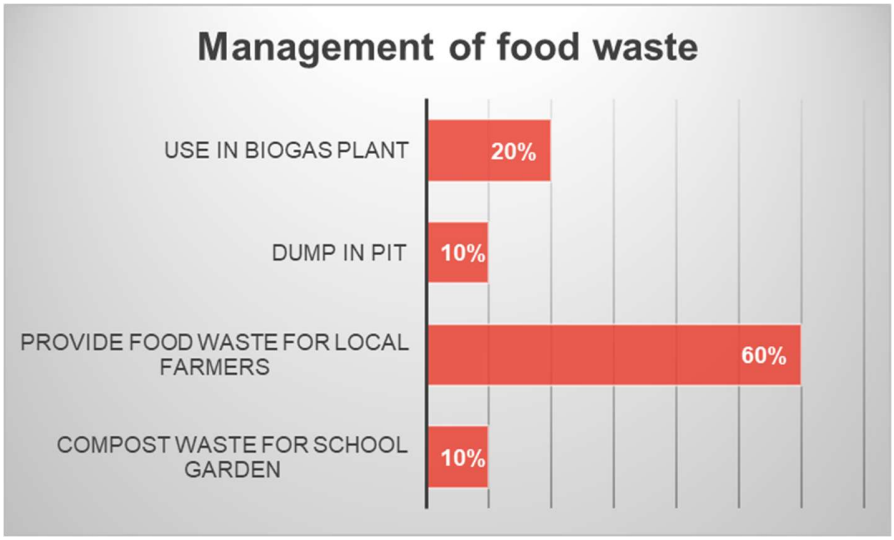

Figure 7. Food waste management practices

Figure 7 shows the food waste management in the selected schools. From the responses given by students and teachers it is found that food wastes are managed in 4 ways - using in biogas plant, dumping in a pit and providing food waste for local farmers. Majority (60 %) of the schools provided the food waste generated in the schools to the local farmers. Negligible percentage (20 %) of the schools used food waste in biogas plant. Equal percentage of schools (10 % each) preferred mode of food waste disposal was either dumped in a pit or used as compost for the school garden.

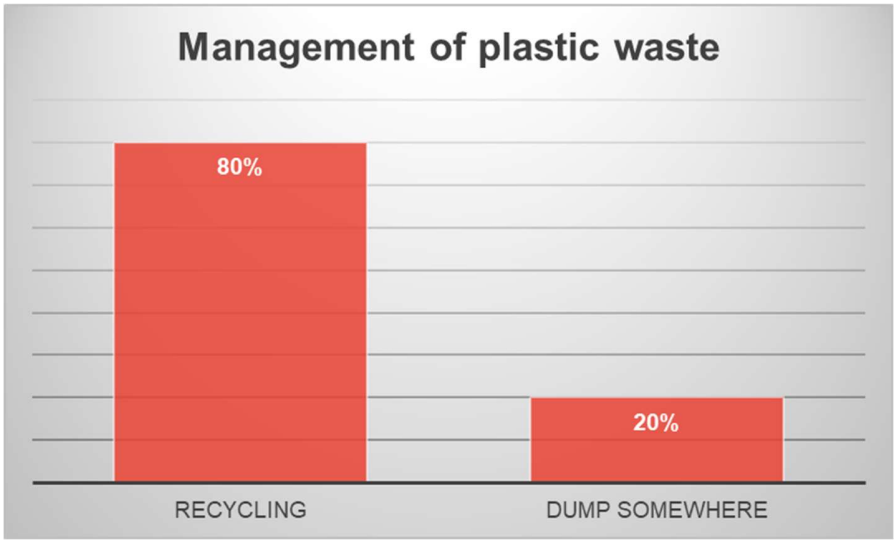

Figure 8. Management of plastic waste

Considering the management of plastic waste in the selected schools, it is found that the majority of the school authorities are aware of the threats of plastic and its proper management. 80 % of the teachers and students responded that their school manage plastic waste by recycling it. But only 20 % of the respondents opined that the school stakeholders who have little knowledge about the proper management of plastic are dumping the plastic somewhere.

4.4 Green school concept promotion initiatives by schools

Green school concept promotion initiatives of selected schools were studied. Majority of the schools have green club/ eco club/ nature club. 90 % of the teachers as well as students were active members of the green club/eco club/nature club in their schools. Frequent activities were conducted as a part of the club. Only one selected school didn't have any functional green club/eco club/nature club in their school.

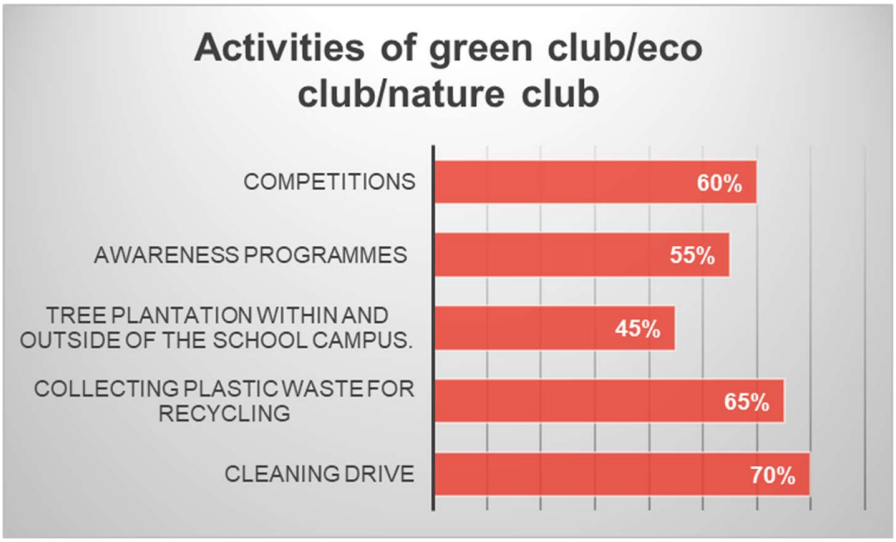

Figure 9. Activities of green club/eco club/nature club in schools

Based on the responses of the subjects the major activities of green club/eco club/nature club in selected schools are awareness programmes, tree plantation within and outside of the school campus, collection of plastic waste and cleaning drive. Majority of the school's green club/eco club/nature club activity is conducting cleaning drive. 55 % of the teachers agreed that their school conduct awareness programmes for students as a part of the green club/eco club/nature club. 45 % of the teachers responded that their schools conduct tree plantations as a part of the clubs. 30 % of the teachers agreed that their schools conduct activities to collect plastic waste for recycling. Only 10 % of the teachers agreed that their schools conduct competitions and provide prizes for the winners.

Regarding the facilities of outdoor classes in the selected schools, 55 % of the teachers and students opined that their school had facilities for outdoor classes like spacious ground, tree shades etc. But 45 % of teachers and students agreed that there are no facilities for outdoor learning in their schools.

4.5 Awareness about green school practices and its benefits

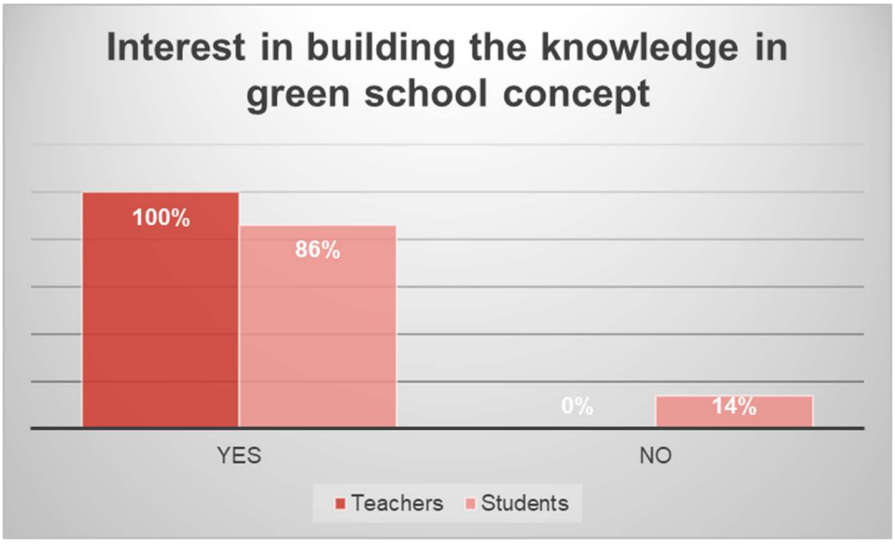

Figure 10. Interest in building the knowledge in green school concept

Regarding the interest of teachers and students in improving their knowledge in green school concept and other sustainable practices were studied. All teachers participated in the survey were interested to know more about the green school and other related sustainable practices. But in the case of students only 86 % of them were interested in building their knowledge either in green school concept or any sustainable living practices.

Table 9. Preferred mode of building knowledge in green school concept

Way of building knowledge in green school concept	Responses (%)	
	Teachers N = 20	Students N = 100
Internet	40	45
Workshops	10	10
Seminar	10	10
Booklet	40	35

Preferred mode of knowledge building about green school concept and sustainable practices were asked to teachers as well as students and they are given in table 9. Majority of the teachers (40 %) were interested to get such information from digital media and an equal number of teachers (40 %) were also interested to get information from booklets. Same in the case of students also observed. 45 % of the students preferred digital media and 35 % were interested to get information through booklets. Very negligible percentage of teachers as well as students (10 % each) were interested in seminars and workshops.

4.6 Development of booklet and its evaluation

A booklet named "Green School - A Sustainable Learning Environment" was developed by the researcher to provide awareness and to popularise the concept of green schools among students. The information included in the booklet included - origin of green school, green school meaning, its importance and advantages, and tips to develop green schools.

A checklist also prepared and included in the booklet for mandatory evaluation regarding green school concept in respective schools.

Plate 1. Cover page of booklet

The booklet was distributed to the selected schools by the researcher. The teachers were asked to evaluate the booklet. A checklist was given to evaluate the booklet is also given. The result of the evaluation is given in table 10.

Table 10. Checklist for booklet evaluation

Parameters to assess the booklet developed	Responses of teachers (%)			
	Poor	Good	Very good	Excellent
Booklet developed informative	-	10	30	60
Clear and easy to understand	-	20	-	80
Appealing with suitable pictures	-	10	20	70
Relevance	-	10	20	70

The parameters to assess the booklet were - informative, clear and easy to understand, appealing with suitable pictures and its relevance. The teachers evaluated the booklet on a 4-point rating scale - poor, good, very good and excellent. 70 % of the teachers opined that the information in the booklet was very relevant and followed by appealing with suitable pictures. 80 % of them agreed that all the information regarding the green school concept was clear and easy to understand. Considering the information given in the booklet 60 % of them rated the booklet excellent.

Chapter 5

SUMMARY AND CONCLUSION

CHAPTER 5

SUMMARY AND CONCLUSION

A green school is a school that creates a healthy environment that is conducive to learning as well as saving energy, resources and money. A green school is more than curriculum and more than building. It teaches students sustainability and creates an environment to love and protect nature. In such an environment student's learning experiences are no longer confined to the classroom but extend outside the classroom in the field as well. The green school helps the students to approach their environment in a sustainable way.

The study was conducted to learn the relevance and existence of the green school concept in the Kerala educational sector. 5 govt UP schools were selected from the Kannur district, Kerala. A KAP questionnaire was developed to know the subject's knowledge, attitude and practices regarding the green school concept. The data was collected from the students and teachers of the selected schools by the researcher using the online mode of data collection - Google form. The total number of participants were 100 students and 20 teachers.

The major findings of the study are;

- Out of 5 schools selected, 4 schools were in urban area and 1 school was in rural area.
- The total area of the schools varies from 0.52 acres to 3.1 acres.
- Most of the teachers had some awareness about the green school concept and sustainable living. But only half of the students had knowledge about it.
- The green school practices implemented in the schools were - rainwater harvesting, solar panels, biogas plant, tree plantation, waste management, providing nutritious food, plastic reduction practices and awareness programme.
- Only 2 schools had proper energy and water conservation practices such as solar panels, rainwater harvesting and biogas plant. The stored rainwater in schools was used for cleaning purposes and watering plants.

- Most of the teachers preferred mode of conveyance were private buses (40 %) and their own vehicle 55 %). Students preferred private buses, school buses, walking and cycling as mode of conveyance.
- Most of the teachers (90 %) who participated encouraged the practice of walking and usage of bicycles. 55 % of the students agreed that they had got good support from school authorities regarding bicycle usage.
- Out of the 5 schools studied, 3 schools had vegetable garden and they agreed that the vegetables obtained from the vegetable garden were given to supplement their school lunch programme.
- The food waste management practices in schools were carried out in 4 ways. Majority of the schools (60 %) provided the food waste generated to the local farmers. A negligible percentage (10 %) of the school had managed the food waste by dumping it in a pit and used as compost for the school garden.
- Majority of the schools (80 %) are managing plastic wastes by recycling and a negligible percentage (20 %) of the respondents opined that the school stakeholders who have little knowledge about the proper management of plastic are dumping the plastic somewhere.
- The major activities of green club/eco club/nature club in selected schools were awareness programmes, tree plantation within and outside of the school campus, collection of plastic waste and cleaning drive.
- 55 % of the teachers and students opined that their school had facilities for outdoor classes like spacious ground, tree shades etc. 45 % of teachers and students agreed that there are no facilities for outdoor learning in their schools.
- All teachers participated in the survey were interested to know more about the green school and other related sustainable practices.
- 86 % of the students were interested in building their knowledge either in green school concept or sustainable living practices.

- Majority of the teachers (40 %) were interested to build their from digital media and an equal number of teachers (40 %) were also interested to get information from booklets.
- 45 % of the students preferred digital media and 35 % were interested to get information through booklets.
- A booklet named “Green School - A Sustainable Learning Environment” was developed by the researcher.
- 70 % of the teachers opined that the information in the booklet was very relevant and followed by appealing with suitable pictures. 80 % of them agreed that all the information regarding the green school concept was clear and easy to understand. Considering the information given in the booklet 60 % of them rated the booklet excellent.

CONCLUSION

The study reveals that the schools were aware of the green school practices and sustainable living. Though the teachers were familiar with the concept, the majority of the practices were not followed or implemented in the schools. Most of the schools followed proper waste management practices and tree plantation practices. Out of 5 schools only 2 schools had proper energy and water conservation practices such as solar panels, rainwater harvesting and biogas plant. The other schools lacked these facilities due to lack of area and implementation cost. Only 1 school followed all the green school practices mentioned and the existing schools had followed few green school practices. To provide awareness and to popularise the concept of green schools among students a booklet is developed. The booklet was distributed to the selected schools and teachers had evaluated the booklet in a 4-point scale.

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APPENDICES

APPENDICES

QUESTIONNAIRE TO ASSESS THE GREEN SCHOOL CONCEPT AWARENESS AMONG TEACHERS

I. GENERAL INFORMATION OF SCHOOL

1) Name :

2) School :

3) Locality

- o Urban
- o Suburban
- o Rural

4) Strength of students

- o Below 1000
- o 1000 - 2000
- o 2000 – 3000
- o Above 3000

5) Area in square feet

—----------

II. GENERAL INFORMATION OF GREEN SCHOOL CONCEPT

6) Do you know about sustainable living?

- o Yes
- o No

7) Have you heard of the green school concept?

- Yes
- No

8) If yes, how did you come to know about the green school concept?

- Through internet
- Through curriculum
- Through colleagues

9) Do you think the green school concept is a part of sustainability?

- Yes
- No
- Maybe

10) Is your school trying to do any practices of the green school concept?

- Yes
- No

11) If yes, mention the practices

—----------

III. BASIC INFORMATION

12) Does your school follow rainwater harvesting method?

- Yes
- No

13) If yes, the stored rainwater is used for,

- Cleaning
- Watering plants
- Others

—----------

14) Does this school use energy from solar panels?

- Yes
- No

15) Does this school have biogas plant?

- Yes
- No

16) Mode of transportation

- Private bus
- Own vehicle
- Walking

17) Do you encourage students to use bicycle?

- Yes
- No

18) Does this school have vegetable garden?

- Yes
- No

19) Do you provide vegetables from the garden for lunch?

- Yes
- No

20) Do you conduct physical activity sessions for students?

- Yes
- No

21) If yes, how often do you conduct physical activity sessions?

- Daily
- In alternate days
- Twice in a week

- Once in a week

22) Are there separate waste bins for food waste, plastic waste and paper waste?

- Yes
- No

23) How do you manage food waste?

- Compost waste for school garden
- Provide food waste for local farmers
- Dump in pit
- Use in biogas plant

24) How is this school managing plastic waste?

- Dump somewhere
- Recycling
- Burning

25) What are the activities you provide for students, which helps to connect them with nature?

- Field trip to recycling center
- Seed germination
- Tree plantation
- others

26) Is there a green club/eco club/nature club in your school?

- Yes
- No

27) What are the activities of the green club/eco club/nature club?

- Cleaning
- Collecting plastic waste for recycling
- Tree plantation within and outside of the school campus.
- Awareness programmes regarding various environmental issues.
- Others

—----------

28) Are there facilities for outdoor classes?

- Yes
- No

29) Do you want to build the knowledge of students about the green school concept?

- Yes
- No

30) If yes, how are you going to build the knowledge?

- Internet
- Booklet
- Seminar
- Workshop

QUESTIONNAIRE TO ASSESS THE GREEN SCHOOL CONCEPT AWARENESS AMONG STUDENTS

I. GENERAL INFORMATION OF SCHOOL

1) Name :

2) Class :

3) School :

4) Locality

- Urban
- Suburban
- Rural

II. GENERAL INFORMATION OF GREEN SCHOOL CONCEPT

5) Do you know about sustainable living?

- Yes
- No

6) Have you heard of the green school concept?

- Yes
- No

7) Do you think the green school concept is a part of sustainability?

- Yes
- No
- Maybe

8) Is your school trying to do any practices of the green school concept?

- Yes
- No

9) If yes, mention the practices

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III. BASIC INFORMATION

10) Does your school follow rainwater harvesting method?

- Yes
- No

11) If yes, the stored rainwater is used for,

- Cleaning
- Watering plants
- Others

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12) Does this school use energy from solar panels?

- Yes
- No

13) Does this school have biogas plant?

- Yes
- No

14) Mode of transportation

- Private bus
- School bus
- Walking
- Bicycle

15) Does your school encourage you to use bicycle?

- Yes
- No

16) Does your school have vegetable garden?

- Yes
- No

17) If yes, does your school provide vegetables from the garden for lunch?

- Yes
- No

18) Are there any physical activity sessions in your school?

- Yes
- No

19) If yes, how often do your school conduct physical activity sessions?

- Daily
- In alternate days
- Twice in a week
- Once in a week

20) Are there separate waste bins for food waste, plastic waste and paper waste?

- Yes
- No

21) How does your school manage food waste?

- Compost waste for school garden
- Provide food waste for local farmers
- Dump in pit
- Use in biogas plant

22) How is your school managing plastic waste?

- Dump somewhere
- Recycling
- Burning

23) What are the activities in school, which helps to connect you with nature?

- Field trip to recycling center
- Seed germination
- Tree plantation
- others

24) Is there a green club/eco club/nature club in your school?

- Yes
- No

25) What are the activities of the green club/eco club/nature club?

- Cleaning
- Collecting plastic waste for recycling
- Tree plantation within and outside of the school campus.
- Awareness programmes regarding various environmental issues.
- Others

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26) Are there facilities for outdoor classes?

- Yes
- No

27) Are you interested in developing your knowledge of students about the green school concept?

- Yes
- No

BOOKLET

CHECKLIST FOR BOOKLET EVALUATION

Parameters to assess the booklet developed	Responses of teachers			
	Poor	**Good**	**Very good**	**Excellent**
Booklet developed informative				
Clear and easy to understand				
Appealing with suitable pictures				
Relevance				

CHECKLIST TO EVALUATE GREEN SCHOOL PRACTICES

Sl. No	Credits	Points out of 10
	Mandatory Requirements	**Put a tick mark**
1	Rainwater harvesting	
2	Solar panels	
3	Biogas plant	
4	Tree plantation	
5	Waste management	
6	Cleaning the environment	
7	Plastic reduction practices	
8	Awareness programme	
9	Green club/Eco club	
10	Lessons on energy and water saving	

- Put a tick mark for each existing practices carried out.
- One tick carries 10 marks.

IMAGES OF SCHOOLS SELECTED FOR STUDY