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School Horticulture Practices as Precursor of Environmental Awareness of Secondary School Students

Abstract

Students of some schools in Kerala state have opportunities for engaging with horticultural practices. This research intended to study the impact of horticulture practices on students' environmental awareness, along with gender and locale differences. Informaldiscussions with teachers, and observations done. An environmental awareness test is used to collect data. The sample size of the study was 400 upper primary school students. Analyses revealed that most of the students of upper primary schools possess an average level of environmental awareness. There is no gender difference among students on environmental awareness, but there isa significant locale difference. Students who are from schools with horticulture practices have significantly different environmental awareness than students from schools without horticulture practices. The result of the study envisages the necessity of informal programmes such as horticulture practices in schools to develop desirable behaviors such as environmental awareness.

Key Words: *Horticulture, Environmental Awareness, Gender, Locale*

Introduction

A school is an excellent atmosphere to introduce the concept of environmental awareness to the pupils. There are a variety of ways in a school to convey the importance of the environmental concerns facing the world today to each child. The implementation of informal horticulture practices helps students to develop their knowledge and attitudes to take pro-environmental actions. The integration of environmental education into a school's curriculum is greatly enhanced by fostering a suitable, positive, and environmentally conscious school environment. An appropriate environment in schools nurtures students' engagement and understanding of ecological concepts (Waliczek & Zajicek, 1999) In Kerala state, certain schools have horticulture practices with the aim of developing desirable environmental awareness among students.

One way of bridging the gap between the abstract "planet" and the child's immediate surroundings is to bring plants and animals closer to the curriculum via a garden (Demas,1979). Many teachers and schools create gardens and apply them to a variety of curriculum areas, but the effectiveness of these gardens in establishing the children as stewards of the earth is not often measured. Incorporation of preplanned practices of environmentally significant programmes into the curriculum will help the students to prosper in environmental awareness.

Environmental education teaches individuals how to weigh various sides of an issue through critical thinking and it enhances their own problem-solving and decision-making skills. Schools need to be involved in environmental practices so that students from a young age become aware of social and environmental issues in their local communities and around the world, and thus be motivated to take action to improve and maintain the environment (Gandevan, 2007).

Outdoor environmental education programs are a crucial tool for promoting children's and adolescents' pro-environmental attitudes and behaviors, as well as their feelings of connection to nature, and pursuing the goal of reducing human impact on the environment and natural resources therein (Abraham, & Arjuna, 2004). Many different approaches have been used and tested in schools to attain the aim of environmental awareness among students. The approaches focused on the experiences of having contact with natural settings are proposed as a means for promoting positive emotional reactions among students regarding environmental issues to be incorporated into the school curriculum (Rickinson, 2001). School horticulture practices are such programs that will promote students' direct experience with nature.

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School Horticultural Practices in schools: A review

Horticultural practices provide direct experience with the environment. Lexically, (Webster, 2021) horticulture is the science and art of growing plants (fruits, vegetables, flowers, and any other cultivars). School horticulture fields are places where children can participate in cultivation as well as harvesting of plants. In the course of school horticultural practices, the children gain unique insights into some environmental issues faced by the world today. Horticultural programmes may be effective in improving psychological stability and social-emotional competence in terms of emotional intelligence, resilience, and self-efficacy in elementary school children. Participation of pupils in environment-related works is effective in developing awareness. Students with an environmental awareness background have better environmental attitude. (Kumar, 2008: Subramaniam & Prabha, 2008)

Padmini (2007) stressed the importance of environmental awareness for sustainable development. A study on environmental awareness among rural and urban children revealed that the majority of the students don't have much knowledge of the environment-related issues and problems and they were not aware of the importance of the content and the environmental issues. Children from urban habitation had a better idea about the problems related to the environment than their rural counterparts. This is the information they gather through the academic sessions carried out in institutions. Further, a result of a study of comparison of the awareness level of teachers revealed that they do not differ significantly based on the subject of teaching. (Asha, 2008; Pande,2007). The research finding of Joshi (1981) proves that the environment outside the class is potent enough to initiate learning and hence Environmental Education should be considered essential at school level education.

There is no research conducted specifically on the impact of horticultural programs and their association with environmental attitude, behaviours, and knowledge. This research may fill this gap to a certain extent because it is a specific design of research to be conducted among students to find out the relationship between environmental awareness and participation in horticulture.

Need and Significance of Studying the Horticulture Practice as Precursor of Environmental Awareness

Despite the ever-growing body of knowledge about human impact on the environment and the need to work towards a sustainable future, participation in environmental action initiatives among the general

population remains low. The observation of Gihar (2006) explains thus, "In the second decade of the 21st century, preparing our students to be good environmental citizens is some of the most important work any of us can do. It is for our children, and our children's children, and generations yet to come." The analysis proves the importance of a study like this in indigenous schools.

The focus of the school agricultural practices today has moved towards efforts to control the elevated obesity rates and to promote health and well-being in cooperation with education to school-aged children. The link between the garden and the school meal program is an area that requires attention. In Kerala, children get hardly any exposure to agriculture through a curriculum predominated by arts and science. A school with a garden/vegetable garden provides that unique opportunity to activate a child's awareness of the environment in a lasting way. Horticulture and environmental awareness are interconnected in their efforts to create a sustainable and resilient future. The practice of horticulture can promote sustainable agriculture, conserve biodiversity, and enhance landscapes, while environmental awareness empowers individuals and communities to make informed choices and contribute to a healthier planet.

Delimitation

The study aimed to analyze the environmental awareness of school students in relation to their practice in school horticultural activities. The aim was to investigate the environmental awareness and horticultural practices of the students who are studying in the schools that follow the Kerala State Education Syllabus. Researchers selected the schools from the Palakkad district only. The data collection is being proposed to the students of upper primary classes only.

Objectives of the Study

The study is aimed to realize the following objectives;

1. To study the levels of environmental awareness of upper primary school students
   - 1.a. To find out whether there exists gender difference in the environmental awareness of upper primary school students.
   - 1.b. To find out whether there exists locale difference in the environmental awareness of upper primary school students.
2. To compare the environmental awareness of the upper primary school students with respect to their participation in school horticultural activities.

The Hypotheses

The investigation is framed up on the following hypotheses:

- Upper primary school students are varied in their environmental awareness.
- There is no significant gender difference in the environmental awareness of upper primary school students.
- There is no significant locale difference in the environmental awareness of upper primary school students.
- There is a significant difference in environmental awareness between students from the schools with and without horticulture practices.

Methodology

The present study is intended to find out the level of environmental awareness of upper primary school students with respect to school horticultural practices. The details of the variables are to be collected from a large number of students pertaining to different institutions. A survey method is adopted to carry out the investigation. To study the level of environmental awareness of upper primary school students, the investigator prepared an environmental awareness test. The tool included 39 items with two options to respond, after the process of standardization. The respondent has two options to mark their responses to a statement. Observation and direct informal discussion were the techniques used to identify and assort the schools that have horticulture practices.

Sample and Procedure of Data Collection

The sample included 400 upper primary school students studying in 6th and 7th standard in Upper Primary schools in Palakkad district, Kerala state. The members in the sample belong to rural schools and urban schools. Schools having horticultural practices are randomly selected. Students from the schools that follow the Kerala State School Syllabus were only selected to constitute the sample.

Before conducting the survey to measure the environmental awareness of upper primary school students, the researcher decided to categorize the schools based on their horticultural practices. The researcher randomly selected twelve schools that have school horticultural practices and which do not have school horticultural practices to collect data. Researcher directly visited these schools to find out whether school horticultural practices are actively going or not. The researcher employed a checklist to study horticultural activities going on in these schools.

Analysis, Discussion and Findings

This research investigation has two faces. At the first step, the researcher directly visited the randomly selected schools to explore the horticulture practices that the schools follow. Information was gathered on the programs of the schools based on field notes, observation and discussion with teachers. The collected information is used to frame the profile of the schools. Based on the information from the visit report, fieldnotes and discussions, researchers segregated to two categories; (a) schools with active horticulture practices and (b) schools with no horticulture practices. Data on the environmental awareness of students are collected by administering the same tool among the students of both categories of schools. Collected data were properly tabulated and utilized for analysis. The details of the analysis and interpretation of the results are provided here under appropriate titles.

Environmental Awareness among School Students

The first objective of the study is to find out the environmental awareness of the school children. To realize this objective, data from the whole sample are made use of and are subjected to norm-based analysis. The score for each correct response to a statement in the awareness test is 01 and that for a wrong response is '0'. Maximum score of the tool to assess environmental awareness is 39x1=39 and minimum score is 39x0=0. Out of the maximum score, i.e., 39, those who scored 80% and more (score 31 or more) are considered students with high environmental awareness. The students who scored 60% and more but below 80% (score 23 or more and below 31) are placed in the group with average level of environmental awareness. Finally, those who scored 59% or below (score 22 or below) are placed in the group of students with below average level of Environmental Awareness. The data collected from 400 students were analyzed properly and result is given in table.1.

Table 1:

Students at various levels of environmental awareness (N=400)

Levels of environmental awareness						
Variable	High level of awareness		Average level of awareness		Low level of awareness	
Environmental awareness	n	%	n	%	n	%
	57	14.25%	243	60.75%	100	25%

Discussion

The Table 1 explains that among the upper primary school students, 14.25% of students are having high level, and 60.75% of students are having average level of environmental awareness. It is also revealed that 25% of students are with low level of environmental awareness. The environmental awareness is a particular quality that students acquired from their life experiences and academic experiences. The acquired awareness may be reflected in the responses of students on the environmental awareness test.

The first hypothesis of the study states that the students are varied in their levels of environmental awareness. The above mentioned result is supportive to state that hypothesis one is accepted.

Gender Difference in Environmental Awareness among Upper Primary School Students

The second part of the first objective is to find the difference in environmental awareness of upper primary school students based on gender. The data from girls and boys on environmental awareness are employed for inferential statistical analyses. The Measures of central tendencies are found out and the scores of the Mean are subjected to an independent sample t-test. Results are given in Table 2.

Table 2:

Test of mean difference in environmental awareness of upper primary students with respect to gender

Variable	Sample	n	Mean	SD	t- value
Environmental awareness	Female	202	23.41	7.96	0.381
	Male	198	23.72	8.65	

Discussion

Table 2 shows that the 't' value of the mean difference on environmental awareness of male and female students of upper primary schools is not significant at 0.05 level since the calculated 't' value (0.381) is less than the significant table value (1.96). The result of the t-test clearly explains that there exists no significant difference between male and female students of upper primary schools in their level of environmental awareness. Girl and boy students are possessing same levels of environmental awareness.

The second hypothesis states there is no gender difference on environmental awareness among upper primary school students. The result is supportive to state that this hypothesis is accepted and there is no gender difference on environmental awareness.

Locale Difference on Environmental Awareness among Upper Primary School Students

The second part of the third objective states to find the difference in the level of environmental awareness of upper primary school students based on locale. Data are collected from the students of the schools in rural and urban localities. The mean scores of environmental awareness of upper primary school students based on locale are subjected to statistical analysis and the Mean and Standard Deviation are found out. The scores are employed for the independent sample t-test. Results are given in Table 3.

Table 3:

Details of the test of mean difference in environmental awareness with respect to locale

Variable	Sample	N	Mean	SD	t-value
Environmental awareness	Rural	273	25.04	7.43	5.408*
	Urban	127	20.38	9.18	

**Significant at 0.01 level*

Discussion

As per table 2, the 't' value of the mean difference of the scores of environmental awareness of male and female students of upper primary schools is significant at 0.01 level. The obtained 't' value, i.e., 5.408 is a significant value of mean difference. In other words, there exists significant difference between rural and urban school upper primary studentsin their level of environmental awareness. The Mean of the score distribution of rural students on environmental awareness are higher than that of the urban students. Mean value of rural school students is 25.04 and of urban schools is 20.38.These values indicate the most favorable scores are obtained by the students of rural schools. Thus it can be interpreted that rural school students have more favorable environmental awareness than that of students in urban school.

On the basis of this result, it is affirmable to state that the third hypothesis, there is no locale difference in environmental awareness between upper primary students, is rejected.

Environmental Awareness of Upper Primary School Students with respect to the School Horticulture Practices

The second objective of the study states to compare the environmental awareness of upper primary school students with respect to school horticulture practices. To understand whether there exists significant difference between the students of the schools which have regular horticulture practices and the schools those have no such a practice. To compare the two groups on the environmental awareness, researchers administered the independent sample t test. The groups were interpreted based on the obtained t value of Mean comparison. Results are given in the table 4.

Table 4:

Mean Comparison of the scores of environmental awareness of students with respect to the schools with and without horticulture practices

Variable	Sample	N	Mean	SD	t-value
Environmental awareness	Schools with horticultural	262	24.47	8.31	3.036*
	Schools without horticultural	138	21.84	8.04	

**Significant at 0.05 level*

Discussion

As per the table 4, the 't' value of the mean difference in environmental awareness with respect to school horticultural practices is significant at 0.05 level since the calculated 't' value(3.036) is greater than the table value 1.96. In other words, there exists significant difference between upper primary students of schools with horticultural practices and schools without horticultural practices on the environmental awareness.

The mean scores of environmental awareness of students from the schools with and without horticultural practices are found to be differing. The Mean value of the scores of environmental awareness of students from the schools with horticultural practices is 24.47 and that of schools without horticultural practices is 21.84. This indicates that most favorable mean score are obtained by students from schools with horticultural practices. Thus it can be interpreted that students from the schools with horticultural practices have more desirable environmental awareness than the students from the schools without horticultural practices.

This result is supportive to state that the fourth hypothesis is accepted. The fourth hypothesis states that there is a significant difference in environmental awareness between students of the schools with and without horticultural practices. It is fully substantiated.

Findings in Brief

This research is intended to find out the environmental awareness of upper primary school students of Kerala in general and to compare their awareness on the basis of gender and locale. The study also aimed to compare the environmental awareness of the students of the schools with and without regular horticulture practices. The study revealed the following results:

- Most of the upper primary school students are possessing an average level of environmental awareness. Students with a high level of environmental awareness are 14.25%, those with low are 25% and with high level are 60.75%
- There is no significant gender difference among students on Environmental awareness. Girls and boys have the same level of environmental awareness.
- There is a significant difference between rural and urban upper primary school students on environmental awareness. Rural school students have comparatively higher environmental awareness than urban school students.
- There is a significant difference in environmental awareness between the students of schools with horticulture practices and schools without horticulture practices. Students from schools with horticultural practices possess higher environmental awareness than the students from schools without horticultural practices.

Conclusion

The present research was conducted on a very relevant and genuine issue which is students' awareness about the environment and environmental hazards that occur due to human activities. The horticultural practices are introduced in the schools of Kerala state by the government and NGOs Aim of this study is to enhance environmental awareness and love towards nature. The result of the study helps teachers, students and society to have retrospection on enhancing school horticultural practices. The result of the study proved that horticulture practices have a significant impact on enhancing the environmental awareness of students. The study revealed that the students who participate in school horticultural practices have more environmental awareness than the. Students can protect and restore environmental and natural resources by spreading awareness on environmental issues by experiencing a programme like horticultural practice. The results of the study

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encourage government efforts on horticulture practices in schools. Students are in need to be experienced with such programmes along with classroom learning activities. The results of the study envisage the need to provide informal learning contexts in schools for better development of desirable social behaviours.

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Challenges of Primary Educational Stakeholders During Covid-19 towards Learning

Abstract

A pandemic is a highly contagious sickness outbreak that has a dynamic impact on the economy, technology, and education. It proved to be difficult for some people and an opportunity for others. According to the current research, the educational hurdles that the underprivileged population encountered during COVID-19 were made worse for them by a widening digital divide, poor levels of literacy among people in lower economic groups, and income inequality. The purpose of this descriptive study is to examine the challenges faced by different parties involved in government primary schools in the Saharanpur district of Uttar Pradesh, India, particularly during the pandemic, including parents, teachers, students, and administrators. Here, the researcher separated the data into six themes for analysis. Through discussion, the authors of this study highlight the difficulties faced by school administrators, including a lack of necessities, socioeconomic disparities, and inadequate training for remote instruction.

Keywords: *Challenges, COVID-19, Primary Schools, Stakeholders, Technology*