

FIVE INNOVATIVE WAYS SCHOOLS CAN IMPROVE ENVIRONMENTAL WEALTH

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ABSTRACT

The human living is not secluded from the rest of the species and creatures surviving on the Globe. The ecology not only enables to contribute each other for healthy living but also it creates a scientific system for the balance functioning of the nature. In the present scenario, when the pollution is on the rise and natural hazards on repetition, there is an unavoidable need to talk about the protection and promotion of environmental awareness and biodiversity conservation rigorously. Taking into account the environmental crises, it seems that the human society is sitting on the branch of a tree which is being cut by them only. Environmental Awareness is a first step towards action. Plethora of researches on the Environmental Awareness have been carried out in the schools and Institutions and issues have been discussed at length on ecology and environmental factors but through reviews it is seen that there is a requirement to develop a holistic strategy and plan to activate the ideals to achieve the optimum well being in the ecology, where we could be blessed with healthy environment. In the present paper an effort has been made to present the key environmental studies, findings on sample of students & teachers specifically and strategies that how to educate and sensitize them in effective manners to improve environmental wealth and richness. Further, five ways are innovatively suggested for the schools to make the Environmental Education and Awareness effective. Adequate scientific awareness, concerted efforts and sustained positive attitudes are some of the key factors to be inculcated and implemented among students and teachers to enrich the ecology where we live and conserve it.

Keywords: awareness, environment, biodiversity, schools, action plan, curriculum.

1. INTRODUCTION

The aim of education is always guided by the healthy and happy living principles. Our Environment is the true source of life and energy to lead happy and prosperous life. The principles of education overtly or covertly talk and embark upon the human development in all respect. The development of scientific temperament and inquisitiveness of our surroundings and environment is one of the important roles of education. All the creatures and belongings of our surroundings are inter dependent and connected to each other. The ecology is a kind of natural programming where we contribute to survive harmoniously. The imbalances in its natural constituents are catastrophic. We need to realize and evaluate scientifically that undue exploitation of natural resources and metamorphosing in its order may advance us in material prosperity but would set environmental challenges. It is a matter of concern to all where we are burdened with a lot of disarrays in our environment such as unsafe water to drink, Air pollution, Road Traffic deadly congestion, undue urbanization and Industrialization, downsizing of agriculture land & green areas and increasingly noise pollution in our environment have not only set hazards to human beings but also it has put on extinction to various other rare species who happened to be the member of our rich biological diversity. Numerous policies and planning, show casing events on environment protection have proven fallow on ground, as evidently the air which we inhale has become poisonous causing lung's cancer, chronic obstructive pulmonary diseases (COPD), asthma and other life threatening diseases. Around 80% diseases in developing countries are caused by ill effect of water and environment. Encephalitis and trachoma, diarrhea, and cholera are some of the fatal diseases borne out of contaminated water. Unsafe water and poor sanitation causes death for around 1.7 million per year. Around 8 lakhs human death occurs every year due to urban air pollution. 90% of deaths are caused due to road accidents. Taking into account the alarming situation of our environmental happening, there is an unavoidable need to promote environmental awareness for our well being. "The first step toward change is Awareness. The second step is Acceptance" - Nathaniel Branden. Education is the most powerful instrument to change. Effective and efficient implementation of Environmental Studies at appropriate levels can bring the increasing pollution and disastrous trends of environment to grinding halt. "The destiny of India is being shaped in her class rooms" - Kothari Commission. The real changes for environmental well being could be possible through concerted efforts by designing and implementing various events and activities at school levels. India is

expected to have around more than 34% youth population by 2020. The effective and long lasting changes about Environment awareness are possible through Schools' designed curriculum.

2. ENVIRONMENTAL AWARENESS

According to dictionary of Merriam Webster Environment can be defined as "The complex of physical, chemical and biotic factors (such as climate, soil and living things) that act upon an organism or an ecological community and ultimately determine its form and survival." Awareness is a sensory-neuro perception or cognition of information. According to glossary of international environmental education programme "The growth and development of awareness, understanding and consciousness toward the biophysical environment and its problems, including human interactions & effects. Thinking "ecologically" or in terms of an ecological consciousness." Environment Awareness encompasses the knowledge of biotic and abiotic components of environment. It can be understood as perceived and acquired information which is scientifically supported towards environmental well-being and protecting the natural surroundings. The following factors are viewed important for Environmental Awareness.

1. The natural composition of our environment.
2. Protection and conservation of natural existence.
3. Extent of exploitation of natural resources.
4. Pollutions, its causes and possible solution to control it.
5. Attitude and skill towards environment.
6. Planning, management, involvement and action for well-being of environment.
7. Health hazards in neglect of issues of our environment.
8. Climate changes and its long term and short term effect.

3. LITERATURE REVIEW

3.1 Environment Awareness and Grades / Subjects

Environmental Awareness of university students and affecting factors were studied. 384 Students of first & fourth grades of Inonu University were administered "Environmental Attitude Scale" for collecting the data. Those students who were from Economic and Administrative sciences and Engineering were found higher than from Dentistry on Environmental Attitudes. Educational status of parents, residential area where they lived for the longer duration and hobbies were found influencing factors on environmental awareness on average (Tekin and Gunes, 2018) [28]. The Environmental Education in Taiwan started from the social sector under non-formal education. After the curriculum reform in 2001, Environmental Education got key place in National curriculum. Under various activities and plans up to junior high school levels and in numerous disciplines environmental education is considered for teaching (Trai et. al., 2017) [30]. In measuring the effect of Environmental Education for sustainable development at elementary schools: a case study in Da Nang City, Vietnan was taken on a sample of 247 students. The students were having basic knowledge on the environment but limited knowledge about solid waste Management. After the conduct of Environmental Education Workshop, a good number of students became interested in the solid waste management activities. Student's knowledge about solid waste management also enhanced considerably (Hoang and Kato, 2016) [14]. Environmental Awareness among UG students in relation to their stream of study and Area of residence was studied. The sample of 224 UG students of science, Arts and commerce stream were taken from Ambala district. Environmental Awareness Ability Measure (EAAM) developed by Jha was used as a tool for collecting the data. SD and t-test were taken for the Analysis. The result supported that science stream students were having better and significantly different knowledge about the environmental awareness than arts and commerce students (Singh, 2016) [25]. Environmental Awareness among senior secondary students was explored. A total of 160 SSLC students constituted the sample of the study. Environmental Awareness Ability Measure, a testing tool developed by Jha was utilized for data collection. It was found that science students were having significantly better knowledge about environment than Arts and Commerce students. It was also established that high scorers were ahead on their EA than low scorers in academics (Jain, 2015) [16]. Environmental Awareness of UG students of professional and non-professional courses was investigated. Sample was comprised of 300 students from Aligarh Muslim University. Environment Awareness ability measure (EAAM) by Jha was used to collect the data. The data were collected in five areas (i) cause of pollution (ii) conservation of soil forest, air etc (iii) Energy conservation (iv) conservation of Human Health and (v) conservation of mild life and animal husbandry. Science students found more aware about environmental issues than others. However, commerce and Art students did not differ in their environmental awareness. At the same time, it was also found that professional students were well in their environmental awareness than non-professional students (Nikhat & Shafeeq, 2014) [21]. In the study of environmental and social education, a need for

worthwhile relationship was viewed between social studies and environmental education in Nigeria. Environmental Education should be prepared for primary as well as secondary levels, where as the education of social studies is to compliment the knowledge about environment (Edinyang et. al. 2013) [9].

3.2 Environmental Awareness and Places of Living

Environmental Awareness on urban and rural students of Chhattisgarh district was studied. A total of 120 Senior Secondary students (60 boys and 60 girls) were taken for the study. It was found that there was no significant difference in their Environmental Awareness (Gupta, 2017) [12]. It was studied that how locations shape environmental awareness. A questionnaire was developed with 46 statements. A five level Likert scale was used. Result showed effect of places of living on environmental awareness. Those who belong to large cities were more interested for environment protection than small cities whereas those who were from the small cities having less attention towards environmental awareness than larger towns or cities (Wieslaw Piekarski et al, 2016) [33]. An investigation was taken about environmental awareness of secondary students in Gudgeon district. A total of 100 students of rural and urban areas were taken for the study, t-test was used to analyze the data. A tool was developed by the investigators to collect the data. It was found that there was significant difference in the environmental awareness amongst rural and urban students (Sindhu and Singh, 2014) [24]. Under the study of rural-urban difference in environmental knowledge and actions, survey was carried out telephonically. The sample consisted of Kentucky River basin residents, No significant difference was found in environmental characteristics in urban and rural individuals (Thomas and Eric, 2010) [29].

3.3 Environmental Awareness and Gender

Knowledge, attitudes and behavior towards the environmental issues were investigated. A case of Northern Cyprus, the data were gathered using environmental knowledge test, Attitude scale and behavior scales. No significant effect of gender on environmental knowledge, attitude and behavior was found (Varoglu, et. al., 2017), [32]. Under the comparative study of environmental awareness among bachelor students of the University of Warsaw, Poland, it was found that fields of study i.e. economic, geography and environmental protection were having significant effect on the environmental awareness than gender (Anna, et. al., 2016) [3]. A study was taken on a sample of 605 PG students from science and social science disciplines between age group of 22 to 24 to analyze the effect of gender on environmental. Environmental awareness test developed by Jha (1998) was administered, using t-test it was found that gender has no significant effect on environmental awareness of the PG students. Out of 4 comparisons, only one was having significant effect of gender (Shivkumar, et. al., 2015) [23]. Environmental awareness of school students in relation to sex and standard was studied. To collect the data environmental awareness scale developed by Haseen Taj was used. A total of 300 students each 100 from class VIII, X & XII were taken from private and Govt schools of district Pathankot Punjab. F-test was employed. A significant difference on environmental awareness was seen between male and female students. Male students found better on the awareness of environment than female (Mahajan & Darbari, 2014) [17]. Evaluation was taken about environmental awareness among students of middle and secondary levels in an industrial city of Yanbu, Saudi Arabia, taking the sample of 279 students of three schools. It was revealed that Girls were having more knowledge than Boys; also TV and internet were main source of information about the environmental issues (Hossam, 2013) [15]. On environmental awareness and attitudes in Ibadan, Nigeria, the study was taken about environmental awareness & attitudes for the wider range of socio demography, it was found that males were having more knowledge about environmental matters than females (Charles & Kate, 2012) [7]. Environmental awareness among higher secondary students and some educational factors affecting it was analyzed. Paryavarán Jagrukta Prashnawali developed by investigator was used. Using simple random sampling, data were collected from 280 male and 328 female students. F-test and t were used for the analysis. Results: (i) Science stream students were having better environmental awareness than arts (ii) CBSE students had more knowledge on environmental awareness than UP Board. (iii) Students of Parents of higher qualifications found having better knowledge than less qualified parents (iv) Male students had more environmental awareness than female (Austalin, 2011) [4]. (Chandra & Mete, 2010) [6], under the comparative study on environmental awareness in relation to gender and residential background, on a sample of 1000 secondary school students of west Bengal it was found that Boys & Girls do not differ significant on environmental awareness. t-test and ANOVA were used to analyze the data. A self-made tool was used for collecting the data.

3. 4 Environmental Awareness and Other Aspects

In a study, effects of exposure to environmental groups on students awareness about environment, it was experimented that those students who were having low environmental awareness and less willing to involve with local environmental groups became more aware and willing to act effectively with local groups after exposure to an environmental fair. However, those who were having high awareness about environment pre fair did not show any significant change after the said exposure (post-fair) (Ann, 2017) [2]. Students of Taiwan University who are viewed important to social structure and environmental issues were selected for the study of marine development. Survey method was used with 225 valid samples in a questionnaire survey. The students over all found high on their attitude towards the marine environment and moderate to marine knowledge. But it was found that they were less involved in environmental protection endeavors (Chung and Chen, 2015) [8]. Environmental awareness among secondary school students in Malaysia was investigated. The sample was comprised of 600 students which includes boys and girls. t- test, ANOVA and correlation statistical techniques were used to analyze the data. It was found that the students were having low awareness about their environment. Significant difference was found in the environmental awareness belonging to different age groups (Ali, 2015) [1]. To find the effect of environmental education practices on students of elementary level, the study was designed. The criteria method of sampling was used to select the participants, data were collected following open ended questions pre and post implementation of the education. Descriptive methods were taken to analyze the data content. It was found that students have realized more problems of the environment and proposed solutions after implementation of the education. The students also became more involved in the environmental activities (Yeter, 2015) [35]. In measuring the environmental awareness in 19 states of India, a significant variation was found in state of the environment and environmental awareness across the states. Best perceived states of environment were found in far Eastern and Northern states including Kerala where as high environmental awareness were seen in Eastern states, West Bengal and Maharashtra. People of UP, Chhattisgarh and Jharkhand found low on Environmental Awareness (Harju-Autti, 2013) [13]. Under a study of the importance of radio, television, internet, newspapers, magazines etc in spreading awareness about environment, it was recommended to reserve some time for promoting the awareness of environment through such agencies / instruments as these sources were found significant in promotion of awareness (Gulfem & Yusuf, 2010) [11].

4. ENVIRONMENTAL AWARENESS A FIRST STEP TOWARDS ACTION FOR ENVIRONMENTAL ENRICHMENT

Merely knowing the facts and figures would not be helpful in desired protection of nature and sustenance of natural environment. It requires transforming the knowledge into action for ecological conservation and natural well being. The success of environmental protection depends on the collective efforts and sharing the responsibility of the society (Bhartiya, 2017) [5]. Practically, there is a wider gap seen between knowledge of the environmental science and behavior of consumers in the environment, as the sensitivity of people in general towards natural resources and dealing with causative factors of pollutions found often poor. Until the awareness is not transformed into action, it would be a futile effort to enhance awareness. At the same time, without awareness of environmental issues and its compositions, it would be a dream to think for the desired change in the behavior. Therefore, the awareness and action are interwoven for the desired result. Conclusively, Environmental Awareness is a first step towards action. Any society transforms through its formal agencies effectively and in less duration than other methods. Environmental Awareness, change in attitudes and involvement for action are quite effective through formal education in schools / Institutions. There are enormous scopes of developing right attitudes, awareness and involvement for healthy environment among students through designed curricular and co-curricular activities in schools.

5. FOR EFFECTIVE ENVIRONMENTAL AWARENESS AND EDUCATION IN SCHOOLS: FIVE POINT ACTION PLANS

Numerous activities and planning are already in practice in schools towards environmental education, enriching ecosystem and awareness for protection of natural assets and greeneries. Despite many formal and informal activities, youths of new generation are unable to perform environmental and eco friendly behavior significantly. Following five points action plan are envisaged for the remarkable effectiveness to improve environmental wealth.

5.1. Environmental Audit and Accreditation of Schools

The environment of a school is a source of learning and motivation for the students. In order to assure quality of the physical and biological environment of the schools, a system and method of

environmental accreditation needs to be evolved from primary to senior secondary levels. As the similar concept of Environmental Certification has already been accepted and implemented for companies and industrial organizations worldwide as per Eco-Management and Audit Scheme (EMAS). It would work as a catalyst to implement the policies and tenets of healthy ecology in the surroundings of schools, as the students imitate the activities and imbibe the values of their environment more than teachings at their formative stage permanently. To carve healthy environment, there is need to go for green sustainability in school campus to upkeep neat and clean environment. Sustainable development is explained as meeting our present needs without compromising the ability of future generations to meet their needs. Sustainable development has got its main area of environmental dimension to view and analyze. (UNESCO (2005) [31], a decade of sustainable development was declared from 2005 to 2014, for understanding and implementing sustainable development in teaching and learning. Accreditation and certification may be a transitional hall mark progress, whereas to sustain with and upkeep the achieved standard a regular audit will be rational to device and follow-up.

5.2. Formal Implementation of Practical's on Environmental Education

Though the environmental education has already taken shape in all most all schools across the globe but the theoretical contents are unable to develop sufficient impact in day to day practices in our environmental behavior. It is seen that children are aware about environmental facts and challenging issues but they are in need to go for working hand experiences. It seems that there is an imperative need to design a curriculum for the practical oriented learning about our environmental efficacies and to deal with evils or undue exploitation of natural resources. The knowledge acquired in science and social studies to be transferred for desired environmental behaviors. In a study, it was found that the integration of environmental education with science subject improved student's knowledge of the environment effectively (Sukarjita et. al., 2015) [27]. In the study of Environmental Education (EE) processes, High school students of a public school were divided into three different groups as per their level of participation i.e. high, average and low. It was found that the practical activities with or without availability of natural environment was highly effective for EE. It was concluded that students with higher level of practical work were more interested and inclined for the action (Maria et. al., 2017) [20]. Therefore, the practical exposure of students to assimilate the environmental knowledge beyond their class rooms could be more effective to realize the desired objectives efficiently.

5.3. Environmental Fair (EF): A Source of Deep Stimulation of Young Minds

We hear and read about 'The Great India Education Fair (TGIEF)', 'Admission Fair', 'Career Fair' etc in our routine but can we think and add an 'Environmental Fair' another innovative concept to augment our Education, Knowledge and Practical Experiences. It is a device to easy access of field expertise, techniques, methods, tools and principals of Environmental domain at a single platform. The concept of Environmental Fair wherein various exhibitions on environmental friendly products and goods are show cased, activities on environmental biodiversities and its protection are displayed, Films and 3D presentations on rising pollutions, climate change and international efforts against Global Warming's are presented in befitting languages for the visitors. To enhance and impart environmental education through 'Environmental Fair' has already been experimented and found effective. In an investigation, it was found that high school students after exposure to an Environmental Fair became significantly more active and aware about environmental issues than before the fair (Ann,2017) [2]. 'EF' could be an inspiring event and practical experience than long hours of dormant theoretical classes on the subject. It can trace an ever lasting impression in the mind of prospective learners. It is considered as an effective platform to collaborate and create networking among the participants. The fair as being perceived for the school learners is more than merely selling or buying the products or source of recreations, but a sophisticated conglomeration of contemporary and innovative products, ideas, inventions, fact & figures and source of promoting the values and attitudes towards making our globe a better place to live. The students at secondary and senior secondary levels are highly vibrant in their dealing and approach. Organizing such unique event would elevate their cooperation and synergy to epitome. The provision of environmental Fair in schools would bring forth environmental issues, expected behavioral changes and create deep awareness for ecological harmony. It would not only galvanize the young minds towards active participation for change but also make them abreast on latest developments in a very practical form. In addition to that, it is a deep source of motivation, team spirit and cooperation building event.

5.4. Environmental Attitude & Skill Gradation (EASG) of School Teaching & Non-Teaching Staff

According to dictionary of oxford Attitude is a settled way of thinking or feeling about something. Environmental Attitudes (EA) are a psychological tendency expressed by evaluative responses to the natural environment with some degree of favour or disfavour (Milfont & Duckitt, 2010) [19]. Environmental Attitudes are the determinant of pro-environmental behavior, intentions to act and behave. Environmental Attitude encompasses environmental knowledge, environmental values and feelings of responsibilities. Environmental Attitudes are vital to act and involve for environmental health and preservation of ecological biodiversities. “Environmental Attitudes are important because they often, but not always, determine behavior that either increases or decreases environmental quality” (Gifford & Sussman, 2012) [10]. Environmental Attitude and Skill are the two important factors which collectively can predict and determine the overall success in any endeavor of environmental arena. Skill is the knowledge and ability that enables you to do something well (Collin’s Dictionary). Environmental Skills provide the ability to solve the environmental problem in any trade or Industry, to work in team for environmental sustainability and green innovations, to work for energy conservation, flexibility and adoptability during complex changes, to plan, coordinate and manage environmental projects, to enhance capability of human resource for environmental good and efficiency. A high quality and degree of environmental skills and attitude are desirable which have positive effect on Environmental efficiency and for better ecological conservation. Schools and Educational Institutions are the fountainhead to transmit the motivation and role models among the learners as apparently they emulate and search their ideals among the their pedagogues within their schools. The gradation of school staff in their Environmental Skills and Attitude especially for teachers and head of institution would be of immense importance to enhance environmental ethics and values.

5.5. Environmental Excursions or Field Trips

Field trips provide first hand and direct experiences about subject. It is found that those students who participate in educational excursion develop positive attitudes in the subject. A field trip connects class room and supplements the content in a unique way which cannot be replaced with any other means. (Yassar and Abeer, 2014) [34] The impact of Field Trips on student’s creativity thinking and practices in arts education was explored. It was concluded that field trips to natural places was very beneficial. It works as a learning aid and a source of fostering creativity in them. Environmental excursion has outstanding ability to develop curiosity, retention and provide real world experiences. Field Trips are beneficial (a) for the real world experiences in person (b) it improves quality of education and creates positive attitudes and motivation (c) provides better socialization and rapport with teacher (d) opens avenue for cooperative learning (Michie, 1998)[18]. Environmental Excursion or Field trip is highly useful for Environmental Education. School administration and educational policy makers have to realize that in the present scenario when the balance in ecology is at stake and environmental challenges are on rise, the educational curriculum to be redesigned and legitimate inclusion of Environmental field trips is need of the hour.

6. CONCLUSION

There is enormous capability to bring about changes in the environment to conserve irreplaceable natural resources and rare species, promote sustainable development and control evils of pollution explosion through Environmental Awareness. Depleting water resources, population explosion, shrinking agricultural land, urbanization, disproportionate energy consumptions and atmospheric changes are some of the Environmental crises which demand for effective environmental education and its awareness. The literature reviews undertaken on the subject have envisaged the prospect to improve Environmental Awareness among school students. The five point’s action plan in the milieu of schools might prove panacea for environment education and promote effective awareness among the learners. We have to priorities and inculcate our environmental friendly activities. The educational system needs a reform and rededication for the preservation of our biodiversity and environmental standard. It is the silent call for all the intelligentsia including most effective agent of change i.e. schools for review and analyze the causes of environmental crises and possible solutions, so that effective awareness could be percolated among budding nationals at appropriate age and stage. The efficacious and rational solutions are to be considered and to be deliberated for the prospective implementation. The five points plan as mentioned might already be in existence in some or other forms may be partially or fully, only the need is to reorganize and schedule legitimately in our school curriculum.

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Pleasure in the job puts perfection in the work.

~ Aristotle