

Environmental Education in the Schools of Coimbatore District, Tamil Nadu

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ABSTRACT

Subsequent to the directives from the Supreme Court of India, Environmental Education (EE) was incorporated in Indian school curricula as an infused subject, for more than a decade now. The EE subject was aimed to produce environmentally informed citizens who are knowledgeable concerning the local environment and its associated problems, aware of how to solve these problems, and motivated to work towards their solutions. However, anecdotal evidence suggests that environmental education in its present form is not meeting the directives of the Indian Supreme Court order because of poor integration. In this context, the study reported in this paper was designed and implemented to investigate the reasons behind the sensed anecdotal failure of environmental education in Indian secondary schools. The focus of the study was on subject-specific impacts from the perspective of secondary schools students in the Coimbatore region (Tamil, Nadu). A set of variables (learning atmosphere, teaching practice, coping with aspirations of the students and bringing in behavioral changes) were taken into consideration to assess the impacts of the subjects in the curricula on the students. A custom-made questionnaire was used for collecting data and responses were obtained from 347 individuals from nine schools. Subject-wise impact study revealed that school has given special focus to Science teaching (frequently handled), because, students' higher educational plans were highly revolved around this subject learning. The Social studies was most instrumental in instilling students' learning interests and the mother tongue (Tamil language) was influential in evoking positive behavioral changes among the students. The overall impact of EE was minimal (9%) in the classroom, securing the last position among all subjects. The study, while revealing the status of EE in high school education system as unsatisfactory, highlights the pressing need for standardizing and upgrading the learning environment for it as a separate subject.

Key words: Coimbatore, Environmental education, Gender equality, School curriculum

Introduction

Environmental Education in Global context

Increasing human population, growing consumerist life-style, energy and material intensive model of de-

velopment, and relative disregard to natural ecosystems and ecosystem services have been resulting in several serious environmental troubles. These have serious implications on sustainable development not only to India but also to all other countries (Sathaye

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et al., 2006). Almost all major environmental indicators show erosion from its original state; shrinking forests, vanishing plant and animal species, expanding deserts, losing productivity of crop lands, eroding top soil, stratospheric ozone layer remaining thin, rising greenhouse gas levels intensifying global warming, and air pollution reaching threatening levels in several pockets on every continent (Cubasch *et al.*, 2013). Fossil fuels, the basic energy source for modern economy, are depleting underscoring the increasing significance of renewable energy. Widespread industrialization, mining, lifestyle changes and increasing competition for lands, water and other resources have put the environmental security as well as food security of India at great risk (Prasad, 2013). In this context, global commitment with regional initiatives to make our environment and our development model sustainable (Goodland, 1995) is a crucial requirement. For that, a critical mass of population needs to be made conscious of their environment and their role in safeguarding it for our posterity and ourselves. Aiming that, every environmental policy, programs, projects and plans have started highlighting the importance of a common factor, Environmental Education (Saylan and Blumstein, 2011). Environmental Education (EE) in the school system helps in inculcating the value of conserving the local environment among the students and helps them grow up as effective environmentally matured citizens for the future (Campbell *et al.*, 2009).

Environmental Education in Indian context

India, gaining drive from the Stockholm (1972), incorporated environmental concern in its constitution through its 42nd Amendment in 1976. On 22nd November 1991, the Supreme Court (SC) of India mandated compulsory Environmental Education (EE) at all levels of education throughout the country. Further, on 18th December 2003, the SC specifically ordered all educational establishments to incorporate EE in all school curricula (Nagra and Singh, 2013). Since then, steps/plans to include EE in schools have been taken up almost all over the country by the National Council of Educational Research and Training - NCERT (Sonowal, 2009) in all the states of India. However, these steps did not produce the expected outcome, the main reason is said to be that environmental perceptions here were largely determined by Euro-American perceptions, biggest barrier to effective EE in India (Guha, 2000). Guha

(2000) emphasizes that if the environmental educationists begin listening to the authentic voice of the poor, the displaced and the discriminated against, one can hope to create more meaningful EE curriculum. The earlier studies also show that the lack of insight into the cause-impact relation of environmental degradation in a specific locality results in 'ecological poverty' (Agarwal, 1998; Ashish, 1979; Jackson, 2000), and ecological poverty leads the people becoming ecological refugees or eco-system refugees (Gadgil and Guha, 1995).

In India, there are challenges that adversely affect the implementation of effective EE in schools, such as i) in a large and diverse country, to find the right blend between centralized and de-centralized efforts and approaches, ii) reaching out to large number of people cost-effectively, iii) making environmental considerations relevant and meaningful to various segments of the society, iv) putting EE on the agenda of educational decision makers, v) putting sustainable development concerns high on the agenda of policy makers, and vi) finding and developing human and financial resources for EE (Sarabhai, 2002). In view of the challenges reflected above, the EE handled as part of the curriculum largely does not help much in fostering an environment friendly future citizenry.

The SC's order making EE compulsory in schools (Eswaran and Jayaraman, 2013) and undergraduate course made notable differences in the academic system. The institutions had to make appropriate changes, at least in the case of work allotments of the staff and classes, for an apparent compliance of the order. However, in most cases the steps only remained apparent and not sufficiently profound. The government in the south Indian state of Tamil Nadu also took steps to infuse EE components in the high school curricula under the guidance of Chennai (Tamil Nadu) based CPR Environmental Education Centre (CPREEC, 1999). School students being the most impressionable members of the society to intellectual and behavioral molding, any program aiming at developing a good citizenry should better start the programs in the schools. It has been found that students educated under an innovative curriculum on EE for sustainable development (EESD) possessed significantly higher level of environmental knowledge, behavior, attitudes, and skills than those exposed to the traditional teaching methods (Alexandar and Poyyamoli, 2014).

Environmental Education in Coimbatore district

Environment Education has been compulsorily implemented in all schools of Coimbatore district. From theory to hands-on exposure to rewarding them with brownie points, the latest awareness campaign in some schools is about the ongoing Climate change and Global warming. Though there is greater attention given to commemorative days such as World Environment Day, World Earth Day, Ozone Day and the like, the eco-clubs in few of the schools ensure that EE related activities take place round the year in Coimbatore schools. Today, around 7,700 schools in Tamil Nadu are part of the National Green Corps, a program sponsored by the Ministry of Environment, Forest and Climate change (Government of India). Around 100 schools in Coimbatore are part of the Green School Initiative. Nevertheless, as per several concerned people, most schools have EE only in theory, and only a few of them conduct practical sessions. The challenge is to see that the result-driven (concentrating on high pass percentage) schools also take up EE earnestly.

Generally, people, who are educated, and who have resided near natural habitats have more positive attitudes towards conservation than those with lesser education (Sarker and Røskaft, 2010). Levels of education or specific knowledge about conservation are positively correlated with favorable attitudes towards nature conservation (Infield, 1988; Newmark *et al.*, 1993). In Coimbatore, an educational hub, enjoying several environmentally positive features and facing several negative issues, one can expect a higher level of environmental awareness among the public as well as school students (Prasanyaa, 2011). The major environmental issues of Coimbatore are lack of effective solid and liquid waste management, degradation of water bodies, air pollution and exploding number of vehicles (Mohanraj *et al.*, 2000; Palanivel *et al.*, 2003; Yuvaraj *et al.*, 2010; Sarathi *et al.*, 2011). These issues calls for appropriate, innovative and well-timed social actions like putting strong emphasis on Environmental Education (Govind, 1989). So far, only two studies (Priyadarshini and Annakodi, 2013; Priya, 2014) were reported from this district on the level of environmental awareness among the school and college students. To ascertain the people's bleak perception on effectuality of EE subject implementation, and students' personal classroom experiences further

more detailed study is needed; studies that would reveal subject-wise impacts among the students based on learning atmosphere, teaching practices, future hopes and behavioral changes. Such a study, assumes that one could reasonably envisage that the subjects with higher impacts indicate higher level of attention and those with low impacts with low attention. The study would add to the existing body of knowledge with important insights regarding how best to develop EE programs that promote pro-environmental behavior and sensitize the student community about the various complex local and global environmental issues in the respective social context.

Methodology

Study area

Coimbatore is the second largest city in the state of Tamil Nadu with over 2 million (Census of India, 2011) urban people. It is a major commercial centre in India with a large and a diversified manufacturing hub (India Brand Equity Foundation, 2013). Coimbatore is popularly known as the 'Manchester of South India' because of the large number of cotton processing units and textile mills in and around. Other important industries here include dye-casting, motor parts, software services, education and healthcare (National Institute of Urban Affairs, 2006). Coimbatore is surrounded by the Western Ghats with reserve forests and the Nilgiri Biosphere Reserve (NBR), the first of its kind in the country (Devi and Baboo, 2012). More than 20% of the district is covered by forest (Micro Small Medium Enterprise, 2012). The river Noyyal, coursing through Coimbatore, which once was perennial flowing round the year has become seasonal in recent decades (Pragatheesh and Jain, 2013). The Noyyal river basin had an extensive tank / wetland / channel system largely fed by the monsoonal flow in the river and to a lesser extent by local rains; but during the last couple of decades, most of these have become dysfunctional. Yet, the Coimbatore urban wetlands harbor more than 116 species of birds -66 resident, 17 migratory and 33 local migrants (Reginald *et al.*, 2007).

Coimbatore is an educational hub having more than 175 academic institutions that include 6 Universities, 59 Engineering colleges, 2 Medical colleges, 35 Teacher education colleges, more than 70 Arts and Science colleges, and a large number of

schools (Coimbatore District Administration, 2012). Coimbatore district has an average literacy of 84.3%, higher than the national average (73%). Male literacy is 89.5% and female literacy 79.2%. Of the total population, 8.5% is under 6 years of age (Census India, 2011). Presently there are three types of schools in the district; 21 government owned schools, 29 government-aided schools (funded by the government but run by private trusts) and 107 self-financed schools (schools owned and administered by private trusts and financed by the fees collected from the students). In 2014, the number of students who appeared for the Secondary (Standard 10) and Higher Secondary (Standard 12) examinations each was more than 35,000.

Study design

The population for this study was the high school students of Coimbatore district running under the Tamil Nadu State Educational Board syllabus. Since it was not feasible to cover the entire schools in this district, a sample of nine result-driven schools was selected for the study using convenience-sampling technique. Around 500 custom-made questionnaires (in Tamil and English languages) were distributed among the students. Of that, only 347 fully filled-up questionnaires could be collected (69.4% returns). The respondents were classified based on gender (male = 180, female = 167), school location (rural = 171 and urban = 176), grade level (9th standard = 180 and 10th standard = 167) and school type (government = 120, aided = 111 and private = 116). The custom-made questionnaire, used to gather the data, consisted of 15 statements (explicitly addressing the treatment of subjects in the classroom) divided into

4 categories: i) students' interest [question numbers 1, 2, 3, 4, and 5], ii) teaching practice [question numbers 6, 7, 8, 9 and 10], iii) future hopes [question numbers 11, 12, 13 and 14] and iv) behavioral change [question number 15]. Each statement carried 1 mark with six choices of responses (Tamil, English, Mathematics, Science, Social Studies and Environmental Education) and these choices of subjects were coded with 1 to 6 (Appendix -1). Each positive response (subject code) would get one mark and based on the number of subject codes scoring were done for the further analysis. Technical assistance and necessary clarifications were given to those students who found it difficult to understand the statements. The hypotheses relating to the problem in null form were used to find the significant differences among the variables (gender, school location, grade level and school type). The responses were based on the groupings in the questionnaire, tabulated, percentage calculations were made for descriptive analysis, and Student's t-test and one-way ANOVA were used for inferential analysis.

Results

The results (Table 1) summarize how the high school students were differing in terms of subject-wise impacts. The subjects concerned were EE (infused subject) and Tamil, English, Mathematics, Science and Social Studies (separate subjects). Analysis based on gender showed no significant difference between male and female students in subject-wise impacts. However, rural and urban school students significantly differed in three subjects i.e., Tamil ($t = 2.831$, $p = 0.005$), English ($t = 6.912$, $p = 0.000$) and Science

Table 1. Significant differences in subject-wise impacts on the students across various demographic variables

S. No.	Variables	Subjects						
		Tamil	English	Mathematics	Science	EE	Social Studies	
1.	Gender	$\frac{\text{Male}}{\text{Female}}$	0.859	0.315	0.471	0.450	0.261	0.274
2.	School location	$\frac{\text{Urban}}{\text{Rural}}$	0.005*	0.000*	0.414	0.001*	0.239	0.418
3.	Grade	$\frac{9^{\text{th}}}{10^{\text{th}}}$	0.010*	0.084	0.661	0.062	0.013*	0.000*
4.	School type	$\frac{\text{Government}}{\text{Aided}} \frac{\text{Private}}$	0.000**	0.000**	0.000**	0.000**	0.725	0.001**

*Statistically significant (t-test; $p < 0.05$)

**Statistically significant (f-test; $p < 0.05$)

($t = 3.417, p = 0.001$). Likewise, when checked across the grades, it was seen that 9th and 10th standard students significantly differed in three subjects, i.e., Tamil ($t = 2.588, p = 0.010$), EE ($t = 2.509, p = 0.013$) and Social Studies ($t = 4.778, p = 0.000$). The impacts of the individual subjects were higher in 9th standard students than in their 10th standard counter parts. The mean differences based on the type of school, examined using one-way ANOVA, showed that only EE [$(F_{2,344} = 0.321, p = 0.725)$] did not differ significantly in its impacts on the students while the rest of the subjects (each subject) differed significantly [Tamil ($F_{2,344} = 8.265, p = 0.000$), English ($F_{2,344} = 9.404, p = 0.000$), Mathematics ($F_{2,344} = 8.526, p = 0.000$), Science ($F_{2,344} = 12.650, p = 0.000$) and Social Studies ($F_{2,344} = 7.011, p = 0.001$)]. Post-hoc comparison among the three types of schools using Tukey's tests revealed that in self-financed schools, impact of Tamil to be significantly low in contrast to English that scored higher impacts. Likewise, in government schools, Mathematics and Social Studies impacts were significantly low in contrast to Science that scored higher impacts. Invariably in all three types of schools, EE is the only subject that did not make any significant impacts among the students.

The subject-wise overall impact study (Table 2) shows that Science (22.0%) and Social Studies (21%)

had higher level of impacts on the students, securing 1st and 2nd ranks in the pool of subjects. The subjects, Mathematics (17%), English (16%) and Tamil (15%) had medium level impacts securing 3rd, 4th, 5th ranks respectively. The EE (9%) had the lowest level of impact and it occupied 6th rank in the list.

The category-wise impact study (Figure 1) revealed that, students' learning interest was high in Social Studies (23.94%) and poor in EE (6.16%). Similarly, teaching techniques used for teaching science were found to be highly effective (23.6%) in making the students more involved in subject learning, while the effectuality was meager in the case of EE (11.6%). Whereas Students' future hopes were highly fulfilled by Science (21.48%), in the case of EE it was considerably low (5.84%). Finally, in eliciting

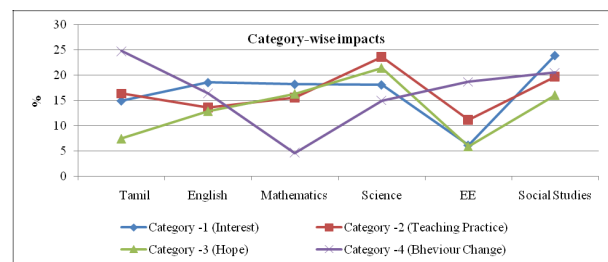


Fig. 1. Percentage distribution of category-wise impacts of each subject on the students

Table 2. Percentage scores among all categories with respect to subject-wise impacts on the students

S. No	Statements	Subjects (%)					
		Tamil	English	Mathematics	Science	EE	Social Studies
Category – 1 (Learning Interest)							
1.	Most liked	11	11.6	33.7	24.7	2	17
2.	Creates pleasant atmosphere	13.8	19.6	9.2	23	11.8	22.6
3.	Student teacher interaction	13.3	17	11.5	17.3	5.2	35.7
4.	Handled interestingly/lively	13.6	19.6	25.6	13.5	2.6	25.1
5.	Free-off home work	23.1	25.1	11.2	12.1	9.2	19.3
Category – 2 (Teaching Practice)							
6.	Group discussion	23.2	11.3	11.8	19.4	6.7	27.6
7.	Activity based learning	11.8	11.8	8.6	38	9	20.8
8.	Frequently/regularly handled	12.1	15.3	42.4	18.4	2.3	9.5
9.	Handled along with other subjects	12.8	12.8	7.9	26.6	14.8	25.1
10.	Taught by external guests	21.9	17	6.9	15.6	23	15.6
Category – 3 (Future Hopes)							
11.	Usage for day today life problems	6.9	14.7	18.7	28.8	8.9	22
12.	Improving memory	6	10.4	35.2	26.5	6.3	15.6
13.	Building self-confidence	19	17.6	12.7	14.7	8	28
14.	For future studies	5.1	21.7	15	37.4	6	14.8
Category – 4 (Positive Changes)							
15.	Behavioral Changes	24.8	16.4	4.6	15	18.7	20.5
Overall Impacts		15	16	17	22	9	21

good habits (positive behavioral change) among the students the mother tongue, Tamil (24.8%) was found highly effective, while mathematics (4.6%) was the lowest.

Discussion

This study shows that pedagogic and learning process in the schools of Coimbatore district is gender-neutral. It follows the theory "equality in education" and it is considered one of the six goals of 'Dakar Framework for Action on Education for All' movement (The United Nations Educational, Scientific and Cultural Organization, 2000). Since the gender equality is not generally addressed adequately in most education systems, the Dakar framework emphasizes its importance in education to ensure that boys and girls receive maximum and equal benefits from their education (USAID, 2008). This would be achievable through four dimensions, i.e. equality to access, equality in the learning process, equality of educational outcomes and equality of external results (Subrahmanian, 2003). The present study also proves that, there is no significant difference between the male and female students of Coimbatore schools with reference to their subject-wise impacts. It indicates that these schools were strongly abiding by these core dimensions in their teaching learning practices. Generally, in the study population, male students were showing higher impacts with respect to Tamil, English, EE and Social Studies, while girls were inclined to have higher impacts in Science and Mathematics.

In general, both rural and urban schools of Coimbatore district strictly follow the bilingual education system (Mother tongue as the first language and any Indian or Foreign language as the second language). Murali (2009) emphasizes the importance of bilingual education in schools for better outcome of teaching / learning process. The present study reveals that students strongly differ in their language learning; while rural students give a greater emphasis on learning English (second language), the urban students were inclined to learn Tamil (first language). This contrast could be mainly due to the demand for English language fluency from the rural community. In rural community, the students mostly are first generation students, they largely hail from lesser-educated parentage with Tamil medium schooling and they would not have acquired much fluency in English in their early period of learning.

On the otherhand, the urban school parents strongly consider that their children's career options widen if they get educated through English medium (Ramasamy, 2001), fluency in English would ensure them better career prospects and accordingly enroll their children in English medium schools right from the lowest class (Kindergarten or nursery schools at the age of about 3 years itself).

In general, Science teachers in urban schools tend to use a variety of teaching methods, tools, and relatively better questioning techniques, provide clear explanations and real-life demonstrations, and effectual classroom management to increase the impacts of science among the students (Kaur and Gill, 1993). However, from the present study it is evident that, science teaching in rural schools was not impressive as required; the reasons could be that most teachers in rural schools used traditional chalk-and-talk teaching method, employed limited questioning technique, had relatively unclear expectation of outcomes, and showed lower skills in effective classroom management. Perhaps for the constraints in availability of adequate teaching aids, students in rural schools experienced a less positive learning environment than did their counter parts in urban areas. While in India generally rural schools lacks in facilities, elsewhere to an extent, it is said that rural and urban schools are much the same when it comes to resources and learning environments (Statistics Canada, 2003). However, subjects like Mathematics, EE and Social Studies did not show any significant difference in their impacts between the rural and urban students, because the techniques used in both types of schools for teaching these subjects are the same.

With reference to the grades, the 9th and 10th grade students differed significantly in Tamil, EE and Social Studies learning and their impacts. This difference mainly occurred due to the relatively indifferent teaching techniques adopted by the teachers. These three subjects were some what considered as secondary subjects (less attentive), which in some way implies that these students could study these subjects on their own at any stage. The subjects like Mathematics, Science and English are considered primary subjects (highly attentive), and these are taught with special consideration in both 9th and 10th grades since these subjects are crucial to make the students excel in the public board exams, which is important for the teachers as well as school administrators and insisted by their parents (Sunitha,

2005). The main motive behind this is to score high marks in the final exams after which getting admission in the science and technical streams in the higher secondary would be easy. For admission to the 11th standard in science and technical streams, marks obtained in the mathematics and science subjects only are given weightage. Sometimes English marks get additional weightage as a surrogate for language fluency. Invariably all the school managements in Coimbatore, especially private-owned ones, desperately want to show higher results to draw more admissions to their institutions. Due to the pressure from such internal and external factors, the teachers are forced to give importance on these subjects in both 9th and 10th grades. Consequently, they adopt intensive teaching strategy to primary subjects and relaxed strategy towards the other three subjects.

Type of school also showed significant differences among the students in their subject-wise impacts. For instance, since self-financing schools do not show much interest in developing Tamil proficiency in their students unlike government and aided schools. Similar observation was made by Bashir (1994). Comparing present day situation with that of early nineties shows no change in attitude during the last two decades among the self-financed schools towards Tamil as a subject since they are more market-oriented (their sustenance is based on the admissions they could garner each year) while government / aided schools necessarily have to abide by the policy decisions of the government. The recruitment (and pay) of teachers in government and aided schools were by the government directly and in the case of self-financing schools they are solely the prerogative of the management. Chopra and Jeffrey (2005) also notes that the priority on a subject in self-financed schools is driven more by their customers, the parents. The parents of students in self-financed school have penchant for English. Thus, English gets priority among self-financing schools while it is relatively ignored in other two types of schools (Desai *et al.*, 2008; French and Kingdon, 2010). Government and aided school students have higher preference / tendency towards science subjects than those in self-financed schools. This may be the result of Tamil Nadu government's educational policy to enhance science education in the schools, hands on experiences in conducting science experiments given to Assistant Elementary Educational Officers (Science) and science teachers

with the support of *Sarva Shiksha Abhiyan* (an all India government program to improve school education), and Tamil Nadu Science and Technology Centre's activities promoting interest in the subject. This practice is going to be further intensified during the implementation of School Education Department Policy Note 2012-2013, a commendable step. However, effective imparting a special subject is possible only when the teaching atmosphere is made conducive for learning. It means ensuring freedom and flexibility in the classroom for learning (Rice *et al.*, 1998; Marrison, 1999; Kalyani and Radhakrishna, 2002). But, in the case of self-finance schools, freedom and flexibility is largely a rare privilege to the teaching staff. Many of the self-financing education institution spend their resources on buildings, infrastructure and other facilities, and much less on human resources or in developing proficiency among the teachers, since the buildings would make a first and lasting impression in their customers. Compared to the parents enrolling their children in self-financing schools, those enrolling their wards in government and aided schools were relatively poorer, less educated and can afford only to pay lower school fees. The financial where withal strongly limits parents' educational expenditures, aspirations for their children and getting pass mark in all subjects in the board exams is the primary wish for government and aided school parents; but it is just opposite with self-financed parents who expects state ranks in the board exams and nurture their wards towards that level of competition.

The present study also reflects that mathematics as a subject showed good impacts on self-financed students mainly due to the serious and continued application of custom made unit test revision practices in those schools (French and Kingdon, 2010). Moreover, in self-financed schools the level of teacher-student relationship is high, a factor relatively neglected in other two types of schools. Mathematics has secured the topmost position among the subjects preferred and liked by the students. This perhaps is the result of mathematics teachers' efforts through adequate motivation and innovative methods while teaching the mathematics concepts; moreover, the students generally and largely are found attending private tuitions for this particular subject (Assessment Survey Evaluation Research Centre, 2010). Our results show that mathematics was taught or handled frequently in the classroom with clear and interesting manner because of which stu-

dents' memory and as simulation capacity gets improved notable manner. Furthermore, generally, students perceive mathematics as toughest among compulsory subjects and that would coerce them to work harder with higher involvement making the subject easier and appealing.

Science subject, producing higher level of impacts among the students, was ranked top in the pool of subjects. The reason behind this is, usually at school level science subject provides training in observation, reasoning and fact-findings. That enhances the science students' reasoning capacity from definitely as certain facts and facilitates them in forming clear constructs. It is said that science education makes one systematic and enables them to form objective judgments on facts (Faal, 2012; Dillon, 2008; Tytler, 2007). It appears that science subject creates a pleasantly interactive ambiance, marginally over Social Studies, in the classroom favorable for learning, making science one of the best assimilating subjects for the students. Even our study prove science subject having greater impacts among the students through its active learning methodologies, the way in which it is handled by the teachers, and its potential in understanding/resolving everyday problems. The students also perceive the subject's high potential for future benefits and job opportunities (Pujar, 2006).

Similarly, Social Studies subject provides good platform for good student-teacher interactions and group discussions in the classrooms than other subjects. Some of the common topics related to civil, history and geography were being discussed lively and meaningfully in the classrooms. Exchange of ideas, views, opinions and thoughts were effective between students and teachers (Abdu-Raheem, 2011). This subject also improves the student's self-confidence and highly provokes their learning interest whenever the social studies chapters are brought into the classrooms. Surprisingly, English is the only subject, which occupies the top rank in the pool of disciplines in being free off from their daily homeworks, because students were reluctant to work on specific topics alone in their homes generally for the lack of parental guidance. English fluency is also considered as very important factor for their future job opportunities. Tamil is the only subject that brings impressive positive behavioral changes in terms of bringing good habits among the students since the reading materials under the subject are positively discerning. Ideally, mother tongue is said

to elicit better positive behavioral changes (Oyinloye, 2008).

Our results revealed that, the impacts of separate subjects were relatively better than that of infused subject among the students. Unfortunately, not all the three types of schools make any serious attempt to improve the quality of EE learning. The reasons behind this seems that the teachers largely do not consider it as a distinct subject, do not recognize its scope being an interdisciplinary one (Troy and Schwab, 1982; Childress, 1978; Pemberton, 1989; Ramsey, Hungerford and Volk, 1992) or do not realize the need for handling it as seriously as other subjects. The present study explains that only 2% of students liked EE subject and hence it ranked 6th in the list of most liked subjects, because teachers did not handle the classes on EE interestingly (2.6%) or regularly (2.3%). Major drawback for this failure is that the information relating to EE remains diffused in subjects such as geography, biology, language, civics and physical education, rather than being a precise and distinct one. Usually teachers provide fewer opportunities for activity-based learning for EE, which could be a major setback for gaining environmental knowledge. Usually, EE classes ends with poor group discussions, student-teacher interactions and least subject-liking attitudes among the students. The present survey neatly explains the poor impacts or failure of EE subject on all facets of learning ground except when the subject is mentored by guest experts (special invitees). Dyer (1996) also notes that the failure of EE as a subject is primarily for the low involvement and support of the subject teachers, school administration and parents. Conde and Sánchez (2009) also observes that the flaws in the syllabus, teaching and learning techniques and teacher's lack of interest or understanding are significantly responsible for the failure of EE in the schools. The present study reveals the urgent need for EE subject to be dealt as a separate subject instead of infused one. The present syllabus should be inclined to get the students interested to know more about the local environmental issues and their day to day implications (Yogamoorthi, 1992; Kimaryo, 2011).

Conclusion

EE has been formally introduced in the school curriculum in India since 2004 and has undoubtedly been accelerated by the verdict of the Honorable

Supreme Court of India that EE shall be a compulsory core subject at every stages of education system. Our study shows that, EE is being imparted through infusion approach, mainly through Chalk and Talk method that emphasizes on rote memorization of factual knowledge about the environment (Sulaiman *et al.*, 2008). Coimbatore schools do not effectively contribute towards the aims and purpose of EE subject in children (Halder, 2012), because the gap between what is required and the present praxis in the schools is wide for various reasons. In general, the schools must try to bridge the gaps by intellectual and material inputs, recognizing that EE is a skill-focused education and not just a knowledge-focused one (Peter and Cheruto, 2013). The school teachers, students, parents and the school managements must realize that EE subject is also an excellent tool to improve student's performance in other disciplines and to strengthen critical thinking and problem-solving skills (Bartose, 2003) and they should not simply discount this subject. However, the results proved that as of now the existing people's perception on EE subject in high schools are correct, i.e., least attention and biased approach. Furthermore, the present study highlights the special needs to improve the EE impacts by changing their present learning atmosphere, teaching techniques, widening chances of their future hopes and providing exclusive time-slot and space in the school timetable for teaching EE. The present study recommends that the government should rethink to change the status of EE subject from an infused one into separate discipline and keep on timely updating the syllabus because, EE as a subject can never be static; it must change with the changing times that inevitably change our environment (Bharucha, 2005).

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