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Stress and Job Satisfaction among Primary School Teachers after Implementation of Trimester System and Continuous and Comprehensive Evaluation Scheme

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The present study aims at investigating the stress and job satisfaction among primary school teachers after implementation of Trimester system and Continuous and Comprehensive Evaluation scheme. The sample consists of 100 primary school teachers of Kanyakumari District. A self-prepared and standardized Stress Questionnaire and Job Satisfaction Scale were used for data collection. The data was analysed by using mean, standard deviation, 't' test and F- test. The results of this study revealed that there is significant difference between the stress of primary school teachers after implementation of trimester system and continuous and comprehensive evaluation scheme with reference to Gender, Locality of the school, Locality of the house, Marital status, Type of family and Type of class handled. Also, there is significant difference among the stress of primary school teachers after implementation of trimester system and continuous and comprehensive evaluation scheme with reference to Type of school and Age.

Keywords: Stress, Job Satisfaction, Primary and School Teachers.

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Introduction

There is significant difference between the job satisfaction of primary school teachers after implementation of trimester system and continuous and comprehensive evaluation scheme with reference to Gender, Locality of the school, Locality of the house and marital status. There is significant difference among the job satisfaction of primary school teachers after implementation of trimester system and continuous and comprehensive evaluation scheme with reference to Type of school and Age.

Education aims at making children capable of becoming responsible, productive and useful members of the society. Knowledge, skills and attitudes are built through learning experiences and opportunities created for learners in school. It is in the classroom that learners can analyse and evaluate their experiences, learn to doubt, to question, to investigate and to think independently. An understanding of learners, educational aims, the nature of knowledge and the nature of the school as a social organization can help us arrive at principles to guide classroom practices.

The School Education department says that "As per the existing system, students are forced to carry books which have portions meant for the whole year. Children are literally burdened with books. The enrichment of knowledge along with syllabus revision has resulted in increased volume and size of the books and the physical strain the children undergo".

In a Government Order the department said a solution for the problem was to introduce trimester pattern. In a bid to bring relief to school children from carrying an overload of books, the Tamil Nadu government introduced trimester system in schools for classes' I-VIII from the academic year, 2012-13.

Continuous and Comprehensive Evaluation (CCE) refers to a system of school-based evaluation of a student that covers all aspects of student development. It is a developmental process of a student which emphasizes on two-fold objectives. These objectives are continuity in evaluation and assessment of broad-based learning and behavioral outcomes on the other.

The term 'continuous' is meant to emphasize that evaluation of identified aspects of students 'growth and development' is continuous process rather that an event, built into the total teaching – learning process and spread over the entire span of the academic session. It means regularity of assessment, frequency of unit testing, diagnosis of learning gaps, use of

corrective measures, retesting and feedback of evidence to teachers and students for their self -evaluation.

The second term 'comprehensive' means that the scheme attempts to cover both the scholastic and the co-scholastic aspects of the students' growth and development. Since abilities, attitudes and aptitudes can manifest themselves in forms other than the written word, the term refers to application of variety of tools and techniques (testing and non – testing) and aims at assessing a learner's development in areas of learning like:

- Knowledge
- Understanding
- Application
- Analysis
- Evaluation
- Creation etc.

Stress is a feeling of tension, which is both physical and emotional and is caused by physiological, psychological and environmental demands. Stress up to moderate level is inevitable and leads to motivation but prolonged stress will result in both physiological and psychological ailments.

Job satisfaction is defined as the degree to which employees have a positive affective orientation towards the employment. It is also the favorable or unfavorable subjective feeling with which employees view their work. It results when there is congruence between job requirement demands and expectations of employees. Teaching is a human service; in order to teach effectively the teachers must possess around mental health, enthusiasm and satisfaction in the job.

Need and Significance of the Study

In the Indian Educational System to reduce the burden of the learners many new practices are followed. Among them the Trimester scheme and Continuous and Comprehensive Evaluation (CCE) are important practices followed at present. According to the Trimester system, the academic year would be divided into three terms between June and April and existing books suitably divided into three parts. The rationale for introducing the trimester system is to create a school where teaching and learning is valued with an emphasis on learning outcomes demonstrated in students' performance. A well-designed curriculum through thinner books along with creative instructional practices will form the key to success. A trimester pattern would

allow for more interactive and collaborative experiences and included provisions for immediate feedback and helping those students who lagged catch up with others, it said.

Large time and the smallness of the term books motivate students to work together in a sportive and friendly manner avoiding cut-throat sense of unhealthy competition among peers and balancing the core classes over three terms allows for less stress on students. The teachers, for their part, need not rush to cover lessons. The trimester system coupled with comprehensive and continuous evaluation method will certainly mark a qualitative leap as far as the education of children is concerned. Also these would reduce the "physical strain" on students and rote memorization among the learners. In CCE method of evaluation the role of teachers is very important.

Stress is a feeling of tension, which is both physical and emotional. It is caused by physiological, psychological and environmental demands. The main source of stress is the occupation of a person undoubtedly; teaching has become a stressful profession in the present times. The sources of stress for the school teachers are heavy workload, delayed salaries, duties other than teaching, lack of co-operation from head and colleagues, political interference, students behaviour, negative community attitude etc.,

Due to the implementation of the Trimester scheme and continuous and comprehensive evaluation, their workload has increased as CCE involves formative and summative evaluation, grading system, frequently freedom to students etc. Hence the teachers are stressed and it is an established fact that the performance of a teacher mainly depends upon his/her psychological state of mind. Stress can definitely affect their efficiency and performance. The effect of growing stress and teachers' life and requires carefully monitoring and it directly affects their job satisfaction. Thus investigator wants to study the stress and job satisfaction among primary school teachers after implementation of trimester system and continuous and comprehensive evaluation scheme.

Background of the Study

Satwindepal Kaur (2003) conducted a study on "Occupational stress in relation to Teacher Effectiveness among Secondary School Teachers". The sample comprised of 1000 government secondary school teachers from four districts of Punjab. Teacher Effective Scale by Kumar and Muthu was used for data collection. This investigation revealed that the less effective teachers are under a higher level of occupational stress than the highly effective teachers,

while the female secondary school teachers are significantly under more occupational stress than their male counter parts.

Suvitha et al. (2012) investigated "Stress among Secondary School Teachers" The sample of this study included 156 secondary school teachers of Acharapakkam and Madurantakam educational blocks of Kancheepuram district, Tamil Nadu. Stress Scale constructed and standardized by Dr. Tejinder Kaur was used measure the level of stress .The major findings of the study showed that there is a significant difference in the level of stress with respect to age, educational qualification and experience of the teachers.

Tirath Singh et al. (2012) conducted a study on "Attitude of School teachers towards Continuous and Comprehensive Evaluation: Role of Gender" .The sample consisted of 243 teachers teaching in schools affiliated to CBSE in Punjab. An Attitude Scale developed by the investigators was used to measure the Attitude of teachers towards CCE. Results showed that male teachers had favorable attitude towards CCE.

Vandana Mehra and Harpreet Kaur (2011) conducted a study on "Job Satisfaction among Government and Private Secondary School Teachers of various Academic streams". The sample of this study was 600 secondary school teachers selected randomly from Chandigarh. The tool used for this study was Job Satisfaction Scale by Singh and Sharma (1999).The findings of this study showed that government school teachers exhibited better job satisfaction than private school teachers.

Statement of the Problem

The present study is entitled as 'Stress and Job Satisfaction among primary School teachers after implementation of Trimester system and Continuous and Comprehensive Evaluation".

Objectives of the Study

- To find out whether there is any significant difference between the stress of primary school teachers after implementation of trimester system and continuous and comprehensive evaluation scheme with reference to Gender, Locality of the school, Locality of the house, Marital status, Type of family and Type of class handled.

- To find out whether there is any significant difference among the stress of primary school teachers after implementation of trimester system and continuous and comprehensive evaluation scheme with reference to Type of school and Age.

- To find out whether there is any significant difference between the job satisfaction of primary school teachers after implementation of trimester system and continuous and comprehensive evaluation scheme with reference to Gender, Locality of the school, Locality of the house, Marital status, Type of family and Type of class handled.

- To find out whether there is any significant difference among the stress of primary school teachers after implementation of trimester system and continuous and comprehensive evaluation scheme with reference to Type of school and Age.

Hypotheses

- There is no significant difference between the stress of primary school teachers after implementation of trimester system and continuous and comprehensive evaluation scheme with reference to Gender, Locality of the school, Locality of the house, Marital status, Type of family and Type of class handled.
- There is no significant difference among the stress of primary school teachers after implementation of trimester system and continuous and comprehensive evaluation scheme with reference to Type of school and Age.

- There is no significant difference between the job satisfaction of primary school teachers after implementation of trimester system and continuous and comprehensive evaluation scheme with reference to Gender, Locality of the school, Locality of the house, Marital status, Type of family and Type of class handled.

- There is no significant difference among the job satisfaction of primary school teachers after implementation of trimester system and continuous and comprehensive evaluation scheme with reference to Type of school and Age.

Methodology

The investigator employed normative survey method to study the stress and job satisfaction among primary school teachers after implementation of trimester system and continuous and comprehensive evaluation scheme. The tools used for data collection were -A Stress Questionnaire and a Job Satisfaction Scale developed and standardized by the investigator. The sample was 100 primary school teachers from schools of Kanyakumari District.

Analysis

TABLE - 1

The above table shows that the calculated 't' values are greater than the table value of 't' (1.96). Hence there is significant difference between the stress of primary school teachers after implementation of trimester system and continuous and comprehensive evaluation scheme with reference to Gender, Locality of the school, Locality of the house, Marital status, Type of family and Type of class handled

Difference between stress of primary teachers after implementation of trimester system and continuous and comprehensive evaluation scheme

Variable	*Category*	*Number*	*Mean*	*Standard Deviation*	*t - value*	*Result*
Gender	Male	39	24.89	9.23	3.74	Significant
	Female	61	18.32	7.35		
Locality of the School	Rural	61	22.96	8.22	3.08	Significant
	Urban	39	17.64	8.55		
Locality of the house	Rural	72	22.34	8.39	2.74	Significant
	Urban	28	17.14	8.54		
Marital	Married	64	22.51	8.85	2.65	Significant
	Unmarried	36	18	7.76		
Type of	Nuclear family	61	19.08	8.04	2.60	Significant

Type of class Handling	Joint family	39	23.71	9.066		
	Single Class	64	22.06	9.38	1.96	Significant
	Combined Class	36	18.80	7.02		

(At 5 % level of significance the table value of't' is 1.96)

.

TABLE - 2

Difference among stress of primary school teachers after implementation of trimester system and continuous and comprehensive evaluation scheme

Variable	*Category*	*Number*	*Variance*	*df*	*'F' value*	*'F' critical value*	*Result*
Type of School	Governt	30	59.84	2	25.37	3.09	Significant
	Aided	40	35.01				
	Private	30	55.99	97			
Age	Below 35 yrs	41	58.53	2	9.58	3.09	Significant
	Between 35-45 yrs	38	67.28				
	Above 45 yrs	21	72.24	97			

The above table shows that the calculated F- values are greater than the critical value of 'F'. Hence there is significant difference among the stress of primary school teachers after implementation of trimester system and continuous and comprehensive evaluation scheme with reference to Type of school and Age.

TABLE – 3

Difference between job satisfaction of primary teachers after implementation of trimester system and continuous and comprehensive evaluation scheme

Variable	*Category*	*Number*	*Mean*	*Standard Deviation*	*t - value*	*Result*
Gender	Male	39	216.46	19.62	3.55	Significant
	Female	61	230.16	17.49		
Locality of the School	Rural	61	221.01	19.98	2.59	Significant
	Urban	39	230.76	17.18		
Locality of the house	Rural	72	220.98	19.59	3.68	Significant
	Urban	28	234.67	15.40		
Marital Status	Married	64	220.46	18.31	3.06	Significant
	Unmarried	36	232.55	19.22		
Type of family	Nuclear family	61	225.60	19.36	0.50	Not Significant
	Joint family	39	223.58	19.76		
Type of class Handling	Single Class	64	224.21	22.05	0.46	Not Significant
	Combined Class	36	225.88	13.872		

(At 5 % level of significance the table value of 't' is 1.96)

The above table shows that the calculated 't' values for Gender, Locality of the school, Locality of the house and marital status are greater than the table value of 't' (1.96). Hence there is significant difference between the job

satisfaction of primary school teachers after implementation of Trimester system and continuous and comprehensive evaluation scheme with reference to Gender, Locality of the school, Locality of the house and marital status.

TABLE - 4

Difference among job satisfaction of primary school teachers after implementation of trimester system and continuous and comprehensive evaluation scheme

Variable	*Category*	*Number*	*Variance*	*df*	*'F' value*	*'F' critical value*	*Result*
Type of School	Government	30	346.74	2	16.13	3.09	Significant
	Aided	30	314.79				
	Private	40	198.68	97			
Age	Below 35 yrs	41	352.59	2	2.49	3.09	Significant
	Between 35-45 yrs	38	295.43				
	Above 45 yrs	21	535.62	97			

The above table shows that the calculated F- values are greater than the critical value of F. Hence there is significant difference among the job satisfaction of primary school teachers after implementation of Trimester system and continuous and comprehensive evaluation scheme with reference to Type of school and Age.

Discussion

This study indicates that there is significant difference between the stress of male and female primary school teachers. On comparing the mean scores it can be interpreted that the male primary school teachers experience more stress. This is because male teachers have sources of work stress like pursuing further education, implementation of language proficiency requirement, getting along and working relationships with colleagues and salary.

This study indicates that there is significant difference between the stresses of primary school teachers based on their locality of the school. On comparing the mean scores, it can be interpreted that the primary school teachers whose locality of school is rural experience more stress. This is because these teachers may experience significantly more stress due poor working conditions and remoteness of the school.

This study indicates that there is significant difference between the stresses of primary school teachers based on their locality of the house. On comparing the mean scores it can be interpreted that the primary school teachers whose locality of house is rural experience more stress. It may be due to the lack of proper transport facilities.

This study indicates that there is significant difference between the stress primary school teachers based on their marital status. On comparing the mean scores it can be interpreted that the married primary school teachers experience more stress. This is because they have more family burden.

This study indicates that there is significant difference between the stresses of primary school teachers based on their type of family. On comparing the mean scores, it can be interpreted that the primary school teachers from joint families experience more stress. This may be due to more responsibilities of the school, workload and also responsibilities due to their joint family.

This study indicates that there is significant difference between the stresses of primary school teachers based on the type of class handled. On comparing the mean scores it can be interpreted that the primary school teachers who handle single class experience more stress. This is because that primary school teachers stay with one class every day for a whole year. They're not only responsible for their education activities; they're also responsible for the social and moral development of the students.

This study indicates that there is significant difference among the stress of primary school teachers based on their type of school. On comparing the mean scores, it can be interpreted that the primary school teachers from aided schools experience more stress. This is because that the aided schools may follow strict rules and regulations to maintain discipline, stress for good results of the students etc.

This study indicates that there is significant difference among the stress of primary school teachers based on their age. On comparing the mean scores it can be interpreted that the primary school teachers of the age group below 35 years' experience more stress. This may be due to their lack of experience.

This study indicates that there is significant difference between the job satisfaction of male and female primary school teachers. On comparing the mean scores, it can be interpreted that the female primary school teachers have more job satisfaction. This is because of the fact that female teacher's think it is the most suitable job for them. The female teacher feels satisfaction in teaching profession only because they think the profession suitable for them.

This study indicates that there is significant difference between the job satisfactions of primary school teachers based on their locality of the school. On comparing the mean scores, it can be interpreted that the primary school teachers whose locality of school is urban have more job satisfaction. This is because that the urban schools have good infrastructural facilities than the rural schools.

This study indicates that there is significant difference between the job satisfactions of primary school teachers based on their locality of the house. On comparing the mean scores, it can be interpreted that the primary school teachers whose locality of house is urban have more job satisfaction. This is because all the facilities available in urban areas are better developed than rural areas.

This study indicates that there is significant difference between the job satisfaction primary school teachers based on their marital status. On comparing the mean scores, it can be interpreted that the unmarried primary school teachers have more job satisfaction. This is because they have less responsibilities and problems towards their family.

This study indicates that there is significant difference among the job satisfaction of primary school teachers based on their type of school. On comparing the mean scores, it can be interpreted that the government primary school teachers have more job satisfaction. This is because that the government teachers have more job security than others.

This study indicates that there is significant difference among the job satisfaction of primary school teachers based on their age. On comparing the mean scores it can be interpreted that the primary school teachers of the age group above 45 years have more job satisfaction. This is because they have

more experience in teaching and are more matured. It might be in terms of that with increasing of age, the skills in teaching and communicating coping strategies develop and reach the saturation point resulting in more satisfaction.

Conclusion

Primary School teachers play an important role in our educational system and this role could be played with some pressures. Pressures or stress can be advantageous to some extent but, excessive job stress can lead to negative consequences. The present study indicates that the implementation of Trimester system and continuous and comprehensive evaluation scheme affects the stress and job satisfaction of primary school teachers.

Therefore the authorities should establish and regularly use recognized means of consultation with teachers organizations on educational policy and school organization, upon new developments in the education service and upon the effects of administrative requirements on the word of teachers .Teachers organizations should be entitled to participate in making policy and in developing standards relating to teaching and to enter into the profession .Better promotional venues and incentives may be provided at all levels to all the teachers without any prejudice. Teachers need proper rest room and other physical facilities, up-to-date teaching equipments and instructional materialism the schools in which they serve. Salary of the school teachers need to be increased keeping in view the rise in price index.

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Seasonal Dynamics in the Phytoplankton Density of Mullaperiyar Reservoir in the Western Ghats of Kerala

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Periyar Lake, situated inside the Periyar Tiger Reserve (PTR) and Wildlife Sanctuary, a major international tourist center in Kerala, was studied for a year (January to December 2005), in order to explore the nutrient status and associated phytoplankton growth. This oldest manmade freshwater reservoir/Lake in the Western Ghats of Kerala, is getting more attention now a day due to the dispute between Kerala State and Tamil Nadu (TN) State for the ownership of the Mullaperiyar Dam. Moreover, it is situated inside India's prime Tiger reserve in its quantity, area and quality. Total Nitrogen and inorganic Phosphorus of the waters were studied every month and the data were grouped into three different seasons and analyzed the seasonal fluctuation if any, moreover, water samples from different parts of the entire Lake were also analyzed to account any spatial variation due the increasing anthropogenic influence in and around the Lake related with tourism. From the study, it was revealed that Nitrogen and Phosphorus concentration of the Lake was at an alarming rate during premonsoon and northeast monsoon in stations-1 and 5 (2400 to 3000 µg/L), with maximum human influence and sewage entry. While the inlets zones (station-4) showed minimum N and P contents (1500 µg/L). From this study it was clear that the nutrient and phytoplankton of the Lake is dependent on the seasonal fluctuations in the environment as well influenced by the increased anthropogenic activities in and around the Lake.

Keywords: Nutrients, Phosphorus, Tropical, High Altitude and Freshwater.

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Introduction

The PTR is one of the most fascinating wildlife sanctuaries of the world, a major site of tourist attraction for the last fifty years. It is designated by the Department of Environment as a major wetland site of the Country. Mullaperiyar Lake located in the Idukki District of Kerala is the largest (26km^{2}area) and oldest (built in 1986) reservoir/Lake constructed in the state to irrigate the plains of TN. Mullaperiyar Dam was constructed near the confluence of Mullayar and Periyar (the largest river in Kerala with a length of 244km).

It lies between 09'16 and 09'40N latitude, and 76'55 and 77'26E longitude, and an altitude of 1525m above mean sea level (Govt. report, 1986).This study was designed to understand the nutrient status of the freshwater system, which was not explored and will give information about the general trend in nutrient load of the water bodies in the Western Ghats (one of the 25 biodiversity hotspots of the world) region of India, majority of them are under explored. This will help to understand the present nutrient condition of the water body on behalf of the fast-developing tourism based on the Lake/Sanctuary system.

Materials and Methods

Collection of water samples

Five stations were fixed in the Lake (Fig-1), based on the maximum and minimum anthropogenic influence to different locations. They were PLS (Periyar Lake Station)-1(boat landing for tourists), PLS-2 (Mullaperiyar Dam site), PLS-3 (confluence zone of Mullayar to the Lake), PLS-4 (confluence zone of Periyar the Lake), PLS-5 (open water tunnel to TN from the Lake, where the sewage of Kumily township enters the Lake). Sampling was done between 15th and 20th of every month from January to December 2005.Samples for nutrient analysis were collected from surface water (1to2cm) of the Lake with 2 Litre (L) acid cleaned polythene bottle and were kept in dark ice boxes at 4^{0}C till it reached the laboratory for analysis.

Estimation of N and P in water

Total nitrogen was determined by kjeldal method, and inorganic phosphorus was measured using UV visible spectrophotometer. All the analysis

was carried out following the standard methods of APHA (1995) and Trivedy and Goel (1986).

Grouping of data

In order to account all the major seasonal environmental fluctuations of the study area the monthly measurements done were grouped into averages of three seasons such as pre-monsoon (PM) (January to April), southwest monsoon (SWM) (May to August) and the north-east monsoon (NEM) (September to December).

Statistical analysis

A correlation co-efficient were calculated to find out the significant correlations between parameters. All the quantitative data were analyzed by student's t-test and significance was assumed for P-values lower than 0.05.

Results

Total Kjeldal Nitrogen (N)

Comparatively high concentrations of total nitrogen were observed during PM and NEM, and the low values were obtained during SWM in almost all stations (Fig-2). Total Nitrogen of the Lake varied between 1500µ/L to 3000µg/L. The highest value was obtained at PLS-5 (3000 µg/L) during PM and the lowest (1500µ/L) was obtained at PLS-4 during SWM and NEM.

Total Inorganic Phosphorus (P)

Comparatively high concentrations of total phosphorus were observed during PM and SWM and the low values were obtained during NEM in almost all stations. Total Phosphorus of the Lake varied between 10 to 80 µg/L (Fig-3). The highest value was obtained at PLS-1 and 5 (80 µg/L) during PM and the lowest was obtained at PLS-4 (10µg/L) during NEM. PLS-5 showed high values during all the season.

Phytoplankton Density

Phytoplankton density also showed the same trend as that of the nutrients, during PM, PLS-5 showed the highest density (490 no./L), and the lowest values were observed at PLS-4 during all the seasons. The lowest density of all the seasons and stations was 253 no./L during NEM at PLS-4 (Fig-2&3). During NEM, PLS-1 and 3 dominated (430 and 400 no/L respectively), PLS-5 in phytoplankton density. The lowest density obtained during PM was 303 no./L.

Discussion

An increase in trophic status of a Lake is associated with an increase in nutrient status. N and P are the major nutrients for all phytoplankton growth and the limited availability of these nutrients in water usually limits phytoplankton growth in natural aquatic system. On the contrary excess availability of both of them triggers eutrophication. Accumulation of N and P in natural waters is more closely related to external factors such as anthropogenic influences, fertilizers, and the rate of inflow (Hutchinson, 1938). The accumulation of N in reservoirs and natural water bodies has become a common phenomenon which alters ecological process in many parts of the world due to intensive human activity. Increased nutrients along with altered nutrient ratios cause multiple and complex changes in aquatic systems (Rabalais, 2002).

In the present investigation, the highest N content was noticed at PLS-5 during all the seasons coupled with an increased density of phytoplankton in that station. The highest value for N recorded in the Lake was 3000μgL^{-1} during PM, and that of phytoplankton density was 490 no./L. In natural waters N, 150 µg/L is a critical value and when the contents cross the limit algal blooms occur (Sawyer et al., 1945). The increased amount of N, in almost all stations during PM showed a significant positive correlation with phytoplankton density and significant P-values in t-test.

The increased concentration during this season at all stations except PLS-4 (1900 µg/L) is undoubtedly related to the concentrated state of the Lake waters due to very less precipitation and dry climate. The high rate of N indicates that the lake at certain zones (PLS-1&5) exceeds the maximum level due to the high sewage disposal and human interaction. Other zones also showed a transitional stage between oligotrophy to eutrophy. Nitrogen fixation increases during summer in Lake Waco (summer N load is more), performed by certain Cyanobacteria which have become common. Some Cyanobacteria, can use dissolved gaseous N, periodic blooms are expected when mixing or

flushing is low after pulsed inputs, especially with high temperatures (Joe Plotrowski et al., 2011).

Maximum lowest N value was recorded at PLS-4 (1500 µg/L) during SWM and NEM and plankton density 263 and 253 no./L, respectively during these seasons. A low level of N was reported by Abbasi (1997) in Kuttiyadi reservoir in southern Western Ghats. Comparatively low concentrations (1500-2100 µg/L) of N and plankton noticed during SWM may be due to the dilution of waters during heavy monsoon coupled with the overflow of dam and outflow towards TN water tunnel. Horizontal mixing of water due to high wind during this season also influenced the lowering of N concentration.

Then again, the concentration showed an increasing trend during NEM (1500-2400 µg/L) may be due to the inflow to the Lake. Due to the intensive agricultural activities around the reservoir during this season, might have increased the nutrient load of the Lake, through the inflow at PLS-5. Land runoff to the lake, comparatively lesser amount of rain than that of SWM also might have influenced the increased level of N during this season. Heavy thunder and lightning coupled with NEM also might have caused the large amount of Cyanophyceae in the bottom zone of the lake to fix the atmospheric nitrogen during the season. In deep lakes settling of suspended matter can lead to low nutrients in the epilimnion during summer. Hence internal loading depends upon the intensity of turbulence across seasonal pycnocline that transports nutrient rich hypolimnetic water to the photic zone in summer (Jellison et al., 1993 and Romero et al., 1998).

P occurs almost solely as soluble phosphates in natural waters. All forms of phosphates such as orthophosphates, condensed phosphates, and organically bound phosphates are found in waters. P is considered to be the critical limiting nutrient, causing eutrophications of fresh water systems and required by algae in small quantities. P limits the growth of the algal forms most often, but N limits the algal growth of certain species alone. This is because of the fact that certain species of algae which fix nitrogen themselves are not affected by scarcity of N in the water they grow. Hence, the P nutrient assessment of waters is crucial to the monitoring investigations of natural freshwater bodies. P additions to landscape enter water via wastewater effluents and soil erosions, and also from detergents.

Therefore, P in large quantities in water is an indication of pollution through sewage and industrial waste. P is the primary limiting nutrient in most lakes and reservoirs. Just like N, higher P in bottom water may result from decomposition of organic matter and its release from sediments under the

anoxic conditions. More P leads to more algae (Cyanobacteria), more algae lead to lower water clarity. Key transition range is between of P is between 10 and 100 µg/L. N: P ratio determines which algae are dominant. P concentration 5 to 50 µg/L is typical for an unpolluted water body (Joe Plotrowski et al., 2011).

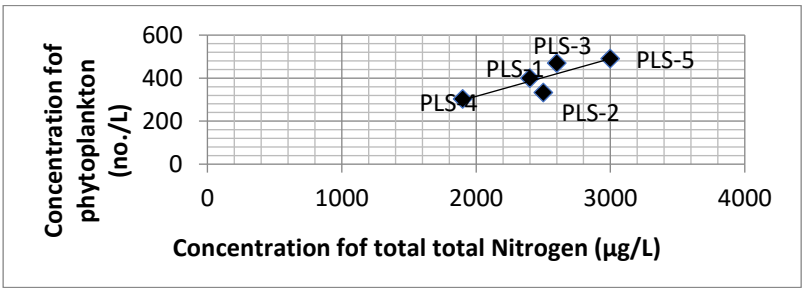
In the present study, the P value ranged between10-80 µg/L. The highest P of all stations was PLS-1&5 (80 µg/L) and season was PM, and the lowest was at PLS-4 (10 µg/L) during NEM. Comparatively higher values were observed during PM coupled with positive correlation of phytoplankton and significant P-values in t-test. Second highest P values were obtained during SWM and low amounts during NEM. The concentration of P is at an alarming rate during all seasons in the Lake. According to Welch (1980), a water body may be considered to be eutrophic if the total P value exceeds 30 µg/L. Romero et al., considered Lake Pamvotis with a P content of 110 µg/L as one of the intermediate nutrient status.

The N and P content of Periyar lake is increasing at an alarming rate at PLS-1 and 5 with maximum anthropogenic influence and at other stations a gradual increasing trend was observed during PM when water become concentrated. The sewage channel at PLS-5 had a significant role in the increased level at that station and its influence was noticed in other stations because of the horizontal mixing during monsoon season. PLS-4 at the core zone of the lake with minimum anthropogenic influence showed comparatively lesser nutrient levels, and plankton density, because this station is almost 35Kilometers away from PLS-1&5, and altitude of that station is also higher than that of PLS-1&5, so chance for horizontal mixing is also negligible. Nutrient enrichment at locations 1 and 5 enriched the growth of unwanted plankton of eutrophic nature. These trends indicate a transition of this pristine natural high altitude tropical freshwater system from oligotrophy to eutrophy. The management of this precious water resource is very urgent and important in the increasing tourism impacts.

Fig-1:Different study stations of the Lake (pp-12)

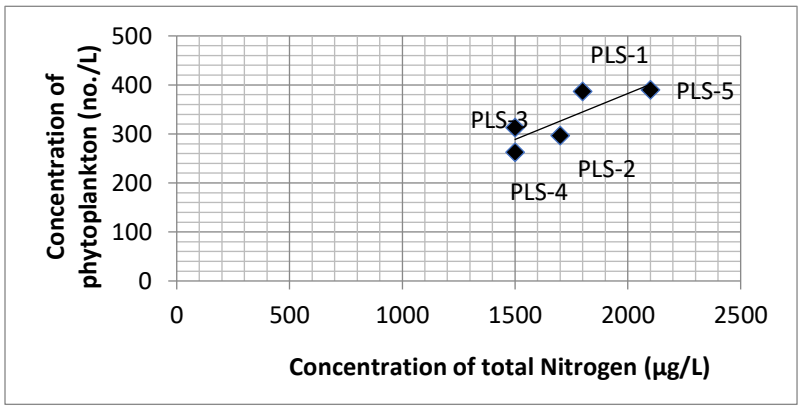
Fig-2: Total Nitrogen and concentration of Phytoplankton in different locations of the Lake during (1) PM (2) SWM and (3) NEM of 2005 (pp-10)

Fig-3: Total Inorganic Phosphorus and concentration of Phytoplankton in different locations of the Lake during (1) PM (2) SWM and (3) NEM of 2005 (pp-11)



P-value critical= 1.4826E-06

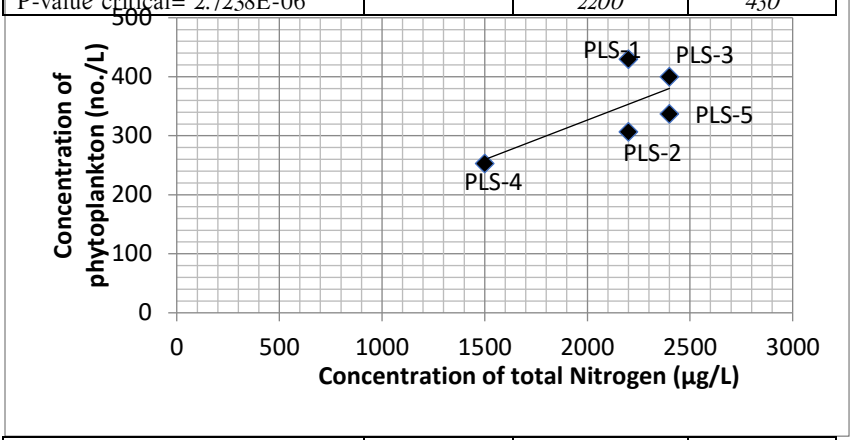
		2600	470
	2600	1	
Correlation co-efficient	470	0.886991	1



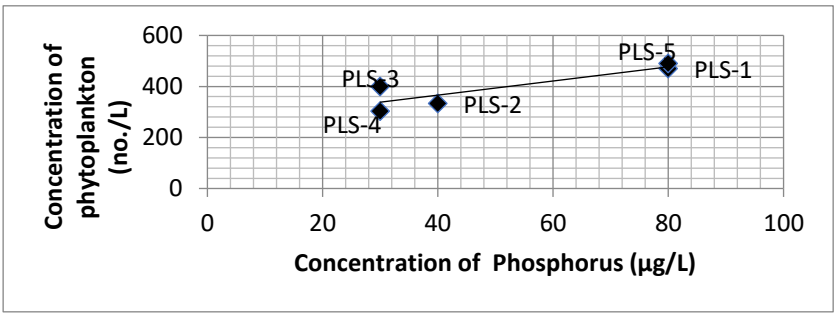
P-value critical= 9.60272E-07

		1800	*387*
	1800	1	
Correlation co-efficient =	387	0.895215	1

P-value critical= 2.7238E-06		*2200*	*430*

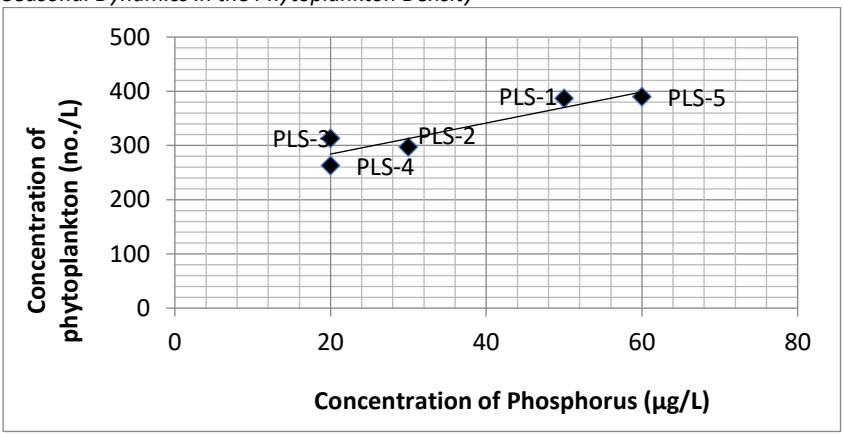


	2200	1	
Correlation co-efficient	430	0.860083	1



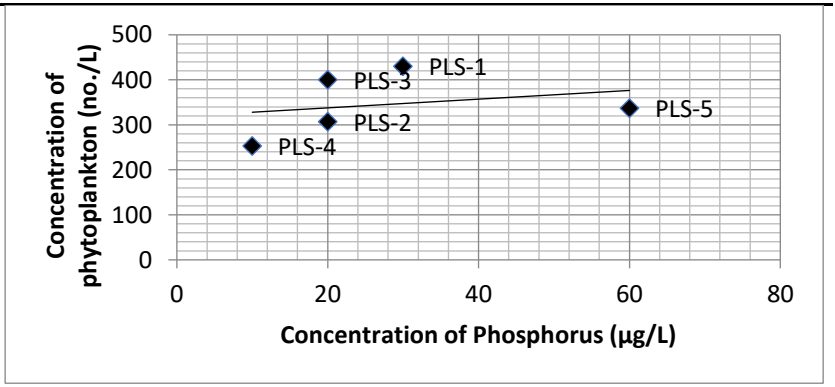
P-value critical= 9.04986E-06, correlation co-efficient

	80	*470*
80	1	
470	0.834187	1



P-value critical= 1.94008E-06, correlation co-efficient

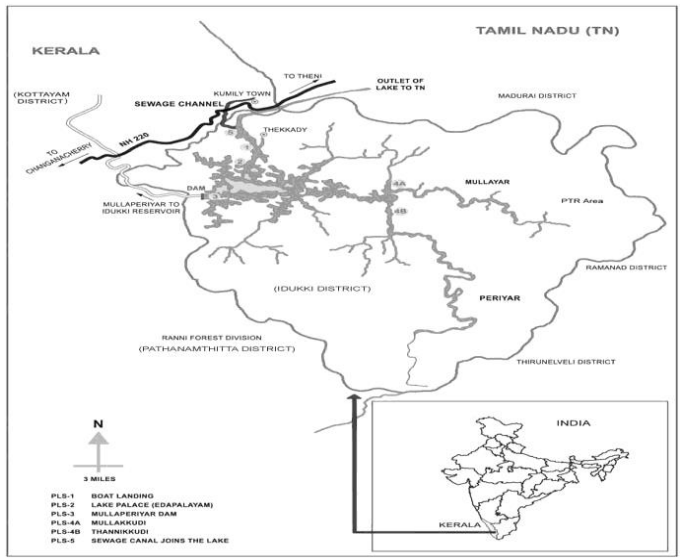
	50	*387*
50	1	
387	0.912229	1



P-value critical=5.59543E-06, correlation co-efficient

	30	*430*
30	1	
430	0.299778	1

Figure-1: Different study stations in Periyar Lake



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Bush-Meat Trade and Wild Life Depletion

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Commercial hunting is decimating wildlife populations across the tropics and may be one of the gravest threats presently facing rainforests. Studies reveal that large-scale loss of wildlife is already affecting forest health and regeneration. The rough estimates show that millions of animals are killed each year in Africa, Asia, and the Amazon for subsistence hunting and the bush-meat trade. The numbers include mammals, birds, and reptiles. The present chapter discusses the dimension of bush-meat trade and the consequent wild life depletion.

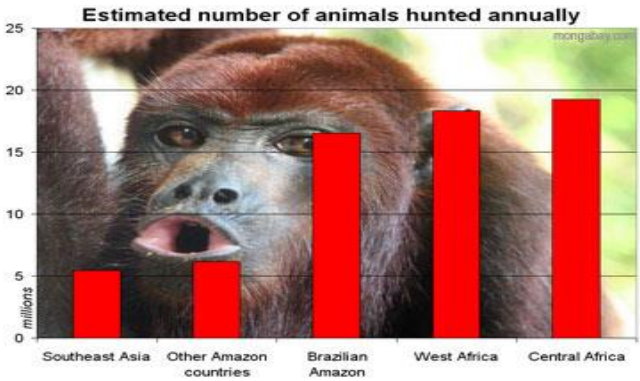
Keywords: Technology, Forests, Hunting, Situation and Markets.

Historical Context

Humans have long hunted wild animals from forests, but over the past 50 years commercialization of killing has triggered a rapid increase in wildlife depletion. Many studies found that mass extinction of large animals is a real threat in the forest wilderness and bio-diversity (Peres and Palacios. 2007). While man has hunted wildlife in Asian forests for at least 40,000 years, to date there has been only a single confirmed global extinction—the giant pangolin, a scaly ant-eating beast that once roamed the jungles of Southeast Asia (Corlett 2007). However, this may not be the case for long in Africa. There is no strong evidence for unsustainable hunting pressure until the last 2,000-3,000 years, when elephants, rhinoceroses, and several other species were progressively eliminated from large parts of their ranges in Africa. Over the last 50 years, the importance of hunting for subsistence has been increasingly outweighed by hunting for the market.

The hunted biomass is dominated by the same species as before, sold mostly for local consumption, but numerous additional species are targeted for the colossal regional trade in wild animals and their parts for food, medicines, raw materials, and pets. Historically, the situation is not better in Africa, even though, about three-fifths of large mammals are being harvested in the Congo. Basin at rates that threaten their existence. By comparison, the situation in the Amazon is better than in both Asia and Africa, studies indicate that hunting pressure in the Amazon is often underestimated and wildlife density is fast-thinning, even in remote and protected areas (Dirzo. et. al 2007). Large species are the first to go. This is the most robust, comprehensive, large-scale meta-analysis on the effects of subsistence hunting on game vertebrate populations ever conducted for a large tropical forest region. Hunting-mediated population declines in harvest-sensitive vertebrate species are far worse than expected.

The total extent of partially defaunated, but otherwise 'pristine' tropical forests, is often severely underestimated. For example, subsistence hunters have access to most areas of lowland Amazonia, affecting even the core of many relatively remote nature and indigenous reserves. "Only 1.6 percent of Brazilian Amazonia is both strictly protected on paper and inaccessible to game hunters.... Most large game birds and mammals have been severely reduced to a small fraction of their original population densities, often just 1 to 5 percent of the densities of the same species in similar protected forests (Peres and Palacios. 2007).



Factors Amplifying Wildlife Depletion

Several factors contribute to the overexploitation of forest game, including economics, improved infrastructure, the emergence of regional and international markets, and new technology. The weak economies of many tropical countries fail to provide sufficient jobs for their growing populations, while land-use change, improved infrastructure, and new technology facilitate commercial hunting (Wang, et.al. 2007). Land-use change brings hunters and their markets closer to previously remote forests. Improved infrastructure provides access to forest interiors over roads opened for timber and mineral extraction as well as access to distant urban markets.

The new technologies include guns, wire snares, battery-powered lights, and motorized transport and have largely replaced traditional hunting technologies even among indigenous peoples (Muller-Landau. 2007). Collectively, land-use change, improved infrastructure, and new technologies increase the return for time spent hunting and make it possible for hunters to deplete their prey to lower levels. These factors combine to create the pantropical 'wild meat' or 'bush-meat' crisis[1].

The other major driver of increasing hunting pressure has been the development of markets and associated trade routes for almost any mammal that can be captured. The range of species involved seems to be a unique feature of Asian wildlife markets, and the trade has strong cultural underpinnings on both the supply and demand sides. The demand for luxury food and nonfood animal products comes largely from an increasingly wealthy urban market, able to pay high prices and willing to accept substitutes when a previously preferred species is extinct (Nunez-Iturri and Howe. 2007). This sort of pressure has the potential to strip forests of almost all mammal species. Forest fragmentation has made it easier to exploit game while population growth has driven demand.

The major over this period has been the increased accessibility of the remaining forests to hunters and their markets, as a result of forest fragmentation, population growth, and improved infrastructure. By the 1990s, less "frontier forest"—large, more or less intact, natural forest ecosystems—survived in tropical Asia than elsewhere in the tropics, and many countries in the region[2] had already lost 98-100 percent. Indonesia, the country that has the largest remaining area of frontier forest, has suffered massive deforestation in the past decade and that much of the forest that has not been cleared has been logged, resulting in both a temporary increase in hunting pressure to provide meat logging camps and a permanent increase in accessibility (Wright, et.al.

2007). The trends for wildlife are not favorable. The major change over this period has been the increased accessibility of the remaining

Ecological Implications

The impact of "defaunation" on tropical forest ecology is significant, affecting seed dispersal and predation, which, in turn, alter the species balance and dynamics of the forest. All the major dispersal agents of large fruits in the Oriental region—large birds, primates, large fruit bats, civets, and terrestrial herbivores—are hunted, and many species have now been eliminated from most of their natural ranges. The only mammalian frugivorous that thrive in human-dominated landscapes are some small fruit bats. Birds cannot compensate for the loss of mammals in such landscapes, even for fruit species consumed by both groups, because only small-gaped bird species survive (Stoner, et.al. 2007). Similarly, widespread hunting of frugivorous in Amazonian forests will produce a collapse of seed-dispersal services for dependent plant species in some areas, altering plant community composition.

Hunting has pervasive effects on tropical forest plant communities altering levels of pre-dispersal seed predation, primary and secondary seed dispersal, and post-dispersal seed predation, which, in turn, alter seedling and sapling species composition. A discouraging possibility is that plant species composition might shift to a new steady state with crucial plant species absent or at such low numbers that animals fail to recover.

Global conversation implications

Researches show that smaller corporations based in developing nations are sometimes less interested and often less capable of financially investing in environmental protection. This observation leads the researchers to ask, "As conservationists, do we pressure large, multinational corporations based in industrial nations to forgo major projects in developing countries in an effort to limit environmental degradation, or do we favor such firms over smaller, national companies in the hope that they will be more sensitive to international pressures?" (Muller-Landau. 2007). While their question is especially pertinent to Central Africa, it really applies to conservation on a worldwide scale. Multinational corporations can be particularly sensitive to criticism on their environmental policy and, as a result, can actually serve as competent stewards of the environment in some cases. Thus, pressure exerted by green groups on large corporations may be an effective means for achieving conservation goals.

Nowhere is this more evident that sub-Saharan Africa where government conservation initiatives have often failed to protect land or wildlife. Despite decades of efforts to establish protected areas in some countries, Africa lost the highest percentage of rainforests during the 1980s, 1990s, and early 2000s of any regions on Earth, according to the United Nations (Beckman. et. al. 2007). Poverty, civil strife, and commercial exploitation continue to inflict a heavy toll on Africa's wildlife populations and rich ecosystems

Solving the Bush-meat Crisis

It is now widely recognized that the sustainable harvest of wildlife is incompatible with the persistence of large-bodied, slow-reproducing forest vertebrates. While there may be short-term gains for hunters in over-harvesting wildlife, these gains are not enough to permanently lift them out of poverty (Peres and Palacios. 2007). A range of actions has been suggested to reduce the impact of hunting on tropical forest vertebrate communities, but only enforcement has the potential to act fast enough to prevent the regional, and in some cases global, extinction of the most vulnerable species.

The top priority should be controlling the trade of wildlife products on the local, regional, and global scale. The launch of the ASEAN (Association of Southeast Asian Nations) Wildlife Law Enforcement Network is a step in the right direction. Operating on the premise that controlling hunting will be easier if demand is reduced, the education and awareness campaigns can help cut demand for wildlife products. The zoos should be enlisted in the effort, though the greatest gains will come from involving local people in conservation by hiring former hunters as rangers, guides, and research assistants. This will help local people see forest wildlife as a recurring source of income far more than just a meal and help build support for conservation initiatives that protect wildlife and ecosystems.

Conclusion

Even as the bush-meat crisis mounts, the researchers are hopeful. Researchers believe that one of the keys to addressing unsustainable hunting is to first acknowledge that it is a threat. The main message is that conservationists in Africa have not given sufficient attention to hunting. The focus has been first on the admittedly horrendous rate of forest loss and secondly on logging. However, much of the remaining forest, protected or not and logged or not, has lost most or all of its large mammals. We need to solve

the hunting problem in existing protected areas, rather than adding more "paper parks." This is going to require action at both ends—enforcement in the forest and control of the local and regional trade in wild animals and their parts that fuel it.

The control of hunting and trade in wildlife should be the first priority for governments, NGOs, and individual conservationists in tropics and subtropics. Reductions in deforestation and logging, and the establishment of new protected areas, are all urgently needed, but without a drastic reduction in hunting pressure, they will not be enough to save the region's large mammal fauna from extinction. Unless immediate action is taken, the megafaunal extinctions that have eliminated half the world's mammalian genera—45 kilograms over the last 50,000 years—will have been merely postponed.

Notes

In Asia market pressure on wildlife is particularly intense. China, India, Laos, Vietnam, and the Philippines. WWF's 'Heart of Borneo' project is a good example of a plan that does not seem to give adequate attention to hunting. If Malaysia cannot protect the fauna of the most botanically diverse forest in the world at Lambir, what hope is there for the interior of Borneo? While noting that most hunting in Southeast Asia is illegal but that law enforcement is currently weak; hunting impacts can be greatly reduced where there is sufficient political will.

A new study published in the *Conservation Biology*, found that roads and associated hunting pressure reduced the abundance of a number of mammal species including duikers, forest elephants, buffalo, red river hogs, lowland gorillas, and carnivores. The research suggests that even moderate hunting pressure can significantly affect the structure of mammal communities in central Africa.

The *Conservation Biology* study examined a 400-square-mile area of tropical rainforest in southwestern Gabon, of which 130 square kilometers was the Rabi oil concession operated by the Shell-Gabon Corporation since 1985. The area served as a good study site because Shell's closely guarded and carefully regulated concession effectively protects the forest from hunters and incursion by outsiders. Such is not the case in the unprotected areas outside the concession, where road density is higher and hunting and development pressures are greater. By comparing mammal abundance and behavior between

the two areas, the researchers found that roads had the greatest impact on large and small ungulates, causing important changes in mammal community structure. Further, say the researchers, hunting and roads may also alter the behavior of many species, with wildlife outside the concession area possibly showing a higher propensity to flee when confronted by humans.

The findings are significant because unlike previous studies in the region, which generally focused on only a single species, the researchers were able to "quantitatively assess the relative effects of roads and hunting (and their interaction) on different species and guilds of mammals." More broadly, the scientists say that their work has "both general and key local relevance, because the study area is a potentially critical corridor between two recently designated national parks in Gabon, and its future is far from secure." The scientists explain that because oil production in the Rabi concessions has dropped by nearly 80 percent since 1997, it is expected that Shell Oil will eventually abandon its concession which could result in "a dramatic increase in hunting, logging, and slash-and-burn farming, as well as continued oil production by smaller companies" less attuned to environmental concerns than the multinational giant. Since the Shell concession has essentially served as a wildlife refuge, its abandonment could have significant consequences for resident animal populations in this exceptionally biodiverse region.

"Although the Rabi concession is being intensively managed for oil production, the prohibitions on hunting and nighttime driving, restricted access for non-employees, and guidelines designed to minimize deforestation inside the oil concession are clearly having important benefits for wildlife," write the researchers. "Among all of our study sites outside the concession, the one nearest the concession...had the highest mammal abundances, suggesting that the Rabi concession might be acting as a population source and outside areas as a population sink for wildlife... Hence, the Rabi oil concession is probably better protected from poaching and illegal encroachment than are most national parks in Gabon."

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Handling Students Unrest and Behavioral Problem

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Every student comes from a different background and there are different reasons that underline problematic behavior and although many bad behaviors can be the result of a student's family life or peers, often bad behavior is the result of a student struggling in school. Student unrest has been a grave phenomenon and syndrome to educational system in India and world as such. Time and again student organizations give call for agitations to protest their dissent which is either just or unjust, causing violence and civic disturbance. Social anomaly of Indian society and politicization of student folk has further made the educational institutions more vibrant and dynamic organizations.

Keywords: Behavioral Problem, Students, Goals, Society and Families.

Students Unrest

Of the many types of studies made on students, relates to student unrest. Students' indiscipline described as 'disobedience to authority, disrespect to teachers and elders, deviation from norms, refusing to accept control, and rejecting socially sanctioned goals and means. Three situations create indiscipline among students. They are:

- Students lose interest in the goals of education and educational institution and refuse to follow its norms.

- Students accept the goals but doubt whether the institution can achieve them. They, therefore, try to improve the institution by deviating from its norms.

- Norms of institution fail to achieve goals and students, therefore, want a change in norms.

Student's Unrest Leads to Protests

Student's protests sometimes lead to aggression, agitation and movement. Aggression is a physical or a verbal behaviour or a hostile act intended to harm, hurt or destroy. Agitation is to bring grievance and injustice to the notice of people in power. It is to shake up, to move, to stir up, to cause anxiety, and to disturb the power-holders. The important elements of protests are:

- Action expresses grievance
- It points out conviction of injustice
- Protesters are unable to correct the condition directly by their own effort
- Action is meant to provoke ameliorative steps by the target group
- Protesters bank upon the combination of coercion, persuasion and discussion to move the target group.

The pre-conditions for student's agitations

The important functions of student agitations are to create collective consciousness and group solidarity, to organize students to work for new programmes and new plans, and to provide opportunities to students to express their feelings and make some impact on the course of change such as

structural strain, identifying the source of strain, precipitating factor in initiative action, and mobilization of force for action by a leader.

Five types of students have been identified in this context

- Socially isolated, who feel alienated and cut off from the larger society.
- Personally maladjusted, who have failed to find a satisfying life role, e.g., they do not have an adequate interest in studies.
- Unattached to family, who lack intimate ties with their families.
- Marginal's, who are not fully integrated with their caste/religious/linguistic group.
- Mobile or migrants, who have little chance of getting integrated into the larger community.

The causes of students' unrest and agitations, as pointed out by the UGC committee in 1960

- Economic causes, like demands for reducing fees, increasing scholarship.
- Demands for changes in existing norms pertaining to admissions, examinations and teaching.
- Poor functioning of colleges/universities.
- Conflicting relations between students and teachers, e.g., behaviour of teachers with girl students or student leaders, cutting classes and so on.
- Inadequate facilities in the campus, e.g., inadequate hostels, poor food in hostels, lack of canteen facility, etc.
- Student leaders being instigated by politicians.

Main Causes of Students Unrest

- Defective Education System
- Aimless life and uncertain future
- Economic difficulties
- Excessive number of students in the class
- Defective teaching methods
- Indifference of the family members
- Unsuitable teachers
- Student union in various ways

Lack of co-curricular and creative activities such as defective examination system, elements of indiscipline and anarchy prevailing in the society, defective examination system, behaviour problems.

Address Problematic Student Behaviour

Reports of problematic behaviors are on the rise nationally, not only in the classroom but in society at large. Some of these immature, irritating, or thoughtless behaviors include:

- Lateness or leaving early
- Inappropriate cell phone and laptop usage in class
- Side conversations
- Disregard for deadlines
- Grade grubbing
- Sniping remarks
- Cheating

These behaviors are not just instructors' pet peeves, they have real costs including:

- Distracting other students and instructor in class
- Reducing student participation
- Lowering other students' and instructor's motivation in or out of class
- Affecting fairness in grading
- Using instructor or TA time unproductively
- Feeling disrespected as a fellow learner or authority figure

Sometimes students simply refuse to do their work, pulling teachers into a power struggle. If this happens:

- Give students a choice with consequences attached.
- Provide take-up time.
- Reestablish the relationship.
- Distinguish between primary and secondary behavior.
- Avoid unnecessary power struggles.
- Plan a follow-up.
- Time your invitation effectively.
- Keep your presentation positive.
- Offer to mirror the problem behavior.
- Start with tactical ignoring.
- Combine simple directions and reminders with hand signals.
- Give students alternatives.
- Health problems, personal or family problems, adjustment or developmental issues

Possible Strategies

Based on these findings and a comprehensive literature review, Sorcinelli (2002) suggests 4 principles to reduce incivilities. The principles are

broad enough that each one can be used to generate several concrete strategies such as define expectations at the outset, decrease anonymity, seek feedback from students, encourage active learning.

Four things you can do to minimize disruptive behavior in the Classroom

- Remediate learning difficulties.
- Keep the class schedule very consistent.
- Create a calming environment that isn't over stimulating.
- Compliment them on every success.

Influences on Student Behavior

There are many potential influences on student behaviour, and many factors that can lead to behaviour that is challenging for schools to deal with. These include:

- Biophysical factors, such as medical conditions or disabilities
- psychological factors, including emotional trauma or lack of social skills
- Behavioural or social factors, including where a student's problem behaviour has been learned through reinforcement, consequences or adaptation to social practices. For example, a student with a learning difficulty repeatedly misbehaves knowing that he/she will be removed from the class and this will avoid his/her learning difficulty being exposed.
- Historical community factors, including for students whose family member/s had difficult, sometimes traumatic, experiences of school and government agencies
- Cultural factors.
- Student group dynamics, such as bullying and teasing, cliques or student apathy or hostility.

- Environmental factors, for example the level of classroom noise or classroom seating arrangements
- Classroom organization issues, such as inconsistent routines, inadequate materials or obliviousness to cultural differences
- Teacher behaviour, for example boring or disorganized lessons, over-reaction to mis behaviour or over-reliance on punishment.

In many cases, there is no single cause of challenging behavior, but it is the result of several factors operating in combination.

Handle the Common Classroom Problem Behaviours Using a Behaviour Management

Teachers who can draw on a range of responses when dealing with common classroom misbehaviors are more likely to keep those students in the classroom, resulting in fewer disruptions to instruction, enhanced teacher authority, and better learning outcomes for struggling students. A good organizing tool for teachers is to create a classroom menu that outlines a range of response options for behavior management and discipline. Teachers are able to assert positive classroom control when they apply such a behavior management menu consistently and flexibly--choosing disciplinary responses that match each student's presenting concerns.

This document groups potential teacher responses to classroom behavior incidents into 8 'menu' categories.

- Behavior reminder
- Academic adjustment
- Environmental adjustment
- Warning
- Time-out
- Response cost
- Behavior conference

- Defusing strategies

Teachers can use these categories as a framework for organizing their own effective strategies for managing student problem behaviors

Strategies for Teaching Students with Behavioural Problems

Teaching students with behavior problems creates a higher demand on the teacher. Though some teachers are specially trained to handle special needs children who need more of the teacher's time, the average classroom is likely to contain one or more students who demand more attention due to behavioral difficulties. In some cases, principals, guidance counselors and other educators must address these problems. Yet, in some cases, hormones, challenges with peers and home life struggles can make even a "good kid" troublesome for a period of time.

For this reason, all teachers need to learn how to teach students with behavior problems. No matter if the child is one student in a classroom with a concern or if the classroom is designed for children with these complex behavioral issues, the methods to teaching and avoiding complications or outbursts are sometimes the same. When teachers learn how to avoid situations that can push the button on these children, it is possible to ensure the classroom's lesson plan is fully explored and all students get equal attention

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Strategies of Professional Development of Teachers

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Professional development is a wide variety of specialized training, formal education or advanced professional learning intended to help administrators, teachers and other educators improve their professional knowledge, competence, skills and effectiveness. Teacher professional learning is of increasing interest as one way to support the increasingly complex skills students need to learn in preparation for further education and work in the 21st century. Using methodology, we found seven widely shared features of effective professional development. Seven major recommendations to improve teacher professional development.

Keywords: Coursework, Authentic Artifacts and Learning Communities.

Introduction

Professional development is a wide variety of specialized training, formal education or advanced professional learning intended to help administrators, teachers and other educators improve their professional knowledge, competence, skills and effectiveness. Professional development is learning to earn or maintain professional credentials such as academic degrees to formal coursework, attending conferences and informal learning opportunities situated in practice.

Teacher professional learning is of increasing interest as one way to support the increasingly complex skills students need to learn in preparation for further education and work in the 21st century. Sophisticated forms of teaching are needed to develop student competencies such as deep mastery of challenging content, critical thinking, complex problem-solving, effective communication and collaboration, and self-direction. Using methodology, we found seven widely shared features of effective professional development. Such professional development.

Is Content Focused

Professional Development that focuses on teaching strategies associated with specific curriculum content supports teacher learning within teachers' classroom contexts. This element includes an intentional focus on discipline-specific curriculum development and pedagogies in areas such as mathematics, science, or literacy.

Incorporates Active Learning

Active learning engages teachers directly in designing and trying out teaching strategies, providing them an opportunity to engage in the same style of learning they are designing for their students. Such Professional development uses authentic artifacts, interactive activities, and other strategies to provide deeply embedded, highly contextualized professional learning. This approach moves away from traditional learning models and environments that are lecture based and have no direct connection to teachers' classrooms and students.

Supports Collaboration

High-quality Professional development creates space for teachers to share ideas and collaborate in their learning, often in job-embedded contexts. By working collaboratively, teachers can create communities that positively change the culture and instruction of their entire grade level, department, school and/or district.

Uses Models of Effective Practice

Curricular models and modeling of instruction provide teachers with a clear vision of what best practices look like. Teachers may view models that

include lesson plans, unit plans, sample student work, observations of peer teachers, and video or written cases of teaching.

Provides Coaching and Expert Support

Coaching and expert support involve the sharing of expertise about content and evidence-based practices, focused directly on teachers' individual needs.

Offers Feedback and Reflection

High-quality professional learning frequently provides built-in time for teachers to think about, receive input on, and make changes to their practice by facilitating reflection and soliciting feedback. Feedback and reflection both help teachers to thoughtfully move toward the expert visions of practice.

Is of Sustained Duration

Effective professional development provides teachers with adequate time to learn, practice, implement, and reflect upon new strategies that facilitate changes in their practice. Effective professional learning incorporates most or all of these elements.

We also examine professional learning communities (PLCs) as an example of a professional development model that incorporates several of these effective elements and supports student learning gains. This collaborative and job-embedded professional development can be a source of efficacy and confidence for teachers, and can result in widespread improvement within and beyond the school level.

Seven major recommendations to improve teacher professional development.

Recommendation

Focus on teachers in low-income and crisis-affected contexts as professionals, learners and individuals

As with any vocation, teachers need to develop strong identities as professionals. In addition to obvious factors such as recruitment,

remuneration, and opportunities for advancement, teacher professionalism is also impacted by access to quality professional development.

It's hard to feel like a professional when you don't feel competent, when you get no training or support, when you teach children with severe academic and emotional needs and when you have no idea how to address these needs. But not simply any professional development will do.

Recommendation 2

Develop, apply, measure and institutionalize standards for teacher professional development

We know from research what constitutes effective professional development. Despite this knowledge, within donor-funded humanitarian and development projects, there are no standards defining quality professional development and too few qualified providers.

Without a shared and codified understanding of "quality" professional development, teachers are often subjected to mediocre, and in some cases, malign professional development that doesn't help them and that in fact wastes their time and donor money.

Recommendation 3

Create professional development opportunities that promote teacher collaboration

The research on teacher collaboration everywhere is unequivocal. Collaborating with colleagues and the culture of trust and knowledge sharing that collaboration produces has been linked to increased teacher effectiveness, improved student test-score gains and teacher willingness to adopt new innovations.

To further promote teacher collaboration, the three actions should be followed.

- Design for collaboration, for example by promoting peer-to-peer classroom visits with time for feedback
- Strengthen peer-to-peer instruction,
- Promote and nurture effective and active teacher learning communities.

Recommendation 4
Provide Teachers with Ongoing Support

Teacher "support" is not monolithic, but rather a multilayered array of different types of assistance that help teachers successfully transfer learning from a professional development setting to a classroom setting. It can include administrative, instructional, resources, peer support, supervisory support and instructional support from a "more knowledgeable other."

To address this situation the guide proposes four actions:

- Develop systems for (real, "high touch") instructional coaching—not just monitoring or data collection that we misbrand as "coaching"
- Use appropriate and available technologies to provide ongoing support
- Shift professional development away from workshops to more support-based interventions—modelling, coaching, observations and feedback
- Strengthen school leadership so that head teachers and directors can provide ongoing support.

Recommendation 5
Invest in High-Quality Teacher Educators

Teacher educators or teacher trainers, in- or pre-service, are often the weakest link in the teacher education ecosystem. Implementing agencies eagerly inventory the shortcomings associated with many teacher training colleges and ministry of Education-run in-service providers.

Teacher educators need the same skills as teachers—among these are deep content knowledge; different models of instructional strategies and assessment practices; learning and development of children and adults; clinical and supervision skills; the ability to model effective instructional and assessment practices; the ability and disposition to coach and support teachers and hold planned or informal meetings with teachers; and the ability to support teachers through observations, feedback, modeling, workshops, coaching, and/or planned/informal meetings.

To ensure those who are employed to advance teaching are effective in their work, the guide proposes the following:

- Recruit professional development providers with extensive teaching experience
- Strengthen teacher-professional development provider capacity
- For areas with no teacher educators offer audio/radio instruction, or didactic materials, and draw on skilled community members and other teachers to provide instruction in key areas.

Recommendation 6

Build instructional leadership at all levels of the educational system

School directors are second only to teachers as the most important school-level determinant of student achievement. They are responsible for the quality of teaching and learning in their schools. Yet too often we see poor instructional school leadership holding back teaching and learning. Schools in disadvantaged areas benefit tremendously when their lead learners, the head teacher and the school director, ensure that teachers are in their classrooms every day, covering the syllabus at an appropriate pace, instructing students in developmentally appropriate and engaging ways, and attempting to apply to their classes the knowledge and skills gained through professional development activities.

For the better involvement the following must happen

- Help Ministries of Education establish and implement instructional competencies for head teachers and school directors
- Promote collaboration among head teachers and among school directors
- Ensure practical professional development opportunities for head teachers and school directors.

Recommendation 7

Use Information and Communication technology (ICT) to provide access to content, professional development and professional learning communities

Technology— radio, mobile phones, TV and the Internet—can offer teachers, even in low-resource environments, access to content, to curriculum, colleagues and a variety of learning experiences.

To support the wise application of ICT three priority actions were

Offer audio-learning to support teacher development in and with particularly difficult-to reach areas and populations

- Promote the use of video for teacher self-study and to share models of intended practice
- Provide teachers with access to teaching and learning resources through open content and help them integrate this content into their instruction.

Conclusion

Poor and ineffective professional development hurts teachers. It hurts their students. It hurts their community and, since quality education is so highly correlated with economic growth, it hurts their nation.

While the above broad recommendations do not address all the intricacies of teacher professional development in fragile contexts, we hope that the INEE guide can jumpstart serious conversations about promoting the quality of professional development where it's needed most—in the poorest and most fragile contexts of the globe.

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A Study of Self-Regulated Learning and Academic Achievement of Secondary School Students in Learning Mathematics

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The current study aimed to identify the self-regulated learning and academic achievement of secondary school students in learning mathematics. The sample of the study consisted of 250 students studying in secondary level. Self-Regulated Learning scale (SRL) was developed and standardized by the investigator was used to collect data. The marks obtained by the students in Term II Mathematics Examination were used as an indicator of academic achievement. Data were analyzed by using product moment correlation, t-test and ANOVA test. The results of the study revealed that no significant difference is revealed between the male and female in their self-regulated learning and academic achievement in learning mathematics. .Self-regulated learning and academic achievement are significantly correlated to each other. Significant difference was found between mean scores of academic achievement of boys and girls of secondary schools.

Keywords: Learning, Achievement, Students, Learning and Mathematics.

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Introduction

In recent years, the concept of SRL has become the focus of applied educational studies as an important variable in boosting academic achievement and bringing about success. About three decades back the excellence in academic performance was viewed in terms of scores alone irrespective of the basic potential. An under achiever is one whose academic performance falls below the normative range in his potential by under achievement we refer to that level of attainment, which does not measure up to the potential capabilities of the individual. There is a huge concern among the Heads of the institutions, teachers and parents that the academic achievement is deteriorating now-a-days.

Academic achievement is defined as successful completion, through effort, of the acquisition of academic content and skills. Achievement is defined as measurable behaviour in a standardized series of tests. The tests are usually constructed and standardized to measure proficiency in school subjects. The most highly valued method of determining whether a successful completion has taken place for a learner is quantitative in nature.

Need and Significance of the Study

Self-regulated learning (SLR) is recognized as an important predictor of student academic achievement and self-regulated learning emphasizes autonomy and control by the individual who monitors, directs and regulates actions toward goals, information acquisition, expanding expertise and self-improvement. Self-regulated learners are successful because they control their learning environment. They exert this control by directing and regulating their own actions towards their learning goals. The present investigation is to find out the self-regulated learning of secondary school students in mathematics and also find out whether there is any significant relationship between the self-regulated learning and academic achievement of secondary school students in learning mathematics. Hence, the investigator plans to study under this topic.

Objectives of the Study

- To study the level of Self-Regulated Learning of Secondary School Students in Learning Mathematics with respect to Gender.
- To study the level of Academic Achievement of Secondary School Students in Learning Mathematics with respect to Gender.

- To find the significant difference in Self-Regulated Learning of Secondary School Students in Learning Mathematics with respect to Gender.
- To find the significant difference in Academic Achievement of Secondary School Students in Learning Mathematics with respect to Gender.
- To find the significant relationship between Self-Regulated Learning and Academic Achievement of Secondary School Students in Learning Mathematics.

Hypotheses of the Study

- The level of Self-Regulated Learning of Secondary School Students in Learning Mathematics with respect to Gender is average.
- The level of Academic Achievement of Secondary School Students in Learning Mathematics with respect to Gender is average.
- There is no significant difference between the Self-Regulated Learning of Secondary School Students in Learning Mathematics with respect to Gender.
- There is no significant difference between the Academic Achievement of Secondary School Students in Learning Mathematics with respect to Gender.
- There is no significant relationship between Self-Regulated Learning and Academic Achievement of Secondary School Students in Learning Mathematics.

Method Used for the Present Study

Descriptive survey method was used in order to fulfill the objectives.

Population and Sample

A sample of 250 students from 11 Secondary Schools of Kanyakumari District was selected by using simple random sampling technique.

Tools Used

The following tools are used for the present study

- Self-Regulated Learning scale developed and standardized by Mrs. Ajitha Kumari was used to study the self-regulated learning of secondary school students.
- The marks obtained by the students in Term II Mathematics Examination were used as an indicator of academic achievement.

Analysis of Data

H_{01}: Level of Self-Regulated Learning of Secondary School Students in Learning Mathematics with regard to Gender

Table-1
Level of Self-Regulated Learning of Secondary School Students in Learning Mathematics with regard to Gender

Gender	Low		Average		High	
	N	%	N	%	N	%
Male	29	26.61	66	60.55	14	12.84
Female	27	19.15	109	77.30	5	3.55

Table-1 reveals that 26.61% Male and 19.15% Female Secondary School Students have low level, 60.55% Male and 77.30% Female Secondary School Students have average level and 12.84% Male and 3.55% Female Secondary School Students have high level of Self-Regulated Learning with respect to Gender. Hence, the level of Self-Regulated Learning of Secondary School Students in Learning Mathematics with regard to Gender is Average.

H_02: Level of Academic Achievement of Secondary School Students in Learning Mathematics with regard to Gender

Table-2

Level of Academic Achievement of Secondary School Students in Learning Mathematics with regard to Gender

Gender	Low		Average		High	
	N	%	N	%	N	%
Male	28	25.69	67	61.47	14	12.84
Female	17	12.06	97	68.79	27	19.15

Table-2 reveals that 25.69% Male and 12.06% Female Secondary School Students have low level, 61.47% Male and 68.79% Female Secondary School Students have average level and 12.84% Male and 19.15% Female Secondary School Students have high level of Academic Achievement with respect to Gender. Hence, the level of Academic Achievement of Secondary School Students in Learning Mathematics with regard to Gender is Average.

H_03: There is no significant difference between the Self-Regulated Learning of Secondary School Students in Learning Mathematics with respect to Gender.

Table-3

t – Value of Self-Regulated Learning of Secondary School Students in Learning Mathematics with respect to Gender

Gender	N	Mean	Std. Deviation	't' - value	Remarks at 5% level
Male	109	81.65	9.408	0.515	NS
Female	141	81.05	8.967		

(The table value of't' at 5% level of significance is 0.953)

Table-3 reveals that the calculated value of 't' is greater than the value at 5% level of significance. Hence, there is no significant difference between the self-regulated learning of secondary school students in learning mathematics with respect to Gender.

H_04: There is no significant difference between the Academic Achievement of Secondary School Students in Learning Mathematics with respect to Gender.

Table-4

t – Value of Academic Achievement of Secondary School Students in Learning Mathematics with respect to Gender

Gender	N	Mean	Std. Deviation	't' - value	Remarks at 5% level
Male	109	66.16	14.841	3.401	NS
Female	141	72.36	13.877		

(The table value of 't' at 5% level of significance is 0.368)

Table-4 reveals that the calculated value of 't' is greater than the value at 5% level of significance. Hence there is no significant difference between the Academic Achievement of Secondary School Students in Learning Mathematics with respect to Gender.

H_05: There is no significant relationship between Self-Regulated Learning and Academic Achievement of Secondary School Students in Learning Mathematics.

Table-5

Significance of Correlation between Self-Regulated Learning and Academic Achievement of Secondary School Students in Learning Mathematics

Variables	N	Calculated 'r'value	Remarks at 5% level
Self-Regulated Learning	250	0.142	S
Academic Achievement	250		

(The table value of 'F' at 5% level of significance is 0.025)

Table-5 reveals that the calculated value of 'F' is less than the value at 5% level of significance. Hence there is significant relationship between the Self-Regulated Learning and Academic Achievement of Secondary School Students in Learning Mathematics.

Findings and Interpretations

- The level of Self-Regulated Learning and Academic Achievement of Secondary School Students in Learning Mathematics with regard to Gender is Average. This may be due to the fact that most of the students in the secondary level are not highly motivated towards Self-Regulated Learning. The students are not given more importance to Self-Regulated Learning to increase the level of Academic Achievement.
- There is no significant difference between the Self-Regulated Learning and Academic Achievement of Secondary School Students in Learning Mathematics with respect to Gender. From the earlier studies we found that there is a significant difference exists between males and females. But in the present study no significant difference is revealed between the males and females in their Self-Regulated Learning and Academic Achievement in Learning Mathematics.
- There is a indifferent or negligible correlation between Self-Regulated Learning and the Academic Achievement of Secondary School Students in Learning Mathematics. This may be due to the fact that student perceptions of academic tasks are filtered through a system of self-structures composed of self-beliefs, self-goals and self-evaluations. When a student is aware of self as agent, a sense of self-efficacy, internalized goals for learning and an experience of competency are produced. This leads to the Academic Achievement of the student.

Educational Implications

The findings reported in this study justify the importance of self-regulated learning to academic performance. The findings have implications for the teachers of mathematics that they should try as much as they could motivate their students during the course of instruction.

Conclusion

The significant difference between high achiever students in comparison with the low and average academic achievement emphasizes the importance of self-regulated learning strategies in the process of learning. The child who is trained to think himself not only finds himself as a better acquirer of

knowledge but also as a better user and producer of new knowledge. Therefore the teacher should be very careful in selecting and giving the teaching learning process. His success as a teacher depends upon the suitability of learning process, which he selects to give to the students.

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Alternative Energy Source for Self-Reliant in Ethiopia

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*Ethiopian s*elf-reliance in energy sources will result in the de-escalation of transport charges of food commodities and mitigate the difficulty arises out of escalation of import charges of petroleum due to devaluation of the Ethiopian Birr. Not achieving self-reliance in energy sources directly affects the common man's living. Similarly, many more examples which directly affect industries, public administration, states and the nation as a whole would be enumerated within moments. The task of achieving self-reliance in energy sources could be initiated by identifying waste land for non-edible oil grain cultivation like Jatropha Curcas resulting in non-edible vegetable oil production. A scheme would be planned and executed to identify and allot waste land to the farmers according to their edible item production in a hypothetical ratio called over all self-reliance ratio defined as the ratio of self-reliant food production to projected self-reliant energy source production in ton for a district or state or nation. Arithmetic behind this over all self-reliance ratio ensuring concurrent production of food and energy sources would ultimately lead a particular area towards achieving and utilizing full benefit of self-reliance as far as common man concerned. The energy source identified in this paper to achieve self-reliance in energy sources is one of the bio-fuel commonly known as Biodiesel because it is used in transport vehicle engines as well as electricity producing generator set engines.

Keywords: Energy, Bio-Diesel, Transesterification and Hydrogenation.

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Introduction

Most of the places in Ethiopia do not have proper transportation facility. Achieving over all self-reliance that is self-reliance in energy sources along with food commodities will definitely bring food and transportation to all places of Ethiopia. Biodiesel is identified as one of the alternate energy source substitute for fossil diesel. Biodiesel can be used as fuel in diesel engines in blends as well as full substitute. Similarly, Biodiesel can be used in diesel power plants and diesel generators instead of fossil diesel.

First generation Biodiesel called as Bio-Transe sterified Diesel (BTD) is produced by Transesterification process whereas second generation Biodiesel called as Bio-Hydro fined Diesel (BHD) is produced by Hydrogenation process from non-edible vegetable oils. The transesterification process needs catalysts potassium hydroxide or sodium hydroxide as well as ethanol or methanol in small quantities. BTD and BHD produced in this way have properties almost equivalent to fossil diesel and substituted in full or in part as blend with fossil diesel in diesel engines used in transport vehicle and electricity generating sets as well as in fossil diesel power plants. The cold flow property and oxidation stability of Biodiesel are improved better in the hydrogenation process than that in the transesterification process of vegetable oils.

The wonderful outcome of self-reliance in energy sources by the Biodiesel is the million dollars' worth healthiness of citizens of Ethiopia as a result of pollution free atmosphere. Carbon monoxide, Hydrocarbon and Particulate Matter emissions from transport vehicles and fossil diesel power plants are reduced to 60% to 80% by Biodiesel depending upon the operating conditions. The chief advantage of this energy source is the carbon di-oxide neutrality with atmosphere in principle. The neutrality is derived from the cyclic nature of absorption and emission of carbon di-oxide by the plants and engines respectively. Usage area under the self-reliant energy source Biodiesel will have carbon di-oxide free atmosphere because carbon di-oxide is cycled between plants and environment and thereby atmosphere is free from carbon di-oxide multiplication. Therefore, regions under the cloud of this type of self-reliance in energy source by Biodiesel are directly contributing to the task of reducing global warming effects of the world also.

Action Plan Need for Self-Reliance

Action plan required for implementing the scheme of self-reliance in energy sources would be listed as techno, commercial and social activities.

Techno Activities

The technical aspects of producing this energy source in small as well as large scale were carried out by technocrats around the world. Almost all the requirements for the successful production of this energy source from non-edible vegetable oils were completed by the researchers. A suitable production methodology could be evolved for using any vegetable oil based on its local availability without much difficulty by a set of scientists and engineers appointed for this purpose.

Commercial Activities

This commercial activity depends on the local availability of non-edible vegetable oils. Appreciating market could be developed for non-edible vegetable oils in any locality ensuring selling and buying of the commodity in whole sale and in retail. Similarly, the commercial outlets for the finished product Biodiesel could also be developed alongside with raw non-edible vegetable oils. The commercial activity may include the buy-back guarantee between farmers and industrialists for the finished product Biodiesel.

Social Activities

This activity includes the prime awareness campaign by local groups among themselves. The periodic interaction at regular intervals among locals, administrators and industrialists is also coming under the social activities so as to distribute the benefit of this scheme evenly to all the contributors. This final social activity among the contributors in a smooth and healthy way could only lead the scheme towards success that is empowers farmers with energy source that is oil.

Case Study - Bio-Transesterification Diesel (BTD) and Bio-Hydrogenation Diesel (BHD)

The Kyoto protocol [1] held in Kyoto, Japan in December 1997, iterates 6% reduction of greenhouse gases with respect to 1990 within the period 2008-2012 for Japan. In addition, transportation sector is to reduce CO_2 emission up to emission level in 1995 in order to achieve the purpose written in the Kyoto protocol.

First generation Biodiesel called Bio-Transesterification Diesel (BTD) is composed of long-chain fatty acids with an alcohol attached. It is produced by transesterification process in which vegetable oil react with methyl alcohol or ethyl alcohol in the presence of potassium hydroxide (KOH) or sodium hydroxide (NaOH) catalyst. The products of the reaction are biodiesel and glycerin, approximately in the ratio 3:1. Biodiesel significantly reduce emissions of Hydrocarbon (HC), Carbon Monoxide (CO), and particulate matter (PM) when used in automotive diesel engines because of its oxygen content and higher cetane number than fossil diesel [2]. U.S. Environmental Protection Agency (EPA) also found HC, CO and PM benefits from the use of biodiesel in engines [3]. Energy diversification and CO_2 reduction requirements emphasis the use of Biodiesel in automotive engines as well as in stationary engines meant for electricity production.

Second generation Biodiesel called Bio-Hydrofined Diesel (BHD) is a straight- chain hydrocarbon derived from the alkyl chains of the vegetable oil. It is produced by Hydrogenation of vegetable oil at reaction temperature of 260°C+. Study of reactivity and the pattern of product yields conducted of palm oil hydrogenation using pilot plants delivered hydrocarbon oil equivalent to the conventional fossil diesel under mild hydrogenation condition [4]. Moreover, as a result of various evaluations for the hydrogenated palm oil (oxidation stability, low temperature flow property, life cycle assessment (LCA); it was found that the hydrogenated palm oil (Bio-Hydrofined Diesel) has performances almost equivalent to fossil diesel fuel.

Evaluation of exhaust gases of vehicles running on conventional fossil diesel mixed with 20% Bio-Hydrofined Diesel (BHD) showed lower THC, CO, and PM than with fossil diesel alone. Biodiesel (BTD) and its blend help reduce enormous emissions of total hydrocarbon, carbon monoxide and smoke. However, both BHD and BTD cause slightly increasing emission of Nitrogen Oxide. LCA evaluation between fossil diesel and palm oil produced BHD and BTD showed that, although WTT-CO_2 of BHD and BTD is higher than that of fossil diesel, WTW-CO_2 is lower due to the application of the biomass zero count rule and WTT energy efficiency was highest for fossil diesel, followed by BHD and then BTD. Hydrogenation of vegetable oil appears to be a better option than Transesterification in producing diesel substitute because of BHD's high oxidation stability, low viscosity, high cetane number (101) and disappearance of double bond in structure.

Sustainable development can be made by the use of Biodiesel in the bus depots by reducing the cost of operation and also reducing the exhaust

emissions by saving environment and our earth. Total of about 54.29% of cost can be reduced by the use of Biodiesel in the bus depots of India [5].

Conclusion

Sustainable automotive and stationary engine fuels are fuels that satisfy the conditions of "3E", namely, they are "economical", "environmentally-friendly", and promote "energy security". The focus has shifted to issues of supply stability (diversification of resources) and environmental compatibility (CO_2 reduction), against higher import costs of crude oil prices due to Birr devaluation and the global warming problem. The renewable fuels, such as Biodiesel, probably would be the most viable option by utilizing domestic surpluses and non-edible vegetable oils while enhancing energy security. Many experts also see the introduction of biomass fuels as a promising solution to fossil diesel costs. Biodiesel contains no sulfur or aromatics and its use in diesel engines results in substantial reduction of Hydrocarbons, Carbon monoxide and Particulate matter. In addition to being renewable alternate fuel for diesel engines, Biodiesel have positive performance attributes such as increased cetane number, high fuel lubricant and high oxygen content, which make it a preferred blending stock also with future ultra clean fossil diesel. The byproduct glycerin from transesterification is used in cosmetics and soaps thereby providing the necessary value addition to the Biodiesel.

Abbreviation

BTD - Bio-Transesterification Diesel
BHD - Bio-Hydrofined Diesel
NaOH - Sodium Hydroxide
KOH - Potassium Hydroxide
HC - Hydrocarbon
CO - Carbon Monoxide
PM - Particulate Matter
EPA - U.S. Environmental Protection Agency
LCA -Life Cycle Assessment
WTT - Well To Tank
WTW - Well To Wheel

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A Transition Map Method to Find Overlay Text

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A transition method find overlay text brings important semantic clues in video content analysis such as video information retrieval and summarization, since the content of the scene or the editor's intention can be well represented by using inserted text. The main aim of the research is to propose a novel framework to detect the Overlay text information in video frames. This method produces better than the previous methods. Resultant accuracy is highly improved.

Keywords: Knowledge, Intelligence, Information, Image and Communication.

Introduction

Broadly, image processing may be subdivided into the following categories: enhancement, restoration, coding, and understanding. The goal in the first three categories is to improve the pictorial information either in quality (for purposes of human interpretation) or in transmission efficiency. In the last category, the objective is to obtain a symbolic description of the scene, leading to autonomous machine reasoning and perception with the development of video editing technology, there are growing uses of overlay text inserted into video contents to provide viewers with better visual

understanding. Most broadcasting videos tend to increase the use of overlay text to convey more direct summary of semantics and deliver better viewing experience. For example, headlines summarize the reports in news videos and subtitles in the documentary drama help viewers understand the content. Sports videos also contain text describing the scores and team or player names. In general, text displayed in the videos can be classified into scene text and overlay text. Scene text occurs naturally in the background as a part of the scene, such as the advertising boards, banners, and so on. In contrast to that, overlay text is superimposed on the video scene and used to help viewers understanding. As a preliminary preparation, data will be collected as part of this research. The main aim of the research is to propose a novel framework to find the Overlay text information in video frames.

Implementation

Lot of methods are already implemented for overlay text detection. Color based methods are not working properly because of un-uniform color distribution. Most of existing video text detection methods has been proposed on the basis of color, edge, and texture-based feature. The method proposed by Agnihotri [13], concentrates on the red color component, instead of all the 3 color components. Some methods used the high contrast video frames to extract the texts. Kim et al. [14] uses RGB color space and clustering concept. But no methods are fully efficient for clustering. So text detection is not so better in this case. The edge-based methods are not made success because of complex background. Modified edge map is introduced by Lyu et al. [15]. This is providing some improvement in overlay text detection.

Methodology

Transition Map Generation

As a rule of thumb, if the background of overlay text is dark, then the overlay text tends to be bright. On the contrary, the overlay text tends to be dark if the background of overlay text is bright. Therefore, there exists transient colors between overlay text and its adjacent background due to color bleeding, the intensities at the boundary of overlay text are observed to have the logarithmical change. The intensities of three consecutive pixels are decreasing logarithmically at the boundary of bright overlay text due to color bleeding by the lossy video compression. It is also observed that the intensities

of three consecutive pixels increases exponentially at the boundary of dark overlay text. To find the intensity change in the transition region three steps are adopted. They are as follows:

- Saturation calculation
- Modified Saturation calculation
- Transition map generation

If a pixel satisfies the logarithmical change constraint, three consecutive pixels centered by the current pixel are detected as the transition pixels and the transition map is generated.

Video Frames

The difference of the previous frame's Transition map and current frame's transition map, decides whether to process the current frame or neglect the current frame. A threshold is used here for decision making.

Candidate Map Region Detection

The transition map can be utilized as a useful indicator for the overlay text region. To generate the connected components, first generate a linked map [5]. If a gap of consecutive pixels between two nonzero points in the same row is shorter than 7% of the image width, they are filled with 1s. Next the Hole filling algorithm is used to fill the small gaps and to maintain the connectivity. Then each connected component is reshaped to have smooth boundaries. Since it is reasonable to assume that the overlay text regions are generally in rectangular shapes, a rectangular bounding box is generated by linking four points, which correspond to (min_x, min_y), (max_x, min_y),(min_x, max_y), (max_x, max_y)taken from the link map and candidate regions.

Overlay Text Region Determination

In this subsection, we introduce a texture-based approach for overlay text region determination. Based on the observation that intensity variation around the transition pixel is big due to complex structure of the overlay text, we employ the local binary pattern (LBP) introduced in [6] to describe the texture around the transition pixel. LBP is a very efficient and simple tool to represent the consistency of texture using only the intensity pattern. LBP

forms the binary pattern using current pixel and it's all square neighbor pixels and can be converted into a decimal numbers as follows:

$$LBP_P = \sum_{i=0}^{P-1} s(g_i - g_c) 2^i$$

Where

$$s(x) = \begin{cases} 1, x \geq 0 \\ 0, x < 0 \end{cases}$$

P denote the user's chosen number of square neighbor pixels of a specific pixel.

g_i ->neighbor pixels intensity.

g_c ->intensity of current pixel.

Overlay Text Marking

The rectangle bounding box is projected around the extracted overlay text region. Using the four corner points of candidate region we can mark the Text data.

Results and Discussions

Most of existing video text detection methods has been proposed on the basis of color, edge, and texture-based feature. Color-based approaches assume that the video text is composed of a uniform color. However, it is rarely true that the overlay text consists of a uniform color due to degradation resulting from compression coding and low contrast between text and background. Edge-based approaches are also considered useful for overlay text detection since text regions contain rich edge information. The commonly adopted method is to apply an edge detector to the video frame and then identify regions with high edge density and strength. This method performs well if there is no complex background and it becomes less reliable as the scene contains more edges in the background. Texture-based approaches, such as the salient point detection and the wavelet transform, have also been used to detect the text regions. However, since it is almost impossible to detect text in a real video by using only one characteristic of text, some methods take advantage of combined features to detect video text.

Sample Output

Fig 1: Original Frame (Sample Frame)

Fig 2: Transition map generation

Conclusion

The various processes on overlay text detection from complex videos are proposed in this paper. The main concept of the work is based on the observation that there exist transient colors between inserted text and its adjacent background. We compute the density of transition pixels and the consistency of texture around the transition pixels to distinguish the overlay text regions from other candidate regions. The local binary pattern is used for the intensity variation around the transition pixel in the proposed method. The boundaries of the detected overlay text regions are localized accurately using the projection of overlay text pixels in the transition map. This research is well adopted in video data processing.

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