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Phytochemical analysis of the leaf extract of *Thespesia populnea* (Linn)

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Succesful plant remedies and their preparations as medical treatments have been used for thousands of years in indigenous cultures around the world. The current study dealt to provide detailed information about Thespesia populnea (Linn). It is one of the herbal medicinal plant known for its therapeutic values in urinary and inflammatory disorders, the plant can also act as anthelmintic. The present study involves the physico-chemical characters and phytochemical analysis of the leaf extract of Thespesia populnea using various solvents like chloroform, ethanol and water. The leaf extract contains alkaloids, tannin, terpenoid. Thus, present study provides evidence that the solvent extract of Thespesia populnea contain medicinally important bioactive compounds.

Keywords: Thespesia populnea, Malvaceae, Physico-chemical characters, Phytochemical analysis.

Introduction

Plants have proved to be significant natural resources for medicines; documentation of their use in medicine originates from ancient times.

Phytochemical analysis of the Leaf

Ethanobotanical and ubiquitous plants provide a rich resource for natural drug research and development [1]. Medicinal plant-based drugs have the added advantage of being simple, effective and offering a broad spectrum of activity with greater emphasis on preventive action [2]. Medicinal plant products could also prove useful in minimizing the adverse effects of various chemotherapeutic agents as well as in prolonging longevity and attaining positive general health [3]. The global interest in the medicinal potential of plants during the last few decades is therefore quite logical. Medicinal plants represent a rich source from which antimicrobial agents are obtained. They are the source of many potent and powerful drugs [4]. The antimicrobial activities of plant extracts may reside in a variety of different components, including aldehydes and phenolic [5]. The beneficial medicinal effects of plant materials typically result from the combinations of secondary products present in the plant. In plants, these compounds are mostly secondary metabolites such as alkaloids, steroids, tannins, phenolics, flavanoids and fatty acids, which are capable of producing definite physiological action [6].

Thespesia populnea commonly called as 'Hibiscus populnea' belongs to the family *Malvaceae. Thespesia populnea* is an evergreen tree. All the parts of the plant used in traditional system of medicine. The bark, leaves, flowers and fruits are useful in cutaneous infection such as scabies, psoriasis, eczema, ringworm and guinea worm. The decoction of the bark is commonly used for the treatment of skin and liver diseases. The frits of the plant are used in ayurveda for the control of diabetes . The bark and flowers possess astringent, hepatoprotective, antioxidant and anti-inflammatory activities in rats and improve the memory [7,8,9,10]. The seeds are black, hairy. The main chemical constituents are Kaempferol, Quercetin and its glycosides, herbacetin and its glucoside, populneol ,populnin , rutin , gossipetin , gossypol, lupeol, sesquiterpenoidal quinines viz; thespeson , thespone , mansonones C,D,E and F , amino acids and carbohydrates. [11] Bark was used for the treatment of haemorrhoids and chronic dysentery.[12] Leaf used as an anti-inflammatory [13]. The leaves and bark of this tree are still used to mix with oil for the treatment of fracture wounds and as an anti-inflammatory poultice applied to ulcers and boils as described in folk medicine. Gossypol was found to the major component of *Thespesia populnea* .[14] producing anti-fertility effects in rats as well as human beings [15,16].Four naturally occurring quinines viz thespone , thespesone , mansanone-D , mansanone-H have been extracted from the heart

wood of the plant [17].The leaf extract indicates the presence of lupeol, lupenone , and also acacetin, quercetin ,vanillin, syringic ,melilotic and ferulic acid.

Materials and Methods

Collection of the Plant

The fresh leaves of *Thespesia populnea* were collected from Mullanganavilai, Kanyakumari District, Tamil Nadu and washed several times with distilled water to remobe the dust particles and shadow dried (without sunlight) to remove the residual moisture and grinded to form powder.

Physico-chemical characters of *Thespesia populnea*

Moisture Content

A known quantity of fresh leaves of *Thespesia populnea* was weighed separately and allowed to dry under shade until a constant weight was obtained.From the initial and final weight the moisture content was calculated.The moisture content is calculated using the following formula,

$$\text{Moisture content (\%)} = \frac{\text{Initial weight} - \text{Final weight} \times 100}{\text{Initial weight}}$$

Total Ash

2g of powdered sample was taken in a previously weighed silica crucible and ignited carefully not exceeding dull red heat until the ash was free from carbon. The crucible was cooled and weighed. The percentage of ash with reference to the air-dried sample was calculated.

Phytochemical analysis of the Leaf

Acid insoluble ash

A known weight of the ash is boiled with 25 ml of dilute hydrochloric acid. The insoluble matter is collected in a previously weighed sintered crucible and washed with hot dried to constant weight and weighed. The percentage of acid insoluble ash with reference to the air-dried sample was calculated.

Water soluble ash

A known weight of the ash boiled with 25 ml of distilled water. The insoluble matter was collected in a previously weighed sintered crucible washed with hot water dried to a constant weight and weighed. The percentage of water-soluble ash with reference to the air-dried sample was calculated.

Preparation of Leaf Extract

The leaf powder was subsequently kept in contact with chloroform, ethanol, distilled water separately in a stoppered container for 24 hours with constant agitation. The extract is filtered, condensed and stored for further use of phytochemical studies.

Phytochemical screening of leaf extract of *Thespesia populnea*

Phytochemical screening to detect the presence of bioactive agents was performed by standard procedures. After the addition of specific reagents to the test solution, the test was detected by visual observation of colour change or precipitate formation.

Test for steroids

Salkowski test

To 1ml of test solution 5ml of chloroform was added and then few drops of conc H_2SO_4 was added to the above mixture and mix well. Allow the

mixture to stand for some time, brown color in the lower layer indicates the presence of steroids.

Mayer's test

To 1 ml of test solution add few drops of dil HCl mix and stir well, after that filter the solution, then add 2 drops of mayer'sreagent (Potassium Mercuric Iodide solution) to the filtered solution. Cream precipitate indicates the presence of alkaloids.

Test for Flavanoids

Alkaline Reagent Test

Extract were treated with few drops of sodium hydroxide solution. Formation of intense yellow color which become colorless on addition of dilute acid indicates the presence of flavanoids.

Test for Tannins

Few drops of neutral $FeCl_3$ solution and 5 ml of distilled water were added to the test solution. Bluish green color indicates the presence of tannins.

Test for sugar

To 1 ml of test solution add few drops of Molish reagent violet color indicates the presence of sugar.

Foam Test

1ml of test solution was shaken with 2 ml of water. If foam produced persists for 10 minutes it indicates the presence of saponins.

Phytochemical analysis of the Leaf

Ferric Chloride Test

Extract was treated with 5 ml of distilled water and 3-4 drops of ferric chloride solution. Formation of dark green color indicates the presence of phenolic compounds.

Test for Xanthoproteins

Extract is treated with conc. HNO_3 and excess of NH_3. Formation of reddish orange precipitate indicates the presence of Xanthoproteins.

Test for triterpenoids

Extract is treated with a piece of tin and three drops of thionyl chloride. Formation of violet or purple color indicates the presence of triterpenoids.

Results and discussion

Physico-chemical characters of *Thespesia populnea*

Table: 1

S . No	Particulars of treatment	Percentage composition
1.	Moisture content	71.3%
2.	Total Ash	22%
3.	Acid insoluble ash	9.25%
4.	Water soluble ash	17%

Phytochemical analysis of Thespesia Populnea

Preliminary phytochemical screening of the chloroform, ethanol and water extract of Thespesia populnea showed some significant result. Steroids are present in ethanol and chloroform extract. Flavanoids,tannin and phenolic compound is present both in aqueous and ethanol extract. Sugar is present only in chloroform extract. Xanthoprotein and triterpenoids is present in

ethanol and chloroform extract. Saponin is present in both ethanol and chloroform extract.

Table:2

Phytochemical analysis of the *leaf* extract of *Thespesia Populnea*

S.No	Phytochemical test	Detection of compounds	Aqueous Extract	Ethanol Extract	Chloroform Extract
A	Salkwoski test	Steroids	-	+	+
B	Mayer's Test	Alkaloid	-	-	+
C	Test for flavanoids	Flavanoids	+	+	-
D	Test for Tannins	Tannins	+	+	-
E	Test for sugar	Sugar	-	-	+
F	Foam Test	Saponins	-	+	+
G	FeCl3	Phenol	+	+	-
H	Test for Xanthoprotein	Xanthoprotein	-	+	+
I	Test for Triterpenoids	Triterpenoids	-	+	+

Conclusion

In conclusion from the results of the present investigation, it could be inferred that *Thespesia populnea*leaf is found to have significant medicinal activities. Phytochemical screening study substantiate that *Thespesia populnea*leaf contain pharmacologically active principles. The phytochemical analysis of the extract revealed the existence of various constituents incudingsteroid, alkaloid, tannin, flavanoid, phenol and saponin etc. The active constituent needs to be isolate and should be considered for further *in vivo* and *in vitro* studies to confirm the tradition.

Reference

Kong JM, Goh NK, Chia TF. *Recent Advances in traditional plant drugs and orchids. Acta Pharmacol Sin* 2003; 24: 7-21. L

Chin Y, Balunas MJ, Chai HB, *Kinghorn AD. Drug discovery from natural sources. AAPS J* 2006; 8: E239-53.

Kaushik P, Dhiman AK. *Medicinal Plants and Raw Drugs of India. Bishen Singh, Mahendra Pal Singh. Dehradun: New Cannaught Place*; 2000. XII+623 (with colour plates).

Srivastava J., L., and Vietmeyer, *N., Medicinal plants;bAn expanding role in development Technical* . 1996 Paper. No ,320

Lai, P.K., and Roy, J., *Chemoprevents properties of herbs and spices. Curr. Med. Chem*., 11:1451-1460

Erdogrul, D.T., *Antibacterial activities of some plant extract used in folk medicine. Pharm.* Biol. 2002, 40: 269-273.

Satyanarayanana T, Sarita T, Balaji M, *Ramesh A,Boini MK. Anti-hyperglycemic and hypoglycemic effects of Thespesia populnea fruits in normal and all oxan-induced diabetes in rabbits. Saudi pharmaceutical journal*. 2004; 12: 107-111.3

Illavarasan R, Vasudevan M, *Anbazhagan S, Venkataraman S. Antioxidant activity of Thespesia populnea bark extract against carbon tetra chloride induced liver injury in rats .Ethanopharmacology*. 2003; 87(2-3): 227-230.

Shriwaiker A, Kumar AV, Krishnanand BR, *Sreenivasan KK. Chemical investigation and antiheptotoxic activity of Thespesia populnea , International journal of Pharmacognosy*. 1995; 33:305-310.

Manivasudevan M, *Kumar Kishore Gunman, Milind Parle. Antinociceptive and anti-inflammatory effects of Thespesia populnea bark extract. Journal of ethanophrmacology*. 2007; 109: 264-270.

Vasudevan M, Parle M, *Pharmacological action of Thespesia populnea relevant to Alzheimer disease, Phytomedicine*, 2006; 13(9-10):677-87.

Jean B. *Phytochemistry of Medicinal Plants, 2nd Edn., New York*: Intercept Ltd. 1999; 3: 225-369.

Asima Chatterjee, *Satyesh Chandra Pakrashi. The treative on Indian Medicinal Plants*. 1994; 2: 188.

Akila A, *Rani K Biosynthesis of gossypol in Thespesia populnea . Phytochemistry*, 1993, 335-340.

Antibiotics Use in Animal Husbandry and their Public Health Impact

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Demand for animal and bird's meat is increasing due to increase in population. In order to meet the need of consumers, selection of superior breed has become essential. However, it has also resulted in compromising the welfare issues in animal and birds rearing. Vaccination, antibiotics and probiotic treatment have comparatively improved the health status of animal and birds. Drugs necessary to treat infected animal and birds are a direct cause of economic damage, owing to their costs. The cost of drugs varies between countries, depending on the legislation and the infrastructure of the country. Till date broad spectrum antibiotics are injected to reduce financial loss. It leads to serious side effects. Therefore, alternative therapies are required for the effective treatment.

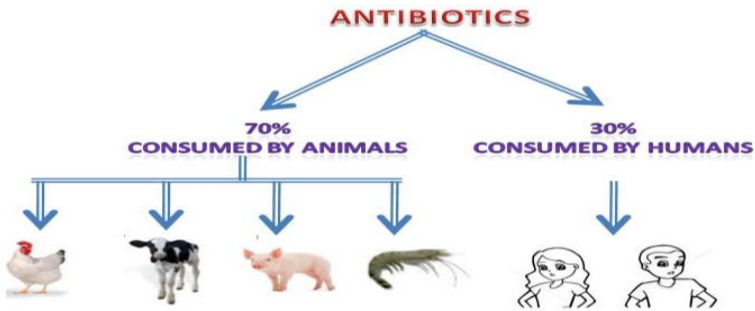
Keywords: Antibiotics, Drug, Animal, Birds and Therapies.

Introduction

The precise quantity of antimicrobials used in food production globally is difficult to estimate, but the evidence suggests that it is at least as great as the amount used by humans. Indeed, in some parts of the world antimicrobial use is far greater in animals than in humans; in the US, for instance, more than 70 percent of medically important antibiotics are used in animals. The relative use in agriculture, without better policies, is likely to grow even more due to the rise of economic growth, wealth, and with these, food consumption of the emerging world. Consumption of antimicrobials by animals to produce meat products, in the BRICS countries (the major emerging economies of Brazil, Russia, India, China and South Africa) alone, for example, is set to double between 2010 and 2030.

Effects of Antibiotics

Higher use of antibiotics drives increased drug resistance, as bacteria are exposed more often to the antibiotics used to treat them. This is also true for

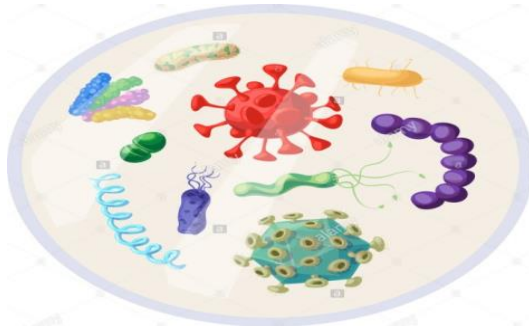


other medicines, such as antifungals. The risks associated with the high use of antimicrobials are threefold.

Firstly, it presents the risk that drug-resistant strains are passed on through direct contact between humans and animals (notably farmers). Secondly, these drug-resistant strains have the potential to be passed onto humans more generally through the food chain, i.e. when consumers prepare or eat the meat itself. Finally, there is a further indirect threat to human health as result of animal excretion. Both resistant bacteria, as well as significant volumes of antibiotics consumed, are then excreted by animals (with most of the active ingredient unmetabolised). This both releases resistant bacteria into the environment as well as causing the environment to be tainted with antibiotics, providing further opportunities for exposure to bacteria and creating additional selective pressure that leads to the development of drug resistance.

Antimicrobial Resistance

Many bacterial species multiply rapidly enough to double their numbers every 20–30 minutes, and their ability to adapt to changes in the environment and survive unfavourable conditions often results in the development of mutations that protect them. In addition, a factor contributing to their adaptability is that individual cells do not rely on their own genetic resources alone.



Many, if not all, have access to a large pool of itinerant genes that move from one bacterial cell to another and can spread through bacterial populations on a variety of mobile genetic elements, of which plasmids and transposable elements are two examples. In order to control bacterium, chemicals and antibiotics were widely applied in many years ago. However, some of their residues caused the serious impact in both environment and health of consumers (Kumaran *et al.,* 2018).Bacterial capacity to adapt to external changes using these mechanisms is called resistance development in the face of selection pressures, and the development of resistance allows the resistant organisms to proliferate in the prevailing conditions.

Resistance Takes Two Forms

- Inherent or intrinsic resistance, i.e. the species is not normally susceptible to a particular drug. This may be due to the inability of the antibacterial agent to enter the bacteria cell and reach its target site, or lack of affinity between the antibacterial and its target (site of action), or absence of the target in the cell.
- Acquired resistance, where the species is normally susceptible to a particular drug but certain strains express drug resistance, which may be mediated through a number of mechanisms that will be discussed later in this document.

When resistance develops, the antibiotic is no longer capable of curing or treating the disease caused by the infective agent. A low level of resistance may be detected by a slight increase in the minimal inhibitory concentration (MIC) for the antibiotic from the usual value, which is not necessarily of clinical significance. A higher degree of resistance is characterized by an MIC that exceeds, sometimes by several orders of magnitude, the concentrations of drug safely attainable in the patient's tissues.

Overuse of Antibiotics

There is no doubt that the overuse and/or misuse of antibiotics in humans are contributing factors to the development of antibiotic resistance (EMEA, 1999; WHO, 2000; Levin, 2001; UCS, 2002), which are related to the prescribing practices of health workers and to medication taking practices of patients (WHO, 1997).

Antimicrobials have been increasingly used in efforts to control disease and promote growth of livestock. Nevertheless, in recent years there has been a move away from the use of antibiotics as growth promotants in countries such as the UK, Sweden and Denmark. The European Union has also made moves to ban antibiotics for growth promotion in food animals and the WHO also recommend that use of antimicrobial growth promoters should be terminated or rapidly phased out (WHO, 2001). Antibiotics can be used in livestock production in sub-therapeutic doses to favour growth or in low-level doses for prophylactic purposes, as well as in therapeutic doses to treat infections. Unfortunately, the non-therapeutic use of antimicrobial agents is also considered to have led to an increase in resistant bacteria. Antibiotics are also used to treat fruit trees and fruit for prevention of bacterial diseases.

In some areas there is misuse of antibiotics in aquaculture to control diseases, which is directly related to increasing or maintaining production. For instance, the illegal use of chloramphenicol or nitrofurans in some Asian countries for controlling shrimp diseases has been highlighted recently by the EU through the bans placed on imported shrimps containing unacceptable residues from China (EC, 2002a), as well as Thailand, Vietnam and Myanmar (EC, 2002b). Chemicals such as tributyl tin used to control pond organisms (e.g. snails) may also be a problem that could lead to residues. The invention of novel drugs or the use of alternatives to antibiotics should also be encouraged Kumaran and Citarasu (2018).

Application Methods

Medicated feed

More often than not medicated feeds are commercially prepared, either as sinking or floating pellets, although such feeds have a limited shelf life. As already mentioned, one problem with the use of medicated feeds is that diseased fish stop eating and this may be compounded by unpalatable feed caused by the presence of the drug itself, which makes the problem worse. Consequently, good diagnosis that includes an antibiotic sensitivity test plays an important role in the use of the correct early treatment. The incorporation of an antibiotic in the feed is usually via a powdered premix in conjunction with a binder, such as gelatin (up to 5%), fish or vegetable oil. One of the important considerations is that the feed and the drug have to be mixed thoroughly to give an even distribution of the drug and coating of the pellets. The dosage required for treatment with a medicated feed depends on the original level of active ingredient/kg fish body weight. The feed is then administered for a recommended treatment period, according to the specific disease to be treated and the instructions of a veterinary practitioner. It is also important that treated fish must not be harvested for food use until a specified withdrawal period has elapsed. Medicated feed needs to be kept under adequate storage conditions, such as in a cool dry place kept separate from other feeds, to avoid any deterioration of the feed quality and drug efficacy.

Injection

Injection of antibiotics can be a more effective treatment for bacterial infections than using a medicated feed, particularly for advanced infections. However, it is usually only practical for valuable individual fish, such as broodstock or ornamental fish (e.g. koi carp), rather than fish in large scale production facilities. Injection quickly leads to high blood and tissue levels of antibiotic. Normally, an individual fish will also need to be anaesthetized before treatment. Typical injection sites include the intraperitoneal cavity and the intramuscular route.

The volume required for injection of antibiotics is based on the weight of fish to be treated, the recommended dosage for the antibiotic being used and its supplied concentration. This is usually expressed as:

$$\text{Volume of antibiotic required (kg)} = \frac{\text{recommended dosage (mg/kg)} \times \text{weight of fish}}{\text{supplied solution concentration (mg/ml)}}.$$

Topical

Topical treatments are usually only necessary for more valuable individual fish, such as ornamental varieties or brood stock. Open sores or ulcers can be treated with a topical antiseptic microbicide, such as an iodine-based solution, followed if necessary, by a topical antibiotic. Nevertheless, it is possible that ulcers can heal themselves with improved water quality and the elimination of parasites.

Baths and Dips

Baths and dips are not as effective as some of the other treatment methods, particularly for systemic infections, because of generally poor internal absorption of the antibiotic being used. The method of application can therefore be used for surface infections such as fin rot, bacterial gill disease, superficial fungal infections and ectoparasitic infestations. Another disadvantage with bath type treatments is that a lot more antibiotic is required when compared with oral (feed) treatments or injections. Bath treatments are also not recommended for recirculation systems or aquarium systems using biological filters. Consequently, fish treatment by bath usually uses a separate container, tank or simply with the flow stopped. Additional aeration may also be required for bath treatments. Accurate calculation of the volume of water in the tank, pond or cage is also required (Bruno and Munro, 1991).

Avoiding Antimicrobial Agents

There is a hypothesis of disease propagation that demonstrates that the cause of all disease is stressor overload (Wilken, 2002). Consequently, the reduction of unnecessary stress is the main aim of any satisfactory programme of improved health, whether it be human, animal or fish. However, elimination of all stressors is virtually impossible and, therefore, reduction of only the unnecessary stressors, the so-called destructive stressors, should be attempted. In general, the FAO have defined the development of affordable vaccines, the use of immunostimulants and non-specific immune-enhancers, and the use of probiotics and bioaugmentation for the improvement of aquatic environmental quality as major areas for further research in disease control in aquaculture (Subasinghe, 1997), which would help to reduce the use of antimicrobial agents.

Approaches to minimizing antibiotics use in food-animal production

As Growth Promoters (feed supplementation)

There are some options that might be considered as alternatives to the use of antibiotics as growth promoter factors. The potential of some of these options represents a new area that requires further research.

Enzymes and Probiotics

This approach aims to obtain a situation where a greater share of the nutrients supplied in the feed is made available for absorption by the animal. Improvement in feed efficiency has been associated with antibacterial feed additive (AFA) use (probiotics).

Organic Acids

These products are widely distributed in plants and animals and are also fermentation products, and their salts are often used as food preservatives and to acidify feeds. At low pH (around 3.5), digestion of proteins and the population of beneficial bacteria (*Lactobacilli*) are maximized, and harmful bacteria are inhibited. This is another approach that has been used to replace antibiotics as growth promoters. A greater weight gain was observed when fumaric acid was used to supplement piglet feed. The possible mechanism of growth promotion includes inhibition of undesirable microflora, increased digestibility of proteins and changes in the intestinal morphology.

Minerals

The use of zinc oxide in Denmark has led to decreased use of antibiotics in swine feed. Zinc improves pig performance and reduces incidence and severity of diarrhoea in piglets. Rare earth elements have been used in China as feed additives. Recently, a rare earth mixture containing lanthanum, cerium and praseodymium was tested in swine, significantly improving weight gain and feed conversion (He and Rambeck, 2000).

Conjugated linoleic acid

Conjugated linoleic acid (CLA) comprises a mixture of positional and geometric isomers of linoleic acid, with conjugated double bonds in the region

of carbon atoms8-13. With pigs fed up to 1 percent CLA in the diet, small improvements were seen in average daily weight gain and feed efficiency (Jahreis*et al.,* 2000).

Phospholipids

It has recently been reported that lysoforte, a phospholipid, can aid in nutrient uptake from the digestive tract, significantly improving growth and feed conversion in piglets (Doyle, 2001).

Seaweed Extracts

Seaweed shows that cattle feed containing forage treated with, or directly fed, seaweed meal and extract showed marked positive

effects on the animal's immune system, weight gain, carcass quality and even shelf life of finished meats.

Inmunologically-Active Compounds

Some of the growth-promoting effects of the sub therapeutic use of antibiotics in feeds may result from their action against subclinical infections or competitive intestinal bacteria. Several immunologically-active compounds, such as egg yolk antibodies (IgY), cytokines, spray-dried plasma and freeze-dried eggs, have been shown to affect the immune response and may enhance resistance to disease. For this reason, it has been suggested that the addition of these immunoactive compounds to feed may accomplish the same purpose.

Conclusion

Good availability of vaccines for bacterial diseases and they have resulted in reduced use of antimicrobial agents, although there is still a need for improvements in delivery methods and efficacy, as well as the development of viral vaccines. Additional control measures such as good husbandry, adequate feed composition, movement restrictions, immunostimulants and biological control could contribute to reduced antimicrobial usage throughout the aquaculture industry. Many disincentives also exist to curtail antibiotic usage in aquaculture, including the increasing marginal cost-effectiveness of their use in disease treatment, the increasing need to be HACCP compliant, as well as the growing concern over the negative impact that some seafood products have had recently in connection with antibiotic residues. If these

factors are taken into account and the potential problems related to the use of antimicrobial agents can be overcome, then a positive outlook could be generated for reduced reliance on antibiotic-based management strategies in the future.

References

Bruno, D.W. and Munro, A.L.S., 1991. *The calculation of various treatment dose rates in fish farming. SOAFD Aquaculture Information Series*, 12: 9 pp

Doyle, M.E. 2001. *Alternatives to antibiotic use for growth promotion in animal husbandry. Food Research Institute*, University of Wisconsin-Madison, USA.

He, M.L. & Rambeck, W.A. 2000. *Rare earth elements - A new generation of growth promoters for pigs?Archives of Animal Nutrition,*53: 323–334.

Jahreis, G., Kraft, J., Tischendorf, F., Schone, F. & von Loeffelholz, C. 2000. *Conjugated linoleic acids: physiological effects in animal and man with special regard to body composition. European Journal of Lipid Science Technology,*102: 695–703

Kumaran T & Citarasu T. (2018) Chicken Eggs - *A Source of Antibodies Alternative to Mammal.* Adv Vaccines Vaccin Res, 1(1): 16-19.

Kumaran. T., E. Thirumalaikumar, C. Lelin, P. Palanikumar, M. Michaelbabu, T.Citarasu, 2018.*Physicochemical properties of anti-Vibrio harveyi egg yolk antibody (IgY) and its immunological influence in Indian white shrimp Fenneropenaeus indicus.* Fish and Shellfish Immunology 74 (2018) 349–362.8

Subasinghe, R., 1997. *Fish health and quarantine, In: Review of the State of the World Aquaculture. FAO Fisheries Circular no. 886. Food and Agriculture Organization of the United Nations, Rome*, Italy, 45-49.

Wilken, R., 2002. *The unified stress concepts.* TrustMark 2002, 20 pp.

Role of Interest in Learning and Attitude towards Schooling

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The aim of the article is to discussing about learning and attitude towards schooling. Learning is a. process which brings relatively permanent changes in the behavior of a learner through experience or practice. Learning is a modification of response of the organism. Learning is essentially an active process. It is not a passive observation of knowledge. The learning is the key process in human behavior. Parents and teachers are greatly interested in learning. Most children come to school ready and willing to learn. How can schools foster and strengthen this predisposition and ensure that young adults leave school with the motivation and capacity to continue learning throughout life? Without the development of these attitudes and skills, individuals will not be well prepared to acquire the new knowledge and skills necessary for successful adaptation to changing circumstances.

Keywords: Learning, Interest, Attitude, Self- concept and Knowledge.

Introduction

Man is a social animal. His superior intelligence differentiates him from other living beings. Other creatures could be trained. But man can alone be educated. Education has being a most important social activates. Its meaning has

been changing through the ages due to changes in a social and physical conditions as well as Philosophical outlook of people towards life. Education in the deliberate systemic influence exerted by the mature person upon the immature through instruction discipline and harmonious development physical, intellectual aesthetic, social and spiritual of human being, according to individual and social needs and directed towards the union to the educate with his creator as the final end. According to Vivekananda's "Education is the manifest station to divine perfection already existing in a man" According to Mahatma Gandhi's "Education is the all-round drawing out of the best in child and man."

Learning

Learning is an individual activity. It occurs privately and at the initiative of the single person. The goals of learning are the intended goals or outcomes of teaching. It is a highly individualistic act to fulfill the needs and interests of the receiver himself. Learning implies accomplishment. It is a 'success' or 'achievement' act. Learning may be called the result contained within the performance of interest oriented.

Definitions of Learning

Learning has been explained and defined in a number of ways. A few of the views regarding the nature of learning are given below.

- "Learning is more or less permanent incremental modification of behavior which results from activity special training or observation."- - Munn
- "Learning involves the acquisition of knowledge, habits and attitudes." - Crow and Crow
- "Learning is both acquisition and retention." - Skinner
- "Learning is modification of behavior through experience." - Gates
- "Learning is not manly acquisition of facts and skills through mechanized procedures such as respective practice learner evaluates learning material and organizes it properly." - A Davis

Meaning of Learning:

"All the students can learn and succeed but not all on the same day in the same way". -William G Spady

Children's way of learning is as different as the colors of the rainbow. Some grasp information best by reading while others learn better through hands on experience. Traditionally, the concern of teachers and educators learn , which gives the child a comprehensive approach to teaching and learning.

Characteristics of Learning:

- Learning has to change behavior.
- The change should be relatively permanent.
- The change should be as a result of experience.
- Learning occurs under conditions of directed attention and deliberate effort.
- Learning is distinct from biological maturation and imprinting.

Yoakman and Simpson have described the following nine important Characteristics of learning.

- Learning is growth
- Learning is adjustment
- Learning is purposeful
- Learning is experience
- Learning is intelligent
- Learning is active
- Learning is both individual and social
- Learning is the product of the environment
- Learning affects the conduct of the learner

Paradigm of classroom Learning

- Entry behaviour-En route behavior-Exit behaviour
- Learners enter the class or school without having specific subject matter and skills in relation to that knowledge, entry behavior, depends on sex, intelligence, age, feeling, self-concept etc.
- Teachers and learners in enrouted state interact with each other teacher facilities are stimulates learners through a planned program to develop cognitively and in affective psychomotor areas.

Process of acquisition of knowledge

1. Perceptual Learning

Sense gets stimulated in the given environment. Thus anyone directly acquires specific knowledge about objects and events called perception.

2. Conceptual Learning

A concept is a general idea universal in character which is based on perceptual learning when a child sees a cot and similar another cot. It perceives certain common characteristics and generalizes to have the concept of cot conceptual learning involves ideation and thinking.

3. Associative Learning

The learner recalls deliberately or spontaneously the previous experiences due to certain associations and thus has associative learning.

4. Appreciation Learning

This form of learning is on the affective level. When the concepts learned by a child are colored by appreciation and are adopted as ideals. This form of learning is appreciation in nature.

5. Skill Learning

Life consists of learning thousands of skills of varying complexity. Human beings have to learn a host of these skills that are increasing day by day with the advance of scientific civilization. The perceptual analysis of the situation is very important to perform on the right lines and to choose particular movements.

Attitude

An attitude is a hypothetical construct that represents an individual's degree of like or dislike for an item. Jung defines attitude as a readiness of the psyche to act or react in a certain way. Attitudes very often come in pairs one conscious and other unconscious. Attitude are generally positive or negative

views of person, place thing or event-this is often referred to as the attitude object people can also have conflict or be ambivalent toward an object, meaning that they simultaneously possess both positive and negative attitudes towards the items in question unlike personality attitudes are expected to change a function of experience. Some of the objectives of education are cultivation of right type of attitudes towards life, knowledge, humanity and education.

Meaning of Attitude

Attitude is the intensity of positive or negative effect as against a psychological object. A psychology object is any symbol a person idea towards which people can differ as regards positive or negative effect.

Definitions of Attitude

- "An attitude is a mental neutral of readiness organized through experience exerting a definitive or dynamic upon the individual's response to all subjects and situation with which is related". -All port
- "An attitude may be thought of an expression of person's values". -John
- "An attitude is a tendency to respond positively or negatively to certain persons, objects or situations". -Morgan and King

Characteristics of Attitude

- Attitudes are acquired these are not negative. A person develops them on the basis of his experience. They may be based on physical motivations. But they are not inborn.
- Attitudes may also be of permanent nature, but changes may be affected in them in suitable and relevant situations. Attitudes are related to a person's known field of activities.
- An individual may have different types of attitudes, these may be related to the experience about a thing, incident, idea or perception.
- Attitudes may be general or specific in other words, they may be related to any specific individual or tradition.
- Attitude is either positive or negative. Positive attitudes are beneficial whereas negative attitudes are harmful.

- There is a touch of emotion in an attitude. The nature of attitude is dynamic. They are based on desire therefore, they motive as person in a specific direction. (Dandapani,2004:476)

Components of Attitudes:

- The cognitive component consists of knowledge and beliefs one's attitude depends upon knowledge.
- Attitude always arouses one's feelings and emotions. Feeling that unit and integrate people are termed positive while those that divide and disintegrate people are termed negative.
- 'Knowledge and feeling' urge an individual to 'out' this action tendency in an attitude enable others to infer the feelings and understanding. It is rather difficult for an individual to act in a manner contrary to his feelings and understanding-some believe that the action component of an attitude effects the feeling-component (Dandapani,2004:476)

Attitude towards school

Motivation is often considered the driving force behind learning. One can distinguish motives deriving from external rewards for good performance such as praise or future prospects and internally generated motives such as interest in subject areas (Deci and Ryan, 1985). Student's more general attitudes towards school and their sense of belonging at school were also considered both as predicators for learning outcomes of schooling in themselves.

Conclusion

In school, teachers manage of student's learning. The majority of student's learning time is spent in school and as such the climate of the school is important for the creation of effective learning environments. If a student feels alienated and disengaged from the learning contexts in school, his or her potential to master fundamental skills and concepts and develop effective learning skills is likely to be reduced.

Reference

Krapp, A., Hidi, S., and Renninger, K.A., Interest ,Learning and Development.In:Renninger,K.A.,Kidi, S. and Krapp, A.(Eds)The role of Interest in Learning and Development.Hillsdale,NJ:Erlbaum,3-25 (1992).

Ainley, M., Hidi, S.,& Berndorff ,D.(2002).Interest, learning and the psychological processes that mediate their relationship. Journal of Educational Psychology,94,545-561.

Ames, C.,& Archer, J.(1988).Achievement goals in the classroom: Student's learning strategies and motivation processes. Journal of Educational psychology,80,260-267.

Lucas, U.(2001).Deep and Surface Approaches To Learning with Introductory Accounting. Accounting Education ,10(2):161-184.

Fry,H.,Ketteridge, S.& Marshal, S.(2009).A Handbook for Teaching and Learning in Higher Education.3rdEdition,Newyork,Routledge.

Parental Involvement in Education Among Low-Income Families: A Case Study

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In order to explore parental involvement among low-income families, a case study was conducted at a public elementary school in the Pacific southwest. In 2010, a new school replaced an outdated structure. During the planning stage for the new school, community members and agency professionals, along with educators, developed and implemented programs to both support families and engage them in their children's education. Utilizing qualitative research methods, interviews, observations, and document reviews were conducted with the intention of investigating the impact of efforts undertaken to involve parents at the new school. The study found that the development and implementation of intentional parental involvement strategies positively influenced the level of parental involvement. In addition, participants perceived numerous benefits to students and families resulting from strategies implemented and the related involvement. Parental involvement strategies also influenced educator's perceptions of acceptable parental involvement behaviors, with interviewees recognizing a broad array of behaviors as involvement in education.

Keywords: Parental Involvement, Low-Income, School and Community.

Introduction

The purpose of this study was to examine the occurrence of parental involvement in a low-income school created with parental involvement in mind In order to explore parental involvement among low-income families; a case study was conducted in March of 2005 at what became known as Clark Elementary (pen name), a public elementary school in the Pacific southwest. After two academic years at the new site, an investigation of the impact of those efforts could be initiated.

Problem Statement

In their search for methods to improve academic performance, educational researchers and practitioners have advanced policies designed to promote parental involvement in children's education (Abrams & Gibbs, 2002). Teachers and school administrators encourage parents to support their children's academic pursuits at home, as well as in the classroom. Researchers continue to find evidence that higher levels of involvement by parents are related to academic success for students (Epstein, 2001). According to Lareau (1987), parental involvement is seen as an integration of home and school. This practice encourages parents to participate in the life of the school, as well as attend to the learning of their children at home (Epstein, Sanders, Simon, Salinas, Jansorn, & Van Voorhis, 2002). Many educators believe that creating a community of families, students, teachers, and school administrators provides additional support for children's learning. Further evidence suggests that academic success may be predicted by the quality of these connections (Booth & Dunn, 1996).

The promotion of parental involvement to increase academic success raises issues of equity, since rates of parental involvement are significantly higher among middle- and upper-class parents than in low-income families (de Carvalho, 2001). Researchers agree that rates of parental involvement are lower in low-income communities than in higher income schools (Abrams & Gibbs, 2002; Epstein, 1995; Lareau, 2000; O'Connor, 2001). Therefore, low-income children, with less involved parents, often experience fewer of the academic benefits than children coming from higher income homes. It follows, then, that children of higher income families are receiving more of the academic and attitudinal benefits of parental involvement than low-income children. Children of low socioeconomic status (SES) are at risk for lower academic achievement (McLloyd, 1990). For these children, rather than acting

as a benefit, the lack of involvement by their parents only leaves them farther behind their higher income counterparts.

A case study has been conducted in an attempt to answer calls for further knowledge and understanding of parental involvement among low-income families.

Methodology

Research Setting Clark Elementary School was situated beside a city park in a small community surrounded by large industrial complexes. The majority of residents in the neighborhood were low-income, with the local housing authority providing a high percentage of residences at a subsidized rate. In October of 2003, 99% of the 182 students were eligible for free lunch, qualifying the school to receive Title I funds. During the 2007-2008 school years, 5% of the students were American Indian, 3% of the students were Asian, 7% were Black, 19% were Hispanic, and 67% were White. According to the Clark website, as of October 1, 2009, the languages spoken were 79% English, 11% Spanish, 6% Russian, 3% Ukrainian, 1% Vietnamese, and 2% other.

In 1998, the district had begun to consider building a new school to replace a crumbling, out-of-date structure. An advisory group, the Clark Advisory Committee, was formed with members from community organizations, government agencies, the local church, the neighborhood association, the Clark Parent Teacher Organization (PTO), educators from Clark, and school district personnel. This group provided input throughout the development process for the new school, held open meetings in order to invite further participation in the development process, and eventually participated in the ongoing administration of many of the programs it had designed. The new building opened in the fall of 2010 and was dedicated on October 2, 2010. With the hard work and continuing commitment of the community, the district opened a cooperative facility serving families and the local community, while at the same time enhancing parental involvement in education.

Case Study Findings

The voices of the study participants came through clearly during the analysis process. Prevalent themes emerged into conceptual categories. In this section exploring the study findings, each theme will be illustrated through the voices of the parents, teachers, and administrators who gave time to participate.

Once the school opened, attention was given among the school staff to the ongoing development of an understanding of the life circumstances of the school families and the environmental factors affecting them. The Clark Principal described additional reasons for this understanding. When she first arrived at Clark, the staff spent time studying the work of Ruby Payne (2003).

According to Payne, hidden rules based on income level guide individual behavior. The rules learned by low-income students may create a gap between the students' families and their middle-class teachers. Once teachers were made aware of the differences in perception and behavior based on SES, they approached parents with greater appreciation. Payne's books and videos helped the teachers gain an awareness of the challenges faced by low-income families at Clark. The Principal commented, "We do talk a lot about what our families face, and we make those connections between what we saw [on the videos] and what we see happening every day here." She also based this understanding of the lives of Clark families on the informal connections built and maintained between parents and educators.

With open communication and many informal opportunities to build relationships, the understanding of families increased. Clark teacher Sam Brown, demonstrating this understanding, commented, "We have a lot of families that are so consumed by their daily life they don't have time to get involved as maybe other demographic parents would." In the interview with the first-grade teacher, Ann Edwards, she described her own developing understanding of the lives of Clark families. She commented, "I was very shocked to find out that a lot of children didn't have very many books at home, not even Dr. Seuss." This understanding of the life circumstances of the families has reduced the tendency for Clark teachers to blame families when their students faced academic challenges. Certainly, this understanding is limited by personal experience; however, teachers have apparently grown in their knowledge of the lives of their students' families. Then, rather than blame, the desire has grown to assist families as they educate children.

A Broad Definition

Based on the developing picture of the community, an understanding of parental involvement at Clark Elementary School emerged. Educators came to realize that Clark parents, facing challenges related to SES and language proficiency might not be able to be involved in the same manner that parents at middle- and upper-class schools would be. Parental involvement would look different at Clark. At Clark, a broad definition of parental involvement emerged which recognized a wide array of behaviors as involvement. Educators acknowledged all parental presence in the building as involvement,

even the receipt of social services, such as picking up food or clothing in the Family Resource Center. Rather than assume that parents would comply with commonly accepted requests for involvement, Clark educators recognized even small attempts made by parents to support their children's education. One teacher stated, "I've seen more parents here, just with the Family Resource Center, you know, more parents coming in and being involved, taking advantage of some of the services that are offered." Having parents in the building, even though they were not volunteering in the classroom or putting up bulletin boards, was perceived as involvement in education. In one interview, the Family Services Coordinator confirmed the presence of a broad definition of parental involvement at Clark.

She stated, I think that parents being here gets them, affords them an opportunity to feel a part of this community, and that's only going to benefit their child. If you have a positive feeling about this school, it will rub off on the way that they story this place for their child. And so, the more positive involvement those parents can have here, in my opinion, the better an opportunity for their child to feel similar feelings about this place. So, for many of the staff at Clark, parents obtaining the offered services and just being present in the building were perceived as involved in education. One mother who dropped her son at school each morning, Brenda Simpson, was involved in the school as much as possible. She took time to talk with her son's teacher and the Family Liaison as she came and went each day. Brenda talked about her belief in the importance of education: "I've tried to stress to him that he needs to learn this, he needs to go to school, he needs to learn to read, he needs to learn to write. I'm hoping that he understands that he understands how important it is." She let her son know that school was important by getting up early to get him to school even though most nights she left work after midnight. If measured against a commonly accepted definition of parental involvement, she might be seen as uninvolved. However, at Clark, educators welcomed the level of involvement she was capable of offering.

Creating Intentional Parental Involvement Strategies

The creation of intentional parental involvement strategies based on an understanding of neighborhood needs had a positive impact at Clark. These intentional parental involvement strategies considered the parents of Clark students in two distinct ways. First, with the design of a full-service school, the Clark Advisory Committee intended to meet many of the physical needs of the low-income families in the neighborhood. Second, the Clark Advisory Committee developed strategies to enhance parental involvement in education.

Strategies to Provide Services At initial meetings of the Clark Advisory Committee, as the needs of neighborhood families were considered, the concept of a full-service school emerged. With input from the advisory committee and local residents, an understanding developed regarding environmental factors and the needs of neighborhood families. The school building was then designed to meet many of the distinct needs of its low-income families. The new building became much more than a school. It was designed and opened as a center for the community. The center of activity for families became the Family Resource Center. In the old building there was no space designated for parents to connect informally with educators or with other parents. Kathie Jones, the Family Liaison, mentioned that she had seen parents networking with each other, exchanging information in the Family Resource Center.

Parents were able to stay informed about school events by talking with each other and with school personnel. The development and administration of the Family Resource Center at Clark has been central to the improvement in school culture. Clark families could easily access resources provided by government agencies and community organizations. The Family Liaison, from her office in the Family Resource Center, could access information on all county resources through a computer network. A table was set up to disburse free clothing to families of Clark students and the Family Liaison maintained a food bank in her office. According to Kathie Jones, a local service organization "came on board and helped get the food bank started when I saw a need, because the closest food banks were at least one or two buses rides away."

Strategies to Enhance Parental Involvement

The Clark Advisory Committee created and implemented programs designed to enhance parental involvement in education. In addition, the development of intentional parental involvement strategies allowed for community input and participation, which resulted in a positive impact on involvement levels. Strategies implemented which had a positive impact on parental involvement in education were based on a broad definition of parental involvement and on a foundation of understanding. Therefore, they had a positive impact. At Clark, parents were invited into the school for conferences, family nights, and to access resources offered in the Family Resource Center.

Each of these strategies encouraged parental involvement. Reflecting on perceived changes in parental involvement, the Family Liaison stated, I think that I am seeing more parents trying to be more involved or at least come into the building more, whether it's to have that lunch with their student or walk them to breakfast or touch base with the teacher. And a lot of them hang out

here in the Family Resource Center. The increased participation of parents and community members positively impacted Clark. A teacher, responding to a question about changes in parental involvement levels at Clark, commented, "I could say that for me personally it's been better this year, the parents helping kids with homework, it's been better this year." To the same question a parent responded, "All of the parents or families are somehow, some way involved."

Benefits of Parental Involvement

Those interviewed expressed beliefs that parental involvement provided children with a number of benefits. Participants most often described the positive outcome of involvement as academic success. Parents, teachers, and family workers believed that children with engaged parents would be more successful at school, scoring higher on tests and earning higher grades. A teacher stated, "I think if the parents are involved the kids benefit because they really see the participation by the parents, and they work harder at school."

Teachers spoke of improved motivation as a positive outcome stemming from the message from parents that education was important. Teachers also felt that children would benefit when parents encouraged the completion of homework. Kathie Jones stated, "I see kids more on top of their homework because they realize their parents are in touch with their teachers." One teacher also talked about improved self-confidence in children with parents who were engaged in their education. The Family Liaison had noticed parents and children talking together about what job the student may pursue in the future and how to accomplish their goals. She believed that these conversations were a result of enhanced family and community involvement at Clark.

Recommendations

Certainly, Clark Elementary cannot be seen as representative of all low-income schools. In many ways, the community and the school development process were unique. However, knowledge gained through this study may provide a guide for educators to enhance parental involvement in education at low-income schools. This study can inform the concept of parental involvement in low-income schools on a broader scale.

1) Educators interested in developing strategies for enhanced parental involvement in low-income schools would be wise to seek the input of neighbors and interested agency representatives in order to gain an understanding of the lives of those that the school serves.

2) Educators, with a clear understanding of the lives of their school families, ought to encourage the emergence of a definition of parental involvement which would recognize a broad array of parental behaviors intended to support academic success. In low-income schools, there is a need to acknowledge and encourage even the smallest efforts made by parents to support their children's education.
3) Educators serving low-income populations must consider offering services to the families of their students, thereby bringing parents into the school building. Full-service schools, well-situated in neighborhoods, can provide services intended to meet the needs of low-income school families. The services offered must be based on an understanding of the needs of the neighborhood and provided with the participation of government and community agencies.

Conclusion

One of the most important findings in this study related to the consideration of the needs of Clark families, which formed the basis for strategy development and provided a broad definition of parental involvement. I cannot help but wonder how the outcomes may have been different without an understanding of the neighborhood. So often, even with the best of intentions, middle-class educators create and implement practices intended to serve low-income families without an assessment of community needs. Educators working in low-income communities need a willingness to learn about their student populations and a high degree of commitment to school families.

From the district consultant to the head of the neighborhood association to the Clark Principal, every individual involved in this project demonstrated an exemplary commitment to Clark students and their families. The Clark Advisory Committee spent countless hours in meetings and allocated money from tight budgets. Once strategies were created, Clark educators were committed to putting them into action. Across the country, there are educators and community members devoted to working in low-income neighborhoods. With a dedication to the community and a commitment to educational partnerships, communities may undertake projects like Clark Elementary School and encounter similar success.

References

Abrams, L. S., & Gibbs, J. T. (2002). Disrupting the logic of home-school relations: Parent involvement strategies and practices of inclusion and exclusion. Urban Education, 37(3), 384-407.

Booth, A., & Dunn, J. (Eds.). (1996). Family-school links. Mahwah, NJ: Lawrence Erlbaum. Comer, J. P., Ben-Avie, M., Haynes, N. M., & Joyner, E. T. (1999). Child by child: The Comer process for change in education. New York: Teacher's College Press.

de Carvalho, M. E. (2001). Rethinking family school relations: A critique of parental involvement in schooling. New York: Teacher's College Press. Delgado-Gaitan, C. (1991). Involving parents in the schools: A process of empowerment. American Journal of Education, 100, 20-46.

Epstein, J. L. (1995). School/family/community partnerships. Phi Delta Kappan, 76(9), 701- 713. Epstein, J. L. (2001). Building bridges of home, school, and community: The importance of design. Journal of Education for Students Placed at Risk, 6(1 & 2), 161-168.

Epstein, J. L., Sanders, M. G., Simon, B. S., Salinas, K. C., Jansorn, N. R., & Van Voorhis, F. L. (2002). School, family, and community partnerships: Your handbook for action (2nd ed.).

Thousand Oaks, CA: Corwin Press.

Jordan, C., Orozco, E., &Averett, A. (2001). Emerging issues in school, family, and community connections. Austin, TX: National Center for Family and Community Connections with Schools.

The Role of Phonetics in Teaching ESL Learners

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Phonetics is usually regarded as a subject by itself and teachers of English consider it a tool in accent neutralization at the most. In this context, this paper shows the essential role of phonetics in the teaching of English as a Second Language (ESL) with focus on segmental (phonemes) and suprasegmental (stress, accent, rhythm and intonation) features. For teachers, the awareness may be intuitive and the features may have become part of their language. But for the others, who teach ESL, learning the nuances of phonetics may be considered a part of their continuing professional development (CPD).

Introduction

Most often, the English teacher's pronunciation becomes the only model that students adopt. This puts a great onus on the teacher. It is here that training in phonetics will stand them in good stead. A teacher trained in phonetics will be able to pronounce the words correctly, using the right rhythm andintonation in their rendering of a poem or a prose piece. This paper examines how knowledge of phonetics helps both the teacher and the learners.

The Role of Phonetics (Phonemics) in making Speech Intelligible

For all second language learners of English, there are some areas where they are likely to go wrong. It behaves the teacher to identify these problematic areas and correct them. Unless students feel the necessity to learn something, they will not be motivated enough to learn it. They should be made aware of the lacunae in their pronunciation, so that they become eager to fill those lacunae.

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It is the responsibility of the teacher to show the students how certain sounds are missing in a person's speech and how they might try to substitute them by using other sounds, thereby making their speech unintelligible. If the teacher is familiar with phonetics she can take the time to prepare phoneme inventories of the students' mother tongue and compare them with the sounds of English (Received Pronunciation). This will also help the teacher adopt a comparative approach while teaching the sounds of English. One possibility is to make the students refer to the list of all the sounds in English and make them read example words given for each sound. This exercise will also show where the student is going wrong and teaching material may be prepared accordingly. If the students are given adequate practice, they are likely to acquire the correct sounds in a very short period.

The Role of Phonetics (Intonation) in Communication

Intonation has a communicative function and, as such, knowledge of intonation is essential in discourse, too. It shows the speaker's purpose in saying something whether he is telling, requesting, asking, ordering, apologizing, greeting or thanking a listener. Usually a falling tone denotes 'speaker-dominance' and a rising tone indicates 'speaker-deference'; this means that the speaker does not know and so asks, does not have authority and so requests, etc. Intonation is employed to present ideas and information in utterances and conversations. Similarly, a conversation is governed by interactional tactics, i.e. by turn taking norms. Participants in a conversation evaluate each other's utterances to judge the right time when the speaker hands over the floor, and the listener takes his turn. Through intonation the speaker can deduce what is shared knowledge (given information) or what is a new piece of information.

Information also helps indicate if a sentence is complete or if there is something to follow. A falling tone has an implication of finality and a rising tone, an implication of non-finality. Even in the reading of a prose passage, intonation plays an important role. The essence of a passage is conveyed to the students only if it is read employing all the rules of intonation. Usually, finding the tone group boundaries is quite easy and the teacher may not make a mistake in that. When it comes to tones, the low-rise tone is oratorical and is the usual tone employed for reading aloud. But if a passage is read with a wrong tonic and tone, it may not have a great appeal to the students, and they may lose interest in the text. But, by using the right tones on the correct syllable along with other prosodic and paralinguistic features like voice quality, tempo, and facial expressions and gestures, the teacher can make the reading of a prose piece lively and absorbing.

Apart from this, knowledge of different tones and attitudinal meanings associated with each tone should be taught to students. A person's personality, his upbringing, his psychology and so much more is revealed through what he says. In other words, intonation is an indicator of his character and personality; as Tench (1996) puts it, what matters is not what someone says, but how he says something.

The Role of Phonetics (stress, accent and rhythm) in teaching Rhymes and Poetry

One of the most commonly taught rhymes at school is *Twinkle, twinkle, little star*. Most often, the significance of the segmental features, word stress and rhythm which contribute to the musical quality of the rhyme are overlooked. English has, what is called, a stress-timed rhythm. Therefore, when it is read with syllable-timed rhythm (as most of the Indian languages have syllable-timed rhythm), it sounds un-English.

'Twin'kle 'twin'kle 'lit'le 'star

'How 'I 'won'der 'what 'you 'are

'Up 'a'bove 'the 'world 'so 'high

'Like 'a 'dia'mond 'in 'the 'sky.

As shown above, each syllable is given the same emphasis, which results in a syllable-timed rhythm. It suppresses the original rhythmic characteristic of the English language which has to be brought out by the varying degrees of stress carried by syllables. The rhythm of English is mainly a matter of syllables and stresses. These two operate together to give the language the rhythmic drive that it naturally has. Only some syllables are produced with extra energy, and there is a regularity of these stressed syllables. In other words, in the English language, stress plays a dominant role. The desirable rendering should be as follows:

'Twinkle 'twinkle 'litle 'star

'How I 'wonder 'what you 'are

'Up a'bove 'the 'world so 'high

'Like a 'diamond 'in the 'sky.

This rhyme has been shown as a simple example but it is true of any poem in literature. Meter, whether in music or poetry, is a way of organizing rhythm. In other words, meter is a way of organizing syllables and stresses resulting in

a recurring pattern – a pattern in which the stressed syllables are perceived as beats and the weak syllables as off-beats between the beats. In a metrical poem, the most likely place for beasts to occur is on the stressed syllables. Most kinds of verse in English are in stress meter where the stress rhythm of the language dominates the syllable rhythm. Thus, the number of syllables between beats varies even as the number of beats remains constant.

Nursery rhymes, popular ballets and other kinds of poems have four-best meters. In most of the poems, the number of unstressed syllables between stressed syllables is consistently one or two. Although the stress-timed nature of English rhythm means that we can squeeze and compress the unstressed syllables into a shorter time so as to maintain the isochronity of stressed syllables, it puts a strain on the reader if there are more than two syllables. It is here that the knowledge of rhythm is essential for a teacher of English. They should know which syllable is stressed and which is unstressed. A non-native speaker teacher needs to acquire this awareness. When we learn to speak English, it is not just a matter of learning only the sounds of the consonants and vowels but also internalizing the use of muscles in the speech organs in a certain way so as to produce a sequence of sounds. Just as one learns activities like swimming or playing the piano, one has to learn the unique rhythm of English speech, which is different from the rhythms of other languages. All languages have their distinctive rhythm and each language has its own way of harnessing the energy of the body.

The purpose of teaching English rhymes and poems to students is to make them familiar with the rhythm of English. Poetry, in particular, intensifies and regularizes the natural rhythm so as to make it possible to experience beats and hence the study of poetry cannot exclude this rich experience. The ESL teacher may use online resources for reaching stress, rhythm and intonation (e.g. https://learnenglish.britishcouncil.org/en/stories-and-poems).

Conclusion

This paper examines how awareness of phonetics, especially rhythm and intonation, enriches the teaching of English. Received Pronunciation (RP) provides the teacher and student a good model as it is most widely researched and in which there is abundant instructional material available. Questions may be raised as to why include RP and who speaks RP. With years of experience in learning and teaching English to Indian and foreign students, I can say with confidence that RP is more a means to an end than an end to itself.

References

Attridge, Derek (1995). *Poetic rhythm: An introduction.* Cambridge: OUP.

Cruttenden, A. (2008). *Gimson's Pronunciation of English* (7thEdn.). UK: Hodder Education.

Gimson, A.C. (1962). *An Introduction to the pronunciation of English* (2ndEdn.). London: Edward Arnold.

Halliday, M.A.K. (1967). *Intonation and grammar in British English*. The Hagur: Mouton.

O'Connor, J.D. and G.F. Arnold. (1973). *Intonation of colloquial English*. London: Longman.

Roach, Peter (2000). *English phonetics and phonology: A Self-contained comprehensive pronunciation course* (3rdEdn.). Cambridge: CUP.

Tench, Paul (1966). *The intonation system of English.* Cambridge: CUP.

Wells, J.C. (2006). *English intonation: An introduction.* Cambridge: CUP.

Affective Factors Influencing Classroom Management: A Theme Paper

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Teaching and Learning is the main part of education. Teaching is referred to help students to learn some knowledge, skill, attitudes or interests. A person who provides education is called teacher. Effective teaching is defined as the ability to captivate students during the lesson, to stimulate them intellectually and move them emotionally to instill in them a love for the subject and a desire to learn more about the subject to motivate them to work on their own and to experience the satisfaction of assisting them to grow into a self-actualized individual. Effective interaction between the teacher and the students in the class room create a good learning environment.

Keywords: Effective Teaching, Involvement, Interaction and Education.

The word 'Education' comes from Latin "ducere" means to draw or lead. The prefix 'e' means 'out of'. Oxford English Dictionary defines education means "the process or imparting knowledge, skill and judgement". Education plays an important role to mould new generation in a country. Educational potentiality of every individual is essential to develop a country. So, it is the divine of the teachers and the school to provide suitable and proper situation to the students for the outgrowth of a nation. Teaching and Learning is an important part of the process of education.

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The teacher draws out the potential and the gifts of the student. A teacher means a person who teaches, controls, learning, dispenser of knowledge, an ultimate authority, a director of learning. A person who provides education is called teacher. The teacher uses different method for giving best knowledge to his students. The Teacher tries his best to make to make understand students. The duty of a teacher is to encourage students to learn his subjects.

According to William Arthur Ward "The mediocre teacher tells; the good teacher explains. The superior teacher demonstrates. The great teacher inspires". Teaching is a relationship which is established among three focal points in education, the teacher, the student and the subject matter. Teaching learning is the process by which the teacher brings the student and the subject matter together. Now teaching is not a mechanical process. It is exact and perplexed as well. Teaching is not 'telling and testing'. It is a complex art of guiding students through a variety of selected experiences towards the attainment of suitable teaching learning process.

- Teaching is a set of events outside the learners which are designed to support internal process of learning.
- Teaching is revealed as stimulating, directing, guiding the learner and evaluating the learning
- outcome of teaching.
- Teaching is a process that enables the learner to learn on his own.

Albert Einstein, a Swiss a physicist says, "The supreme art of teaching is to awaken joy in creative expression and knowledge. The role of a teacher can be categorized into:

- Traditional Role – Teacher Centred
- Modern Role – Student Centred

Nature of Teaching

- The main character of teaching is to provide guidance and training.
- Teaching is interaction between teachers and students.
- Teaching is an art to give knowledge to students in an effective way.
- Teaching is a science to educate fact and causes of different topics of different subjects.
- Teaching is continuous process.
- Teacher can teach effectively, if he has full confidence on the subject.
- Teaching encourages students to learn more and more.
- Teaching is formal as well as informal.
- Teaching is communication of information to students.

- Teaching is tool to help student to adjust himself in society and its environment.
- Teaching is goal- oriented with the change of behavior as the ultimate end.
- Teachers are the ones who actively shape their own action.
- Teaching is a rational and reflective process.
- Teachers by their actions can influence learners to change their own thinking or desired behavior, thus teaching is a way of changing behavior, through the intervention of the teacher.

Teaching is an art. A teacher decides upon the range of methods in the classrooms. The ability to look at a student see where a student is currently and bring some inspiration to them to learn something is an art form. A good teacher needs to know the formula for education. It takes knowledge of curriculum, behavior, philosophy and other areas to successfully become a teacher.

Compare with other profession, teaching is a noble profession. It leads people on the highway of progress and prosperity. The task of teaching can be classified into three.

- Teaching is an independent variable.
- Students as dependent variables
- Content and the strategy of presentation as intervening variables.

There are three levels of teaching. They are:

- Memory Level
- Understanding Level and
- Reflective Level.

According to modern concept of education seven R's are ie. Reading, Writing, Arithmetic Rights, Responsibilities, Recreation and Relationships of democratic values.

Classroom Management

Classroom management is a major responsibility of a teacher. A good class room management brings efficiency in instruction and effective instruction. An experienced teacher put forward these suggestions:

- Thorough preparation before present in the classroom. This gets the class in your control.

- Establish a positive relationship with the class.
- Provide more activities, demonstration and learning aids.
- Cast your sight on all students in the class. Ask questions to students in different places in class. This keeps students alert and avoid playing and mischiefs.
- Try to remember everybody's name.
- Appreciation is a powerful tool. It is used to transform students' image, uplift the entire class.
- Create a safe learning environment. Establish a class room culture in which students are required to respect one another.
- Every student must participate in class every day.
- Try to understand each student's skill and talents before meet student's parents.
- Parents defend and excuse their child's unacceptable behavior, express a positive view to the child.

Experienced teachers have perfected the use of facial expression. With just a glance, students can understand what the teacher mentioned. The creation of the classroom that reflects the teacher's knowledge, enthusiasm and the responsibility for creating a learning environment that will effectively nurture the student's desire to learn and to accept the challenges of thinking and inquiring into all that is offered by the teacher.

The effective teacher will be one who engages with the students in the class in a way that highlights mutual respect and an acknowledgement of the learning process that is in place. The teaching is a caring exercise is very much part of the effective learning process. Learning is an emotional exercise. Students will engage in something that appeals to them emotionally. The teacher brings a sense of personal involvement in the classroom, who wants to share the knowledge with the members of the class. The above methods will encourage an effective learning environment.

Reference

Mandal, Ritarani, S. Renuka Devi. "Essentials of Teaching and Learning". Salem: U of Tamil Nadu Teacher Education P, 2016. Print.

Meenakshisundaram, A. "Pedagogy of English", Dindigul: U of Tamil Nadu Teacher Education P, 2016. Print ."Advanced Techniques of Instruction"

Tanavati, C. "Advanced Techniques of Instruction". Salem: Samyukdha P, 2017.Print.

The Development of Art and Literature in Travancore

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Travancore occupies a prominent place in the Indian States. This state has in the past, come in intimate contact with every type of ancient civilization, the Chaldaean, the Egyptian, the Greek, the Roman and the Chinese. But it preserved its cultural tradition intact, while, profiting in certain respects by association with outside. The paramount duty of the Government in the makes of imparting Public Instruction was recognised. So early on 1817 A.D. when schools were stated for the teaching of Malayalam and Tamil, the two indigenous languages of the country. Travancore has been spending enormous amount for the promotion of education as well as the development of art and literature.

Keywords: Development, Art, Literature and Travancore.

Introduction

The early Cheras were great conquerers, Imayavarmpan Netuncheralatan (1st century A.D.) scored a victory over the Kadambas and this victory is compared by a poet of the time to that of the war –God Subrahmanya over Surapadma. He is also said to have defeated the Yavanas (Greek). His brother and successor Palyanichelkezhukuttuvan were also a powerful warrior, who is described in the Tamil Classic, Patittupattu, as 'the ever-victorious lord of vast armies and the protective armour of fierce - eyed warriors'. The greatest monarch of that dynasty was Chenkuttuvan (2nd century A.D.) who not only gained a decisive naval victory over his enemies, but also extended his conquests as far as the Himalayas. PerumcheralIrumapurai defeated his enemies in the battle of Takatur. It is needless to quote further illustrations.

The later Cheras were equally powerful rulers. One of them, Sthanu Ravi (A.D. 870 - 900) was a friend of Aditya I, of the Vijayalaya line of the Chola kings and it was both these kings together that crushed the power of the Pallavas of Conjivaram. Goda Ravi Varma (A.D. 912 - 942) successfully resisted the Ganga invasion of Kerala through Palghat.

The Travancore rulers appear to have maintained an army and a navy from the earliest times known to history, Vizhinjam, in the Neyyattinkara Taluk, was their southern emporium where they maintained a fleet. In 791 A.D. a battle was fought at Karaikkottai, near Nagercoil, in which the ruler of Venad defeated the Pandya ruler and killed Ranakirti, one of his generals. All the country, from Cape Comorin to Tiruvalla belonged to them and they could not have protected it without an efficient army. Rajaditya, the son of Parantaka I, (907 - 955 A.D.) The great Chola emperor, had a large number of Malayali soldiers in his array and one of his distinguished generals, Vellan Kumaran, was a native of Puttur on the banks of the Tirunantikkarai river in the Kalkulam Taluk. In the Tiruvalangadu plates of the Chola emperor, RajendrasChola I (A.D. 1014 to 1044), it is stated that Keralesvara, whom from the context I take to be the kind of Travancore, had a powerful army. KulottungaChola I (1020 to 1120 A.D.) also refers to the great army of Travancore, in one of his inscriptions. Kulottunga had to maintain a strong military force known as Nilappatai in Nanchanad against the possible on slaughts of the Travancore army.

The military achievements of Vira Ravi Varma Chakkravati of the Quilon (Jayasimhanat) branch of the Travancore royal family are too well known to call for recapitulation in this connection. He was born in 1266 A.D. and died about 1315. He conquered the whole of Kerala in his thirty - three year of age and after conquering the Pandyas, the Cholas and the Kakatiyas, bore the title of Trikshatrachudamani and crowned himself as the emperor of South India in Conjivaram in his forty sixth year. There is inscriptional evidence to show that he extended his conquests as far as Poonamale in Madras. He is generally known to history and literature by his surname Samgramadhira, which means 'the brave in war'. Large portions of the territory conquered by him in the Tirunelveli District remained with his successors for several centuries. Aditya Varma Sarvanganatha (A.D. 1375) was also a powerful warrior, in his Vatasseri inscription it is stated that he knew to wield all the thirty-six weapons of war and that he defeated several kings in battle.

The Development of Art and Literature

At the beginning of the 16th century, the Quilon branch of Venad was extremely powerful. From the commentaries of Alfonso Albuquerque, it is seen that the island of Ceylon paid tribute to Quilon at the time and that 'in the war which he (the king of Travancore) carried on with the King of Narsinga (Vijayanagar) who had many soldiers, both horse and foot, attacked him with sixty thousand archers and overcame him'. Ludovice Vartheme, who visited Travancore in 1505 A.D. has recorded: The king of this city (Quilon) is a pagan and extremely powerful and he has 20,000 horsemen and many archers and is constantly at war with other kings. Duarte Barbosa, another traveller who visited this country in 1514 has stated: "He is very rich and powerful on account of his many men - at - arms who are very good bowmen. He always has in his guard four or five hundred women, trained from girls go be archers; they are very active. He sometimes is at war with the King of Narsinga who wishes to take his territory; but he defends himself very well". The people of Quilon maintained unimpaired their skill in archery all through. They were known asvillis and maintained a high standard of excellence in medieval wars.

It is a mistake to suppose that Travancore had no army worth mentioning until the time of Vira Martanda Varma. Writing in 1664, John Nieuhoff, the Dutch Captain, observes: 'Kalkolong (Kalkulam) is a very large city being a league and a half long, upon the confines of the Neyk (Nayak) of Madura (Madura). It is situated upon a high hill, three leagues from Tengapattanam (Tengappattanam) and twelve from Kowlong (Quilon) being on one side strengthened by inaccessible mountains, on the other side by a wall, the undermost part of which is of stone, the uppermost of brickwork, in all 24 feet high; the royal palace stands at the west end, being surrounded by a stone wall. On the east side you see the ruins of an old castle, built on the top of a hill fortified by a triple wall. The city of Kalkolong is the chief residence of the king, who constantly keeps a garrison of 10,000 negroes here, to secure against the Neyk of Madura, whose power is much dreaded here".

During the time of Rama Varma, the predecessor of Martanda Varma, the power of Travancore had considerably dwindled on account of internal dissensions and it became therefore necessary for him in 1,726 to secure a force of 1,000 cavalry and 2,000 Carnatic sepoys to restore order in the state. As soon as ViraMartanda Varma ascended the throne, this force was disbanded, but it again became essential for him to bring another force soon after. It is, however, seen that the Maharaja had his own Nayar and Marava

troops, that an attack planned against the temple of Sri Padmanabha by the contingent brought by Kunchutampis from Trichinapoly was unsuccessful and that the Maharaja himself was able to collect an adequate force composed of horse and feet from Quilon to wrest the fort of Kalkulam from his enemies. It was this indigenous army of Travancore under Ramayyan Dalava that conquered IlayitattuSvarupam (Kottarakkara) and defeated the Rajas of Quilon and Kayamkulam, though in the war with Kayamkulam a regiment of Maravas from Tinnevelly under Ponnan Pandya Tevaralso co-operated. It was the same army that defeated the Dutch at Colachel, where also the military genius of Ramayyan, not to speak of that of the Maharaja, was in conspicuous evidence.

At the battle of Colachel Captain Eustachius D' Lanney of Flemish origin, was taken prisoner. Another soldier, sergeant Duyvenschot, also became employed under Travancore, both of them according to Moens, the Dutch Governor of Cochin, 'not only understood their military duties and were well
educated men, but had besides a fairly good knowledge of fortification and the art of war, having served in Europe and gained some experience.

In the wars against the Dutch at Quilon and Kilimanur, Travancore, according to the Dutch accounts of 1742, is said to have lost 6,000 to 9,000 men, which shows that it must have had an extensive army at that time. D' Lanney became attached to the Travancore army in 1740 and in due course became its commander - in - chief, serving Maharajas Martanda Varma and Rama Varma with remarkable loyalty and distinction till his death at 62 years of age in 1772. The infantry reorganized by D'Lanney, according to Robert Orme, the historian, consisted of 1,00,000 Nayars and "20,000 other feet of various arms". It was with this army that the possessions of Tinnevelly beyond the ghats were ruled for some time until they had to be given up to the Nawab of Arcot under pressure from the English East India Company, further conquests in North Travancore and Cochin were affected and the Zamorin kept at bay.

In the war against Hyder Ali and Tippu Sultan of Mysore, Travancore regiments of cavalry and infantry were placed at the disposal of the divisional commanders of the East India Company at Calicut, Palghat and Tinnevelly and they were universally accoladed to have behaved themselves remarkably well. The contingent sent to Tinnevelly had to remain there for a period of two years.

Humbrstene wrote to Maharaja Rama Varma; "I will relate to the Governor General the great friendship you have shown and the services you have rendered to the English interests is general and to the army I command in particular".

Speaking of the composites of the Travancore army about 1,780, Era Paoline says: "The military force of the present king of Travancore consists of 50,000 men, disciplined in the European manner and 1,00,000 Malabar Nayars (Nayars) and Cheges (Izhavas) armed with bows and arrows, spears, swords and battle - axes .... The troops are always marching up and down through the county to change the cantonments, to enforce the collection of the taxes and to preserve peace and tranquility'. The garrison of Trivandrum, he observes: "Consists of 400 Patan (Pattan) cavalry; about a thousand Nayaris (Nayars) or noble Malabar warriers and nearly 10,000 sepoys, acrops composed of all kinds of people but instructed in military discipline according to the English manner". "Padmanapuram" (Padmanabhapuram) he added 'is a considerable castle net far from Tiruvancode (Tiruvitamkotu), where the king resides and keeps his treasure. Odeagiri (Udayagiri) is also a place of strength and the king's principal magazine of arms and warlike stores.

There is a arsenal and a cannon foundry". It is unnecessary for me to describe in detail the achievements of the Travancore army on the 28th December 1789, when 20 men attacked an army of 14,000 infantry and 500 pioneers led by Tippu Sultan himself, inflicted a crushing defeat on him, aimed him for life and took as trophies of war, his seals, rings and personal ornaments. Tippu is stated to have sustained a loss of 2,000 men on that occasion.

A portion of the army of Travancore was known as the Carnatic Brigade. When this brigade was organised and how it came to bear that appellation are shrouded in mystery. It is however possible that this Brigade derives that name, because one of the objects with which it was constituted was to assist the Nawab of Carnatic in times of trouble in Madura and Tinnevelly.

If that is so, this Brigade could have come into existence only in 1767 at the earliest. Towards the close of the reign of Maharaja Rama Varma, it was

stationed at Alleppey and Col. Daly was its Commander from 1789 to 1809. It was this force led by Raja KesavaDasthat fought on the side of the company against Tippu Sultan at Palghat, Coimbatore and Seringapatnam. Clause 7 of the treaty of 1795 required that Travancore should furnish such aid, to such extent and in such numbers as may be in his power from his regular infantry and cavalry, exclusive of the native Nayars of the country the expenditure on that account being met by the company.

The story of the tribute that was compelled to be paid by Travancore to the British formerly is very interesting. In 1788, the Maharaja applied to Sir Archibald Campbell, Governor of Fort St. George, for a loan of 4 officers and 12 sergeants to train six battalions and other troops detailed by him for encountering the army of Tippu in the event of an invasion of Travancore by him.

The Governor, while rejecting that request, suggested that one, two or even three battalions of the company's troops might be employed with advantage in securing Travancore against any sudden attack from Tippu. The Maharaja had to accept this suggestion because of the contingency of the situation and agreed to receive the battalions. The monthly expenditure of one battalion amounted to a little more than 1750-star pagodas and the Maharaja agreed to pay this cost either in cash or in pepper. The two battalions were not to be employed outside Travancore should any additional force be found necessary to strengthen the frontier, it was to be maintained entirely at the cost of the company. In the treaty of 1795, the Maharaja was asked to pay annually 'both in peace and war, a sum equivalent to the expense of three of the Honourable Company's battalions of sepoys, together with a company of European artillery and two companies of lascars.

The subsidiary force was stationed at Quilon. Its first Commander was Captain Knox. It arrived in April 1789, but was in no way useful to Travancore in the war with Tippu in December, that year. The expenses of the subsidiary force became a permanent feature in the treaty of 1795.The Travancore army was used to be paid partly in cash and partly in kind. VeluTampiDalava, on the ground of financial stringency, reduced several of its emoluments in 1804, with the result that there was a general insurrection' VeluTampi then disbanded all but 8,000 men.

This was one of the reasons which led to the treaty of 1805 under which Travancore agreed, under coercion, to pay a sum equivalent to the

expenses of four battalions of native infantry, in addition to the amount payable under the treaty of 1795. Apart of the subsidy due under the treaty of 1795. Apart of the subsidy due under the treaty of 1795, used to be paid in pepper, but after 1805 the price of pepper fell and the company pressed Travancore for the payment of the entire subsidy in cash. Already groaning under a heavy war debt, Travancore could not possibly comply with this demand and VeluTampi had no alternative but no make a refusal. This was the main cause of the enemity between him and Col. Macaulay which eventually led to the revolt of VeluTampi towards the close of 1808.

As a measure of retrenchment, Macaulay had suggested to VeluTampi the dismissal of the Carnatic Brigade, but VeluTampi, who suspected the bonafides of that suggestion would not accept it. Lieut. Col. Chalmers was at that time in command of the subsidiary force composed of three battalions of the Madras army, which was stationed at Quilon. The contest between the forces of Chalmers and VeluTampi commenced on the 28th December, 1808. In the middle of January 1809, a sufficiently large contingent was assembled by the company and sent under the command of Lieut, Col. Sentleger along the Aramboly lines, thus creating a diversion in favour of Chalmers. Sentleger took Aramboly on the 10th January, Nagercoil and Kottar on the 17th and Udayagiri and Padmanabhapuram on the 19th. Lieut. Col.

Welsh, who was one of the officers employed under Sent leger in that campaign, states that Aramboly was defended by ten thousand men and fifty pieces of cannon. Nagercoil was defended by only six hundred men. Welsh observes 'Although generally speaking, the enemy had proved far below our expectations, yet there are some exceptions. On the 10th a Native Officer in the lines, after being fired at by a soldier of the 69th, cut him down and was killed by another soldier; a few others also stood on both days and refusing to surrender, were put to death on the spot.

These instances deserve to be recorded, because they were rare, for, taking them all in all, I never beheld a dastardlier crew nor did they deserve the name of soldiers, although nearly clothed in military uniforms, furnished with capital arms and in a country, every inch of which might have been defended'. At the Padmanabhapuram Palace, the victorious army found 'many valuable swords, dirks, pistols, guns, rich muslins, kinchebe etc., Several of the swords proved to be gold hilted and the blades were of the first water'.

The British army 'captured sixty elephants and about fifty thousand stands of arms with several hundred gund; but the greatest curiosities were a gun and mortar, both of exquisite worksmanship. Mounted on the parade in Udayagiri and cast in the place by some European artist. They were made of brass, the gun sixteen feet long and bored as a twenty - two pounder was so extremely massive, that twelve hundred men assisted by sixteen elephants, could not move it even for a few yards".

In the meantime, the main army of VeluTampi, 30,000 strong, with 18 guns, was defeated in the battle of Quilon on the 10th January by Lieut, Col. Picton and Captain Newall. On the 15th February, VeluTampi who had encamped at Kilikollur near Quilon with an army of 5000 men, suffered another crushing defeat. Peace was concluded between Travancore and the British Government on the 2nd March, 1809. It may be pointed out in this connection that the bulk of VeluTampi's army both in Quilon and Aramboly were raw recruits, the force actually in service being only 8000 strong after the reform of 1804 and it was therefore that they conveniently came in for the description of being a dastardly crew at the hands of Welsh.

Conclusion

When UmminiTampi became Dewan on the 15th March, 1809, one of the first acts he was obliged to perform was the dismissal of the state army, together with the Carnatic Brigade, excluding 700 of the first Nayar battalion, who were thence forward to be employed only for ceremonial purposes. The defence of the state was wholly entrusted to the subsidiary force stationed at Quilon a part of which was posted at Trivandrum. Thus the colonial rulers ended the career of the old Travancore army, which on numerous occasions covered itself with glory and reflected credit on the state.

Reference

Proceedings of the Sri Mulam popular Assembly, Trivandrum, 1925.

Journal of Science and Literature No. 32, Madras 1930.

K.K.N. Kurup; Journal of Kerala Studies, Trivandrum, 1980.

V. NagamAiya; The Travancore State Manual No. II, Trivandrum, 1989.

Environmental Issues and Solutions

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Human population size has grown enormously over the last hundred years. This means increase in demand for food, water, home, electricity, roads, automobiles and numerous other commodities. These demands are exerting tremendous pressure on our natural resources, and are also contributing to pollution of air, water and soil. The need of the hour is to check the degradation and depletion of our precious natural resources and pollution without halting the process of development. Pollution is any undesirable change in physical, chemical or biological characteristics of air, land, water or soil. Agents that bring about such an undesirable change are called as pollutants. In order to control environmental pollution, the Government of India has passed the Environment (Protection) Act, 1986 to protect and improve the quality of our environment (air, water and soil).

Keywords: Pollution, Environmental Problems, Environmental Protection

Man is an integral part of environment. The history of human civilization, in fact, may be regarded as a process of adjustment and progressive control over the natural environment, by man, to satisfy his urge for material and environmental resources and ensure a still higher standard of living. In this process the 'careless technology' has caused havocs, to the extent of bringing about serious ecological problems and environmental imbalance.

Environmental protection has become a national issue as well as international issue in recent years. Though scientists and environmentalists have recognized the magnitude and significance of environmental problems for

decades, it is only recently that the media has turned to highlight issues like Minamata disease (Japan), Bhopal tragedy (India), greenhouse effect, deforestation, global warming and waste generation. Creating a sustainable development must be implemented as a reactive plan. World Business Council for Sustainable Development [1] has defined sustainable development as "form of progress that meets the needs of the present without compromising the ability of future generations to meet their needs". Therefore, to make sustainable development and environment, tentative programmes and campaigns to enforce environment awareness must be emphasized as vital programmes prior to several cases due to poor environmental conditions. As mentioned by Tweed and Sutherland [2], existing approaches to sustainable development tend to focus on technical issues, such as the reduction of energy consumption and environmental pollution

For example, in China, the government has taken comprehensive investment and measures as to overcome environmental and pollution effects in their country. Inevitably, the global community has shown keen awareness and concern over environmental issues these past decades. This community includes the public, government and the corporate world. Those formerly opposed to environmental conservation are slowly but surely becoming proponents advocating going to sustainable development. Therefore, reducing the burden of environmental impacts is necessary if development is to become sustainable. However, it seems that programmes undertaken due to poor environmental conditions is a reactive approach; only implemented when there is occurrence of disaster. This conventional thinking needs to be changed as poor environmental conditions will leave bad effects to the global environment. Unplanned development and public's low attitude are among of the causes that constitutes to environmental problems, especially in developing countries.

Even though environment protection has been emphasized in many countries like China, Japan and United Kingdom, but still there is several countries not allocate these issues as main priority solution or activities. The extended of knowledge towards enhancing environment protection is still lack and not taken as a comprehensive programme. It is observed that environmental awareness among the public community is still poor, insufficient and not considered as vital issues. The occurrence of poor environmental conditions not only affected the public, but it also affects the community in terms of economic, social, life and generation. Ecological sustainability is, in turn, a basic prerequisite for sustainable economic and social development. The first step in formulating an effective response to this challenge, focused

solely on the environmental issues, entails a quantification of the contribution required from the various areas of human activity for the achievement of sustainable development. Without binding sub-targets for the different sectors, it will be all but impossible to move systematically towards a sustainable society.

Man, and environment symbiosis is now in disarray. The environment is being degraded and disrupted by modern man, knowingly or unknowingly, at an ever-accelerating rate. Air and water pollution, deterioration in natural surroundings and cultural heritage, destruction of wild life and forest wealth, soil erosion and land degradation, acid rain, the side effects of excessive use of pesticides and chemicals, disturbances in123123food chain, nutrient cycles, energy flow and heat are some of the evil products of the monstrous technology.

The environmental problems arising out of the inadequacy of development are rather more serious in the developing countries. The Global 2000 report is of the opinion that many of the World's most severe environmental problems are in part a consequence of extreme poverty. Lack of sanitation, sewage and drinking water, low level of cultivation and literacy, rapid growth of population, high incidence of diseases and introduction overstrained health facilities and public utilities impair the quality of life and damage the environment. India, a developing country, is in a very precarious situation, suffering from problems of inadequate development and industrialization as well as urbanization.

Environmental problems and sustainable development which are currently receiving attention are vital mainly with the adverse impact of human activities on the development. The adverse impacts damage the environmental resources and ecological foundations of the life support system. Growing industrialization and coal-based electricity generation have led to atmospheric pollution. The disposal of untreated industrial wastes into the water bodies created the problem of water pollution. The use of chemical fertilizers and pesticides leads to water pollution. Modern man has violated the outer limits of the earth's space without satisfying the inner limits.

Environmental awareness has continuously grown since the beginning of the seventies. Most of the people are now aware of the preservation of environment. However, most of the decision makers, project planners and

administrators are not aware of the local constraints and pressures which force the population to deplete the resources in spite of their knowledge of the importance of conservation of these resources in sustaining life.

Effects of Noise Pollution

Noise pollution is highly annoying and irritating. Noise disturbs sleep, causes hypertension (high blood pressure), emotional problems such as aggression, mental depression and annoyance. Noise pollution adversely affects efficiency and performance of individuals.

Prevention and Control of Noise Pollution

Following steps can be taken to control or minimize noise pollution

- Road traffic noise can be reduced by better designing and proper maintenance of vehicles.
- Noise abatement measures include creating noise mounds, noise attenuation walls and
- well maintained roads and smooth surfacing of roads.
- Retrofitting of locomotives, continuously welded rail track, use of electric locomotives
- or deployment of quieter rolling stock will reduce noises emanating from trains.
- Introduction of noise regulations for take-off and landing of aircrafts at the airport.
- Industrial noises can be reduced by sound proofing equipment like generators and areas producing lot of noise.
- Power tools, very loud music and land movers, public functions using loudspeakers, etc should not be permitted at night. Use of horns, alarms, refrigeration units, etc. is to be restricted. Use of fire crackers which are noisy and cause air pollution should be restricted.
- A green belt of trees is an efficient noise absorber.

Water pollution

It is the major source of water borne diseases and other health problems. Sediments brought by runoff water from agricultural fields and discharge of

untreated or partially treated sewage and industrial effluents, disposal of fly ash or solid waste into or close to a water body cause severe problems of water pollution. Increased turbidity of water because of sediments reduces penetration of light in water that reduces photosynthesis by aquatic plants.

Pesticides like DDT and others used in agriculture may contaminate water bodies. Aquatic organisms take up pesticides from water get into the food chain (aquatic in this case) and move up the food chain. At higher trophic level they get concentrated and may reach the upper end of the food chain.

Metals like lead, zinc, arsenic, copper, mercury and cadmium in industrial waste waters adversely affect humans and other animals. Arsenic pollution of ground water has been reported from West Bengal, Orissa, Bihar, Western U.P. Consumption of such arsenic polluted water leads to accumulation of arsenic in the body parts like blood, nails and hairs causing skin lesions, rough skin, dry and thickening of skin and ultimately skin cancer.

Oil pollution of sea occurs from leakage from ships, oil tankers, rigs and pipelines. Accidents of oil tankers spill large quantity of oil in seas which kills marine birds and adversely affects other marine life and beaches.

Solutions to Environmental Problems

By realizing the repetitive occurrence of environmental pollution to global community and nation, several recommendations are outlined as suggestion to prevent and mitigate environmental pollution. The public involvement is a concept which is going to influence the environment status in the developed democratic societies, and a mechanism by the entire process of decision-making on any arisen problem.

As a conclusion, facility managers, innovators, building designers and other built environment consultants should concern with environmental protection and sustainability as to re-evaluate and reconsider national, local and development policies and training activities. It can be seen that poor environmental conditions are occurred due to several factors such as general lack of environmental concern, lack of environmental plans, policies, and activities. With the increase in awareness of environmental issues, the level of

environmental disclosure and stakeholder demands for environmental information is increasing.

Reference

World Business Council for Sustainable Development WBCSD (2007). Global Survey Shows "Green" Construction Costs

Dramatically Lower Than Believed (HTML). Retrieved on 10 April 2007 from http://www.wbcsd.ch

Tweed, C. and Sutherland, M. (2007). Built cultural heritage and sustainable urban development. Journal of Landscape and Urban Planning. Vol. 83, pp. 62–69.

Martinez, E., Tazdaït, T.,Tovar, E. (2008) Participative democracy and local environmental issues. Journal of Ecological Economics. Vol. 12, pp 83 – 94

Zimmermann, M., Althaus, H.J., Haas, A.(2005). Benchmarks for sustainable construction: A contribution to develop a standard.

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Importance of Home Environment

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Home is the oldest and fundamental unit of human society. In broad sense a family may be defined as group of people living together in a house comprising of grandfather, grandmother, Father, Mother, Brother, Sister, Sons, Daughter, etc... Each family has its own specific culture. Home and family have been playing an important role in the training and education of a child. Home is the first place or institution where we learn our first lessons of living together working together helping each other and learning lessons of mutual help and adjustment. This article tells about the importance of home environment.

Keywords: Home, Environment, Family, Education, and Children.

Home Environment

The family or home is an important agency of education and been exercising an everlasting and immediate influence on the behaviour, character and personality of its members. The education of the child is not the exclusive responsibility of the school. Parents can and should play an important role in shaping and building the character of their children. Every human being is born in to a family and is the oldest human group and basic one, Family consist of Father, Mother, and Children together with all young, old and are dependent.

Family is an interacting system and members of the family have some way of interrelation. Children are motivated to work on activities and learn new information and skills when their environment are rich in interesting activities that arouse their curiosity and offer moderate challenges. The same can be said about the home environment. Unfortunately, here is much variability in motivational influences in home. Some homes have many facilities like interested computers books and puzzles that stimulate children's thinking parents may be heavily invested in their children's cognitive development and spend time with them on learning. Other homes do not have these resources and adults in the environment may little attention to children's education.

Meaning of Home Environment

The word environment is derived from the French environment which means to encircle or surround. "According to the Oxford dictionary the environment is the surrounding objects and circumstances of like of person or society". The environment is the sum all Physical, Chemical, Biological and Sociological factors which compose the surroundings of man. The family is an intimate domestic group made up of people related to one another by bonds of blood or legal ties. It is the smallest and most basic social unit, which is also the most important primary group found in any society. It is the simplest and most elementary group found in society. It is a social group consisting of a father, mother and one or more children. It is the most immediate group a child is exposed to.

In human context, a family is a group of people affiliated by affinity, or co-residence. In most societies it is the principal institution for the socialization of children. Extended from the human "family unit" by biological – cultural affinity, marriage, economy, culture, tradition, honour and friendship are concepts of family that are physical and metaphorical, or that grow increasingly inclusive extending to community, village, city, region, nationhood, global village and humanism. A family group consisting of a father, mother and their children is called a nuclear family. This term can be contrasted with an extended family.

Importance of Home

Parents and families have the most direct and lasting impact on children's learning and development of social competence. When parents are involved, Students achieve more exhibit more positive attitudes and behaviour, and feel more comfortable in new settings. Early childhood provides need reach out to families in order to in their children's education.

Family are crucial partners in promoting positive social skills. Home visits, parent visitation to child care or school setting, telephone conversations,

newsletters, informal notes, bulletin boards, workshops and regular face to face communication can be used to keep families informed about the specific social skills being focused on in the early childhood setting and for care providers to learn about what families are doing at home.

A guidance strategy is to be truly effective, parent involvement and supports are crucial. Early care providers need to energy parents as soon as their child is enrolled is the program and ask for assistance in understanding the child's back ground and the family's goals for the child. Sensitivity to family and cultural differences is crucial and be heightened by the care providers ability to listen and encourage communication.

According to the national association for the education of young children (1998) code of ethical conduct professionals' ethical responsibilities to families most related top guidance strategies include.

- Develop relationships of mutual trust with families we serve.
- Acknowledge and build upon strengths and competencies as we support families in their ask of nurturing children.
- Respect the dignity of each family and its culture, Language, customs and beliefs.
- Help family members improve their understanding of their children enhance their skills as parents.

Home and Education

Family can very much contribute to the education of its children in the following ways.

(i) Conditioning of values and ideas

The child begins his life under the fostering affection and care of his parents. He receives the first lesson of life in his family. These habit patterns of behaviour received by the child from the last throughout his life.

(ii) Advancement in child's vocabulary and experience

All the members of the family act far and to the child's activities and in their process of give and take child learn many things.

(iii) Re organization of experience

Child learns many experiences from the members of the family some these experiences are good and some are bad, some are pleasant. He recognized these experiences if the individuality is respected and he is given love and affection from the family. The reorganization of experiences is very useful for his future life.

(iv) Natural Education

No pre planned education is given new child at home. Everything goes on in a natural way. Thus child learns many things in the family without any deliberate effort.

(v) Inculcation of social and human values

Child learns sympathy co-operating on honesty, truth, justice, feeling of love, and many other social and human values at home.

Conclusion

Home is the social institution which has the most for teaching influence on the development of the child. Family psychologists treat families and individuals, helping to solve and prevent problems within the family unit. Family is the best place for children to grow up. Also the most effective way to ensure children's safety, permanency, and well-being.

References

Mangal S.K (2006). "Advanced Educational Psychology". Prentice Hall of India Private Limited. New Delhi.

Dr. A. Antony (2004). "Psychological Base of Education". Eanchil, Pattathanam, Kollam.

Rtn. Dr. Sri Balaji Loganatan. (2011). "A Book of Phiosophical and Sociological Perspectives in Education". Bharathisalai, Chennai.

J.Akhila. (2015). "A Study on High School Students Home Environment and their Academic achievement of tamil subject in tamil medium students in kanyakumari District". Unpublished dissertation, TNTEU, Chennai.

Formation of the Travancore State Congress

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The princely states of Travancore and cochin had their own struggle and agitations to fight for the people's rights in these states from the very beginning of the British period. On February 23, 1938 a new organization called the Travancore state congress was born at a meeting of prominent leaders, under the chairmanship of C. V. Kunjuraman. Its aim was the achievement of responsible Government on the basis of adult franchise and protection of the rights.

Keywords: Travancore, Congress, Political party, Organisation and Legislator.

The Indian National Congress was organized by A. O. Y. Hume in 1885, it did not spread to Travancore and other parts of India. The congress party too, did not think of expanding its activities because in the meantime the people of Travancore found that the unit of Indian National Congress that was functioning in Travancore too was not active. The congress party remained a silent spectator and watching the course of events. There were both communal and political organizations in the state organized by the leaders to represent the grievances of the people either to the Dewan or to the King.

People's Movement

The introduction of western education awakened the people. They could understand that political and economic situation in the state was unfavourable to their interests and hence, they demanded a share in the administration under the guise of shaping or revamping administration, they imported outsiders for public services. This was highly distaste to the people. They felt that the government had snatched away the opportunities of the Travancoreans. During the administration of Dewan T. Rama Rao their attitudes aggravated and they began to demand a share in the administration. Mr. Parameswara Pillai of Madras Bar spear headed an agitation for the removal of the Dewan Rama Rao a Marathi Brahmin. He wrote articles in the newspaper and published vehemently criticizing the administrative policies of the Dewan. But it did not; produce any result immediately.

Formation of State Congress

The Political disturbance in the State, the hands attitude of the Indian National Congress and the oppressive nature of Dewan C. P. Ramaswamy Aiyer of Travancore, made the political leaders to form a political organization of their own. The leaders also arrived at a conclusion that without forming a political party of their own: it would be difficult for them to right for responsible Government. Already there had been agitation in Mysore, Orissa and Hyderabad against the Princely system of administration. The people could understand the plan of the leaders and this evoked unprecedented support and enthusiasm among the people. The Political leaders of Travancore could understand that the situation was ripe for them to start a political organization. They took immediate steps for the organization of a political party in Travancore.

Understanding the situation, the congress leaders took immediate steps for the organisation of a political party. on 17" 'February 1938 they conducted a preliminary meeting at Trivandrum. In the meeting, it was decided to organize a Political party for protecting the interests of the minority communities and for the establishment of responsible Government in the state. After arriving at the conclusion to form a political party, the meeting was postponed to the

following week. As decided the next meeting was organized on 23" February 1938.C.K. Kunju Raman, an Ezhava leader presided over the meeting. In the meeting, it was decided to organize a new political organization called the 'Travancore State Congress'. Now the members of the Joint Political Congress party decided to convene the working committee meeting. After the formation of the state congress the leaders decided to prepare a constitution for the congress party. A meeting was convened on 25th February at Thycaud, Trivandrum. The constitution of the organisation was drawn up. The constitution provided a president, Secretaries, working committee members and propaganda Secretaries. In the meeting, Pattom A. Thanu Pillai was elected the President, P.S. Narayana Pillai and K. T. Thomas were elected as Secretaries. M. Madhava Variyaras the Treasurer. The constitution provided a public committee to propagate the ideals, the aims and a basis of the congress committee to the people.

The aim and objectives of the Travancore State Congress were to make the people to understand and learn about the working of the congress. Basing on this the congress party issued its first press statement on 26th February 1938. The statement disputed the communication of the Dewan, C.P. Ramaswamy Aiyer. The statement was that the Dawn was not Conducting responsible Government. It also Welcomed the timely announcement of the British Parliament about the policy of non-intervention in the affair of the state. However, the Primary objectives declared in the first meeting was the attainment of responsible Government by legitimate and peaceful means with universal adult franchise and with adequate safeguards for protection of minority interests. Thus, from the beginning itself, the party insisted upon the realization of a democratic of Government, responsible to the people and representative of all communities and classes.

The state congress adopted the following programmes:

- To secure for the people a detailed declaration of fundamental rights which guarantee freedom of speech and expression, freedom of press and association.
- To foster communal harmony and unity
- To safeguard. He interests of individual and agricultural labours.
- To protect and develop the national and economic prosperity of the state especially by encouraging internal trade and industry.

- To secure for the Indian States their lawful and legitimate place in an all India Constitutional scheme by establishing co-operation and unity between native states and British India on the other.

The attitudes adopted for the achievement of these demands varied according to the nature of policies formulated by the Government. Their declared objective however, was to secure these by just and peaceful means and therefore, they took non-violence as a principle.

The state congress sought help and guidance from the congress leaders of India and tried to act in accordance to the suggestions of M.K. Gandhi. However, departure from declared lines of action too was attempted. There are different views about the organization of the state congress. Nilkan Perumal, a Pro-government political worker of Madras, wrote: 'the communal-minded joint political congress was rebaptise as the nationalistic state congress; its planks and programme were to work for responsible Government E. M. s. Namboodriripad, a communist leader of Malabar, contented that 'a federation of the Ezhava, Muslim and Christian communities subsequently transformed itself into the state congress. These views focused on certain particular issues of interest. However, it should be recognized that different forces had exerted their influences in shaping the political currents in the state. Among them the successful culmination of the abstention agitation, developments in the Travancore Legislature, the explanation in the British Parliament on British Policy towards states and the Haripura decision of the Indian National Congress worked as ingredients and quickened the process of its organization. The Organisation of state congress was accepted by the people. In an attempt to live up to the expectation of the people the congress party started its work and fixed attainment of responsible government as its goal.

Conclusion

The formation of Travancore State Congress was not an accident. It took time to get shaped. Earlier, Civil Right League 1919 fought for the cause of the people. Before that the people's movement was led by the communal leaders. During this period, Mahatma Gandhi Organised the Non- cooperation movement. Hence the sympathizers of Gandhi in Travancore organized the congress committee to discuss the progress of the Non- cooperation

movement to promote boycott of foreign goods and educate the people about the movement. Actually, they had no intention to involve in the local issues of Travancore.

Reference

Agur, *C. M. Church History of Travancore, Madras, 1903.*

Karunakara Menon P. K. *History of Freedom Movement in Kerala. Vol. II.*

Mahadeva Desai *The Epic of Travancore,* Ahmadabad, 1937.

Menon, P, K. *The History of Freedom movement in Kerala,* 1885-1930, Trivandrum Vol. II.

Nayanar, E. K. *My struggle,* New Delhi, 1982.

Parameswaran Pillai. G. *The Father of Political Agitation in Travancore,*

Trivandrum, 1948.

Pattabhi Sitaramayya. B *History of Indian National Congress,* Vol.II, 1935-1947, New Delhi.

Ravindran, T.K. *Vaikom Satyagraha and Gandhi,* Trichur, 1975.

Robin Jeffry *Decline of Nayar Dominance in Society and Politics in*

Travancore, 1987-1908, New Delhi, 1976.

Sreedhara Menon, *A Kerala District Gazetteer Trivandrum District,*

Trivandrum, 1962.

Seasonal Dynamics and Mathematical Relationship of Biological Oxygen Demand (Bod) and Chemical Oxygen Demand (Cod) of Thamiraparani (West) River

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Investigating twelve locations of the river which flows from the pper reaches of Kodayar (S1) to the estuarine zone Thengapattinam (S12) were observed for the study. The seasonal change during its flow in the twelve stations especially during monsoon season is highlighted. This paper brings out the seasonal variations of water in the year 2011-13, and the water analysis of certain parameters such as BOD and COD. The Biological Oxygen Demand of the twelve stations showed a maximum of 12mg/l and minimum of 1mg/l during the study. Seasonal variations in COD reveal a peak in the Station 6 during north-west, south-west monsoons and summer seasons. Such high degree of variation is due to difference in monsoon rains. The BOD and COD was found to be significantly correlated (r=0.5762) in the polynomial fit and the relationship established.

Keywords: Seasonal variation, Mathematical Relationship and Oxygen.

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Introduction

The world we live demands water as the most significant component. A sharp decrease in good and safe drinking water becomes a rare commodity. Among different types of water bodies, river serves an important role in water supply for domestic, industrial, agricultural and power generation. On this long-standing life promoting nature of water, water quality assessment with physical, chemical and biological characteristics becomes essential. The water quality standards vary significantly due to different environmental conditions, ecosystems, and intended human use (Diersing and Nancy, 2009). In early days water was used only for domestic needs like drinking, washing, bathing and cooking. But now industrial and urban development prove to be a challenge and so quality water is required for living organisms.

In the southern part of India, South Indian rivers "Thamiraparani (west)" river is located in the southernmost part of peninsular India and serves as the chief source of water for drinking and agricultural purposes of Kanyakumari district. Within the district of Kanyakumari, the West Thamiraparani river originates from the Mahenthragiri hills of the Western ghats with an elevation of 1,645.2 meters and passes by the Kodayar dam. It stretches through a 60km length and confluences with the Arabian Sea at the Thengapattinam estuary (7°53´N and 70°07´E). The quality of river water is influenced by various natural factors such as rainfall, temperature and weathering of rocks and anthropogenic activities which alter the hydrochemistry of river water (Raj and Azeez, 2009). Moreover, large scale sand mining, mushrooming brick kilns, coir retting as well as automobile, domestic and industrial waste the river water is now gradually undergoing eco-degradation. On this area of seasonal dynamics especially with the quality of the water few works were carried out, therefore this attempt to identify the changes in the BOD and COD of the Thamiraparani (west) river water is planned.

Material and Methods

Location of Study

The Thamiraparani (west) river which irrigates a major part of Kanyakumari district was selected for the present study. Water samples were collected from 12 different sites (Table. 1). Water sample was collected in polythene bottles of 2 liters and carried to the laboratory, where physio-chemical parameters were analyzed as per standard methods (APHA, 2011). The parameters selected for analysis were BOD and COD one-year June 2011 to May 2013 in four seasons each.

Statistical Analysis

Analysis of variance (ANOVA) comparing the difference among different stations was carried out using MINITAB software and the nonlinear relationship between BOD and COD was carried out using CURVEXPERT software and the best mathematical model was determined using R^2 and SE values.

Table - 1

Study location during the present investigation

S. No	Station No.	Locality	Latitude	Longitude	Altitude (ft above msl)
1	S1	Kodayar	8° 31'11.75" N	77° 18'36.75" E	930
2	S2	Kuttiyar	8° 30'03.27" N	77° 18'11.59" E	347
3	S3	Mothiramalai	8° 29'55.28" N	77° 17'56.56" E	433
4	S4	Kadaiyalumoodu	8° 23'57.03" N	77° 16'51.55" E	211
5	S5	Kaliyal	8° 24'42.77" N	77° 15'31.47" E	194
6	S6	Thiruparappu	8° 23'57.03" N	77° 15'31.46" E	161
7	S7	Muvattumugom	8° 23'28.49" N	77° 15'04.98" E	68
8	S8	Gnaranvilai	8° 20'35.73" N	77° 13'26.47" E	63
9	S9	Kuzhithurai	8° 19'10.75" N	77° 12'31.11" E	58
10	S10	Ganapathiyankadavu	8° 18'33.42" N	77° 10'16.58" E	57
11	S11	Pallikal	8° 17'13.57" N	77° 09'46.61" E	57
12	S12	Thengapattinam		77° 10 '11.92" E	5

			N 8º 16'17.63" N 8º 14'24.65" N		

Table - 2

Time series data of rainfall by seasons (2011-2013)

Year	Seasons	Normal mm	Actual mm	Total	
				Normal mm	Actual mm
2011-12	South-West monsoon North-East monsoon Winter season Summer season	327.8 427.4 33.4 217.4	368.2 580.8 39.7 209.1	1006.0	1197.8
2012-13	South-West monsoon North-East monsoon Winter season Summer season	477.4 496.4 40.4 288.3	258.3 373.4 95 122.5	1302.5	849.2

Results and Discussion

The results of the present study reveal that there is a wide fluctuation in the biological oxygen demand of the twelve stations that showed a maximum of 12mg/l and minimum of 1mg/l during the study (Figure 1). Analysis of variance reveals that there is no significant difference (P=0.920) in the BOD level of the water samples studied. However, the comparison of means reveals that the station (S5) has significantly lesser value than others (Table 3). The result of the present study reveals that the BOD ranges from 1 to 12 mg/l. Stations 3 and 12 have the maximum level of BOD, but S5 has the minimum level. The permissible limit of BOD in drinking water is 5mg/l. However, the estuarine zone S12 has 12mg/l of BOD whereas this higher level range marks the degree of pollution.

In various parameters BOD showed significant relation only with Sulphate (r=0.7758). The Polynomial fit is found to be the suitable model to correlate sulphate (Figure 2). The relationship can be expressed as follows,

$$\text{Sulphate} = -4.6428 + 9.6793Bd - 7.2224Bd^2 + 2.6746Bd^3 - 5.4570Bd^4 + 6.2398Bd^5 - 3.7436Bd^6 + 9.1575Bd^7$$

Where Bd = BOD

Seasonal variations in COD reveal a peak in the station 6 during north-east, south-west monsoons and summer season (Figure 3). The results of the analysis of variance show significant difference (P=0) in the COD of the water samples studied (Table 4). The Chemical Oxygen Demand (COD) test is generally helpful to indirectly measure the number of organic compounds in water. Roshinebegam *et al.* (2013) suggest that COD test is quite useful in finding out the pollution strength of industrial waste and sewage. The result of the present study reveals that the minimum level of 25mg/l and the maximum level of 68mg/l. Stations such as S5, S6, S8, S9 have maximum level of COD. The result of the present study reveals that the COD ranges from 25 to 68mg/l. The permissible limit of COD in drinking water is observed and the COD values in all the twelve Stations are well within the desirable limit.

In various parameters COD has significant correlation with Fluoride (r=0.5762). The polynomial fit is found to be the suitable model to correlate Fluoride (Figure 4). The relationship can be expressed below,

$$\text{Fluoride} = -2.0668 + 3.7858C - 2.9271C^2 + 1.2380C^3 - 3.0917C^4 + 4.5563C^5 - 3.6671C^6 + 1.2426C^7$$ Where C = COD

Figure 1. Seasonal variations of BOD during the period of investigation

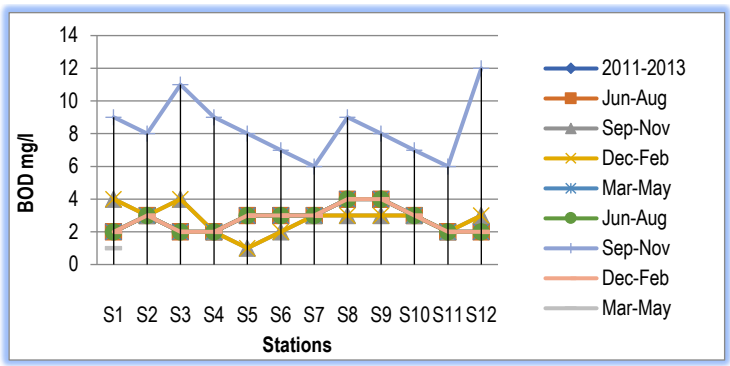

Figure 2. Polynomial fit showing the mathematical relationship between Sulphate and BOD

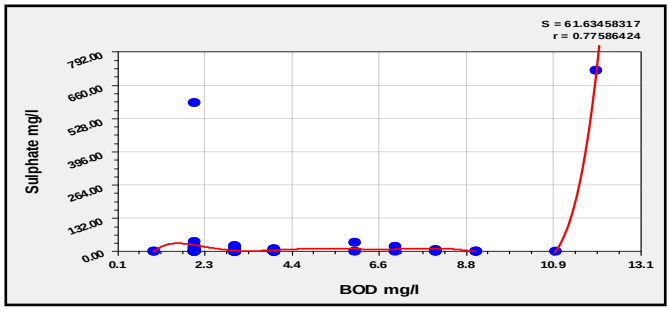

Table - 3

One-way analysis of variance comparing BOD levels in the different stations of the river during the study period

Analysis of Variance

Source	DF	SS	MS	F	P
Factor	11	23.61	2.15	0.46	0.920
Error	84	388.12	4.62		
Total	95	411.74			

Individual 95% CIs For Mean

Based on Pooled St. Dev

Level	N	Mean	St. Dev ----+---------+---------+---------+--
S1	8	3.375	2.446 (----------*---------)
S2	8	3.625	1.768 (---------*---------)
S3	8	3.625	3.114 (---------*---------)
S4	8	2.875	2.475 (---------*---------)
S5	8	3.125	2.167 (---------*---------)
S6	8	3.250	1.581 (---------*---------)
S7	8	3.375	1.061 (----------*---------)
S8	8	4.375	1.923 (---------*---------)
S9	8	4.250	1.581 (---------*---------)
S10	8	3.500	1.414 (---------*---------)
S11	8	2.500	1.414 (---------*---------)
S12	8	3.500	3.464 (---------*---------)
			----+---------+---------+---------+--
Pooled St. Dev =	2.150		1.5 3.0 4.5 6.0

Figure - 3

Seasonal variations of COD during the period of Investigation

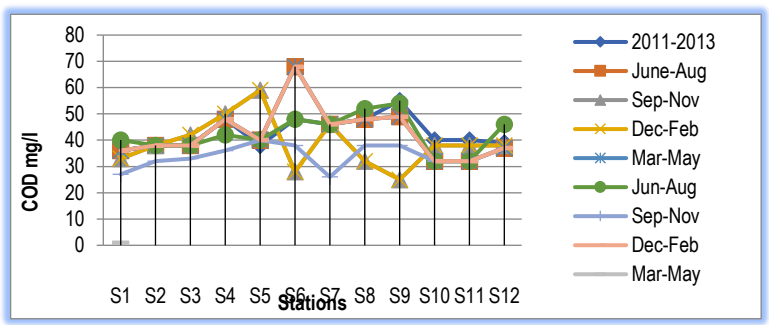

Figure - 4

Polynomial fit showing the mathematical relationship between Fluoride and COD

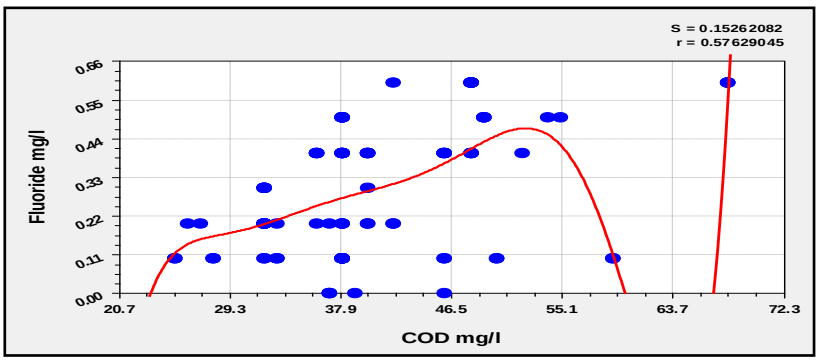

Table - 4

One-way Analysis of variance comparing COD levels in the different stations of the river during the study period

Analysis of Variance					
Source	DF	SS	MS	F	P
Factor	11	2904.1	264.0	4.40	0.000
Error	84	5037.1	60.0		
Total	95	7941.2			

Individual 95% CIs For Mean

Based on Pooled St. Dev

Level	N	Mean	St. Dev -------+--
S1	8	34.625	3.777 (-----*----)
S2	8	37.250	2.121 (-----*----)
S3	8	38.375	2.825 (-----*----)
S4	8	46.250	4.833 (-----*----)
S5	8	44.500	8.976 (-----*----)
S6	8	49.250	17.269 (-----*----)
S7	8	43.500	7.071 (-----*----)
S8	8	43.250	7.996 (-----*----)
S9	8	43.000	12.224 (-----*----)
S10	8	34.500	3.505 (-----*----)

S11	8	29.250	2.375 (-----*----)
S12	8	38.625	3.068 (-----*----)
			-------+---------+---------+---------
Pooled StDev =		7.744	30 40 50

Pazhaniswamy and Ebanasar (2008) also reported that polynomial fit as the best fit model in expressing the relationship between physical characteristics of water in water bodies. The result made here also agrees with the observation made by the above scholars. The result of the present study also reveal that the river has a peculiar type of water quality characteristic during its flow and also have remarkable relationship wth the altitude of the sampling sites.

Reference

Diersing, Nancy. 2009. *Water Quality*: Frequently Asked Questions, PDA, NOAA.

Pazhanisamy, S. Ebanasar J. 2008. *Studies on Mathematical Prediction models on the physical characteristics of lowerAnancut Reservoir Thanjavur District., Tamil Nadu*, Journal of Basic and Applied Biology. 2(3 and 4):14-18.

Raj, N., Azeez, P. A. 2009. *Spatial and temporal variation in surface water chemistry of a tropicalriver*, the river Bharathapuzha, India. *Curr Sci.*, 96(2):246-251.