

TeLeS

ISSN 2348-8409

VOLUME. : 22 NUMBER : 01 MARCH - 2022

Journal of Teacher Learner and Society

Teacher Learner and Society (TeLeS)

Print ISSN 2348-8409 Volume 22, Number 1, March 2022

MANAGING EDITOR

Mohamed Ali, Secretary, Muslim College of Education, Kanniyakumari District, Tamil Nadu -INDIA

EXECUTIVE EDITORS

Radharamanan Pillai, The Addis Ababa University, Ethiopia

Pramod. V. S. Muslim College of Education, Kanniyakumari District, Tamil Nadu -INDIA, *The TNTEU University*

EDITORIAL BOARD

Dr. Yechale Kebede Bizuneh

Vice -President, Arbaminch University, Ethiopia, AFRICA

Dr. Emerson Cabudol

Faculty Member, Business Department, Higher College of Technology, Women's College, Al Ain, UAE

Dr. Zaheer Abbas

Faculty of Management Sciences, International Islamic University, PAKISTAN

Dr.N.Janardhanan

Head, Centre for Post Graduate Studies and Research in English, Muslim Arts College, Tamil Nadu, INDIA

Prof. Jayaraman

Professor, Centre for Post Graduate Studies and Research in English, Muslim Arts College, Tamil Nadu, INDIA

Dr R. Ramesh Reddy

Professor, Department of Civil Engineer, Arba Minch University, ETHIOPIA

Dr. Ahmed Mahmud

Lecturer, Department of English Language and Literature, Madda Walabu University, ETHIOPIA

Dr. Mohammed Kawo

Lecturer, Department of English Language and Literature, Madda Walabu University, ETHIOPIA

Dr. Tesfaye Alemu

Professor, Department of English, Arba Minch University, ETHIOPIA

Dr. Reji. D. Nair Faculty Member, Business Department,
Higher College of Technology, Women's
College, Al Ain, UAE

EDITORIAL ADVISORY BOARD

Dr. A. Sukumaran Nair Formerly Vice-Chancellor, M.G. University,
Kottayam, Kerala, INDIA

Dr. R. Sukumaran Nair Formerly Faculty & Deann Sree
Sankaracharya University of Sanskrit
Kerala, INDIA

**Dr. C. P. Sreekandan
Nair** Faculty & Deann Sree Sankaracharya
University of Sanskrit Kerala, INDIA

Dr. S. Mani Professor & Head, Dept. of Educational
Planning and Administration, Tamil Nadu
Teachers Education University, Chennai,
Tamil Nadu, INDIA

Dr.N.Ramakrishnan, Professor & Head Dept. of Educational
Technology, Tamil Nadu Teachers Education
University, Chennai, Tamil Nadu, INDIA

Dr. P. Ganesan Professor and Head, Department of
Pedagogical Sciences, Tamil Nadu Teachers
Education University, Chennai, Tamil Nadu,
INDIA

Dr.Albukak University of Dublin, IRELAND

Dr. Madhavan Professor of English and Foreign Languages
University Hyderabad, INDIA

Dr. M. Soundararajan Professor and Head, Department of Value
Education, Tamil Nadu Teachers Education
University, Chennai, Tamil Nadu, INDIA

Dr. G. Baskaran, Professor & Dean Faculty of English &
Foreign Languages, Gandhigram Rural
Institute Deemed University, INDIA

Dr. Balasubramanyam, Formerly Vice-Chancellor, Bharatiyar
University, Coimbatore, Tamil Nadu, INDIA

Dr. K.A. Janardhanan	Human Resource Manager, Noorul Islam University, Nagercoil, Tamil Nadu, INDIA
Dr. Omer Al-Buk	Dean of Humanities and Social Science, 7th October University, LIBYA
Dr. Selvinkumar	Vice Chancellor International Tamil University, USA
Dr. S. Pakiam	Formerly Registrar of Manonmaniam Sundaranar University. Tamil Nadu, INDIA
Dr. James R. Daniel	Formerly Principal, Scott Christian College, Nagercoil. Tamil Nadu, INDIA
Dr. B. Sobhanan	Formerly Professor and Head in History, Kariavottom Campus, University of Kerala, INDIA
Dr. Taregn Tedesse	President, Science and Technology, University of Addis Ababa, ETHIOPIA
Dr. Prem Khattry	Formerly Professor , Tribhuvan University, Federal Democratic Republic of NEPAL
Dr. K.Y.Benedict,	Principal, Martheophilus Training College, Trivandrum, Kerala, INDIA

Teacher, Learner and Society (TeLeS) is a peer reviewed National Journal is an innovative venture of the Muslim Educational Society (MES), No 1 New Street, Thiruvithancode, Kanniyakumari District, Tamil Nadu, INDIA. The TeLeS is published two times a year, i.e. in March and September. Special volume is published every year in connection with the international conference.

Subscription rates

Institutional: Indian 1500 INR; Foreign 23 US \$ for single copy.
Individual: Indian 1000 INR; Foreign 15 US \$ for single copy.

Ordering Information:

Subscription amount to be sent through Bank Draft drawn in favour of Mrs. S. Anitha Mary, (+917402735588) payable at IDBI, Thuckalay, Account Number 157910 400 00 30773 and IFS code- IBKL 0001579. Subscriptions purchased at the personal rate are strictly for personal, non-commercial use only. The reselling of personal subscriptions is prohibited. Personal subscriptions must be purchased with a personal cheque or credit card. Proof of personal status may be requested. For more information on our sales packages please visit <http://www.muslimcollegeofeducation.com> Older volumes are held by our official stockists to whom all orders and enquiries should be addressed: Email : muslimcollegeofeducation@gmail.com or Tel: +91 7402735588 , +91 7402735503.

Copyright 2013 Dr. H. Mohamed Ali, General Secretary, Muslim Educational Society, Kanniyakumari District, Tamil Nadu -INDIA. All rights reserved. No part of this publication may be reproduced, stored, transmitted, or disseminated, in any form, or by any means, without prior written permission from Dr. H. Mohamed Ali, to whom all requests to reproduce copyright material should be directed, in writing.

Disclaimer: Muslim College of Education and our publisher Dr. H. Mohamed Ali, make every effort to ensure the accuracy of all the information (the "Content") contained in our publications. However, Muslim College of Education and our publisher Dr. H. Mohamed Ali, our agents, and our licensors make no representations or warranties whatsoever as to the accuracy, completeness, or suitability for any purpose of the Content. **Any opinions and views expressed in this publication are the opinions and views of the authors, and are not the views of or endorsed by Muslim College of Education and our publisher Dr. H. Mohamed Ali.** The accuracy of the Content should not be relied upon and should be independently verified with primary sources of information. Muslim College of Education and our publisher Dr. H. Mohamed Ali, shall not be liable for any losses, actions, claims, proceedings, demands, costs, expenses, damages, and other liabilities whatsoever or howsoever caused arising directly or indirectly in connection with, in relation to or arising out of the use of the Content. Terms & Conditions of access and use can be found at [http:// www.Muslimcollegeofeducation.com](http://www.Muslimcollegeofeducation.com) (under the title - Journals). We grant authorization for individuals to photocopy copyright material for private research use, on the sole basis that requests for

such use are referred directly to the requestor's local Reproduction Rights Organization (RRO).

Subscription records are maintained at Muslim College of Education (MCE), No 1 New Street, Thiruvithancode, Kanniyakumari District, Tamil Nadu INDIA.

For further information about our journals please visit <http://www.muslimcollegeofeducation.com> or Email: muslim.college.of.education@gmail.com (muslim + college of education + @ gamil.com).

Official Publisher

Teacher, Learner and Society (TeLeS) is published Biannually in March, and September by The Kumari Press and Publication Division, Monday market, Thuckalay, Kanniyakumari District Tamil Nadu, INDIA. Please note: There is no other Teacher, Learner and Society (TeLeS) issues with this ISSN 2348-8409.

Guidelines for contributors

Teacher, Learner and Society (TeLeS) is a peer reviewed journal, which is designed to publish research articles in, Education, Mathematics, Management, Medical Sciences, Medicine, Social Science, Agriculture, Geography, Advertising, Accounting & Finance, Botany, Business Research, Chemistry, Commerce, Computer Application, Consumer Behaviour & Relationship Management, Corporate Governance, Earth Sciences, Economics, E-commerce, Bioscience, Entrepreneurship, Fisheries, History, Human Resources Management, Information Technology, Library Science, International Business, Law / Criminology, Life Sciences, Logistics and Supply Chain Management, Performing Arts, Physics, Psychology, Health Care, Fine Art, Industrial Relations, Architecture, Marketing communication, Marketing Management, Microbiology, Nursing / Pharmacy, Nutraceuticals, Physical Education, Philosophy, Political Sciences, Psychology, Population Studies, Selling and Marketing techniques, Strategic Management, Total Quality Management Training and Development, Sociology, English, Veterinary Sciences, Apiology, Arachnology, Arthropodology, Cetology, Conchology, Mosquito Taxonomical Studies, Vector (Mosquito) Biology, Vector Ecology, Prevention and Control of Mosquito/Vector-Borne Diseases, Vector Competence of Vector-Borne Diseases, Renewable Energy, Biopesticides/Botanical Insecticides in Vector Control and Management, Biological Control of Vector Mosquitoes, Vectors "Parasite Interaction, Epidemiology, Parasitology, Surveillance and Control Technology of Vectors, Applied Fields of Mosquito Research, Entomology, Helminthology, Herpetology, Ichthyology, Malacology, Myrmecology, Nematology, Neuroethology, Ornithology, Paleozoology, Planktology, Primatology, Zooarchaeology, Zoosemiotics, Engineering & Technology Vector Molecular Biology, Molecular Endocrinology, Parasitology and Immunobiology. The Editorial Board invites articles, research papers, book reviews and commentaries on contemporary issues in a variety of areas. Any local contextualization must be explained and defined so that an international readership can clearly follow the argument. Please ensure to avoid all stereotypes with regard to class, gender, caste, race, among others.

Peer Review:

All contributions submitted for publication are subject to peer review. To enable anonymous refereeing, authors are requested to submit their personal details like: name, e-mail ID, institution address, contact mobile number etc. on a separate sheet, and certainly not on the text of the paper submitted for publication.

Acceptable Formats

Bookman Old Style(.doc) (any recent version). Word documents should be submitted as a single file. Authors should submit figures as separate files, in TIFF (.tif) or EPS (.eps) (not GIF [.gif] or JPEG [.jpg]) format. Please note that authors of accepted manuscripts may be required to submit high-resolution hard copies of all figures during production, as not all digital art files are usable. For information about writing an article, preparing your manuscript and general guidance for authors, please visit our website [http:// www.muslimcollegeofeducation.com](http://www.muslimcollegeofeducation.com) (muslim + college+ of + education + @ + gamil + .com)

Copyright and authors' rights

To assure the integrity, dissemination, and protection against copyright infringement of published articles, you will be asked to assign to Dr.H.Mohamed Ali. General Secretary, Muslim Educational Society, Kanniyakumari District, Tamil Nadu -INDIA., via a Publishing Agreement, the copyright in your article. Your Article is defined as the final, definitive, and citable Version of Record, and includes: (a) the accepted manuscript in its final form, including the abstract, text, bibliography, and all accompanying tables, illustrations, data; and (b) any supplemental material hosted by Dr.H.Mohamed Ali. General Secretary, Muslim Educational Society, Kanniyakumari District, Tamil Nadu -INDIA. Our Publishing Agreement with you will constitute the entire agreement and the sole understanding between Dr.H.Mohamed Ali. General Secretary, Muslim Educational Society, Kanniyakumari District, Tamil Nadu -INDIA. and you; no amendment, addendum, or other communication will be taken into account when interpreting your and Dr.H.Mohamed Ali. General Secretary, Muslim Educational Society, Kanniyakumari District, Tamil Nadu -INDIA. Copyright policy is explained in detail in our website [http:// www.muslimcollegeofeducation.com](http://www.muslimcollegeofeducation.com) (muslim + college+ of + education + @ + gamil + .com)

Reprints

Corresponding authors can receive a complimentary copy of the issue containing their article. For enquiries regarding reprints, please contact us. For further information about our journals please visit our website [http:// www.muslimcollegeofeducation.com](http://www.muslimcollegeofeducation.com) (muslim + college+ of + education + @ + gamil + .com)

If you are unable to access our websites, please write to: Dr. H. Mohamed Ali.
Muslim College of Education (MCE), No 1 New Street, Thiruvithancode,
Kanniyakumari District, Tamil Nadu INDIA.

Teacher, Learner and Society (TeLeS) is published by The Kumari Press and
Publication Division, Monday market, Thuckalay, Kanniyakumari District,
Tamil Nadu, INDIA.

Total Pages 65

Table of Contents

SL. No	Contents	Pages
1	Tourism Development in India Dr. S. MARIDURAI	1-5
2	Construction and Demolition G. JEBIN	6-11
3	New Curriculum for the Changing World and the Teachers' Responsibilities P.T. ANBU HANNAH DORA	12-17
4	ICT Based Innovative Practices in Classroom Management Mr. PRAMOD THOMAS GEORGE	18-29
5	The Key Concept of Mathematics Education Dr. BINU B.L JISHAD.A. SALAM	30-35
6	Gandhi And Educational Theory Dr. V. KARTHIK NISHA	36-40
7	The Knowledge of Ethics Mrs. BINI BABU Dr. K.C. BINDHU	41-46

8	Seasonal Dynamics in the Phytoplankton Density of Mullaperiyar Reservoir in The Western Ghats of Kerala Dr. JITHESH KRISHNAN. R	47-58
9	PARTHASARATHY TEMPLE AT A GLANCE DR.T.G. SEEMA GOPAL R. C. SELVARAJ	59-65

Tourism Development in India

Dr. S. MARIDURAI

Assistant Professor, Department in History, Pasumpon Nuthuramalinga Thevar College, Melaneelitha Nallur, Tamilnadu

Tourism development in India has passed through many phases. At Government level the development of tourist facilities was taken up in a planned manner in 1956 coinciding with the Second Five Year Plan. The approach has evolved from isolated planning of single unit facilities in the Second and Third Five Year Plans. The Sixth Plan marked the beginning of a new era when tourism began to be considered a major instrument for social integration and economic development. But it was only after the 80's that tourism activity gained momentum. The Government took several significant steps. A National Policy on tourism was announced in 1982. Later in 1988, the National Committee on Tourism formulated a comprehensive plan for achieving a sustainable growth in tourism. In 1992, a National Action Plan was prepared and in 1996 the National Strategy for Promotion of Tourism was drafted. In 1997, a draft new tourism policy in tune with the economic policies of the Government and the trends in tourism development was published for public debate. The draft policy is now under revision. The proposed policy recognises the roles of Central and State governments, public sector undertakings and the private sector in the development of tourism. The need for involvement of Panchayati Raj institutions, local bodies, non-governmental organisations and the local youth in the creation of tourism facilities has also been recognised.

TeLeS, ISSN 2348-8409, Vol. 22, No 1. March 2022

*A publication of Muslim College of Education,
No. 1 New Street, Thiruvithancode,
Kanyakumari District, Tamil Nadu, INDIA*

The other major development that took place were the setting up of the India Tourism Development Corporation in 1966 to promote India as a tourist destination and the Tourism Finance Corporation in 1989 to finance tourism projects. Altogether, 21 Government-run Hotel Management and Catering Technology Institutes and 14 Food Craft Institutes were also established for imparting specialized training in hoteliering and catering.

Tourist Attractions

India is a country known for its lavish treatment to all visitors, no matter where they come from. Its visitor-friendly traditions, varied life styles and cultural heritage and colourful fairs and festivals held abiding attractions for the tourists. The other attractions include beautiful beaches, forests and wild life and landscapes for eco-tourism, snow, river and mountain peaks for adventure tourism, technological parks and science museums for science tourism; centres of pilgrimage for spiritual tourism; heritage trains and hotels for heritage tourism. Yoga, ayurveda and natural health resorts also attract tourists. The Indian handicrafts particularly, jewellery, carpets, leather goods, ivory and brass work are the main shopping items of foreign tourists. The estimates available through surveys indicate that nearly forty per cent of the tourist expenditure on shopping is spent on such items.

Growth

Domestic tourism is as old as the Indian society. According to available statistics, domestic tourism has grown substantially during the last one decade. It increased to 167 million in 1998 from just 64 million in 1990, thus registering a compound annual growth of 12.8 per cent. The growth of inbound tourism since Independence has been quite impressive. It was just around 17 thousand in 1951. From this level it rose to 2.36 million in 1998. Tourism receipts on the other hand have grown at a phenomenal rate of 17 per cent to Rs.11, 540 crore in 1998 from Rs.7.7 crore in 1951. Economic Impact- Tourism has emerged as an instrument of employment generation, poverty alleviation and sustainable human development. During 1998-99, employment generation through tourism was estimated at 14.79 million. Foreign exchange earnings from the

tourism sector during 1998-99 were estimated at Rs. 12,011 crore. Tourism has thus become the second largest net foreign exchange earner for the country. Tourism also contributed Rs. 24,241 crore during 1998-99 towards the country's Gross Domestic Product (GDP).

Thrust Areas- In order to speed up the development of tourism in the country several thrust areas have been identified for accomplishment during the Ninth Five Year Plan (1997-2002). The important ones are development of infrastructure, products, trekking, winter sports, wildlife and beach resorts and streamlining of facilitation procedures at airports, human resource development and facilitating private sector participation in the growth of infrastructure. **Organisation-** The organisations involved in the development of tourism in India are the Ministry of Tourism with its 21 field offices within the country and 18 abroad, Indian Institute of Tourism and Travel Management, National Council for Hotel Management and Catering Technology, India Tourism Development Corporation, Indian Institute of Skiing and Mountaineering and the National Institute of Water Sports.

Boosting Tourism

Some of the recent initiatives taken by the Government to boost tourism include grant of export house status to the tourism sector and incentives for promoting private investment in the form of Income Tax exemptions, interest subsidy and reduced import duty. The hotel and tourism-related industry has been declared a high priority industry for foreign investment which entails automatic approval of direct investment up to 51 per cent of foreign equity and allowing 100 per cent non-resident Indian investment and simplifying rules regarding the grant of approval to travel agents, tour operators and tourist transport operators.

Celebrations

During the Golden Jubilee celebrations of India as a Republic, the Ministry of Tourism made special efforts to publicise the tourism potential of India. The first-ever Indian Tourism Day was celebrated on January 25, 1998. Baudha Mahotsav was organised from 24th October to 8th November 1998. The Year 1999 was celebrated

as Explore India Millennium Year by presenting a spectacular tableau on the cultural heritage of India at the Republic Day Parade and organising India Tourism Expo in New Delhi and Khajuraho. The Wong La Millennium was held from April 1999 to January 2001. A special calendar of events has been formulated for highlighting contributions to Millennium events by various places in all the States. An official website of the Ministry of Tourism has also been created for facilitating dissemination of information on tourism.

Constraints

The major constraint in the expansion of international tourist traffic to India is non-availability of adequate infrastructure including adequate air seat capacity, accessibility to tourist destinations, accommodation and trained manpower in sufficient number. Poor visitor experience, particularly, due to inadequate infrastructural facilities, poor hygienic conditions and incidents of touting and harassment of tourists in some places are factors that contribute to poor visitor experience.

To sum up, Indian tourism has vast potential for generating employment and earning large sums of foreign exchange besides giving a fillip to the country's overall economic and social development. Much has been achieved by way of increasing air seat capacity, increasing trains and railway connectivity to important tourist destinations, four-laning of roads connecting important tourist centres and increasing availability of accommodation by adding heritage hotels to the hotel industry and encouraging paying guest accommodation. But much more remains to be done. Since tourism is a multi-dimensional activity, and basically a service industry, it would be necessary that all wings of the Central and State governments, private sector and voluntary organisations become active partners in the endeavour to attain sustainable growth in tourism if India is to become a world player in the tourist industry.

References:

"Travel & Tourism 2013" (PDF) "World Travel and Tourism Council"
Archived from the original (PDF) on 21 February 2014.
Retrieved 8 November 2013.

"Top 100 City Destinations Ranking - Analyst Insight from Euromonitor International". Retrieved 30 January 2015.

"Rank in Tourism" (Press release). Press Information Bureau, Government of India. 7 February 2014. Retrieved 8 February 2014.

"Annual Report 2009–10" (PDF). Ministry of Tourism, Government of India. 6 April 2010. Archived from the original (PDF) on 29 March 2012. Retrieved 30 December 2012.

"India announces new visa rules to boost tourism numbers". Yahoo News. 27 November 2014. Retrieved 9 June 2015.

"India to extend visa-on-arrival to tourists from 180 countries". Zee News. Retrieved 9 June 2015.

"India to Extend Visa-On-Arrival Facility to 180 Countries". Retrieved 9 June 2015.

Extension of e-Tourist Visa scheme to China, Hong Kong and Macau from tomorrow

Press Note - Extension of e-Tourist Visa scheme to 36 more countries and 7 more airports from 15 August 2015.

Construction and Demolition

G. JEBIN

*D.Arch (Architecture), B.E (Civil Engineering), Marthandam
College of Engineering and Technology.*

Demolition is the tearing-down of buildings and other structures. Demolition contrasts with deconstruction, which involves taking a building apart while carefully preserving valuable elements for re-use. For small buildings, such as houses, that are only two or three stories high, demolition is a rather simple process. The building is pulled down either manually or mechanically using large hydraulic equipment: elevated work platforms, cranes, excavators or bulldozers. Larger buildings may require the use of a wrecking ball, a heavy weight on a cable that is swung by a crane into the side of the buildings. Wrecking balls are especially effective against masonry, but are less easily controlled and often less efficient than other methods. Newer methods may use rotational hydraulic shears and silenced rock-breakers attached to excavators to cut or break through wood, steel, and concrete. The use of shears is especially common when flame cutting would be dangerous.

TeLeS, ISSN 2348-8409, Vol. 22, No 1. March 2022

*A publication of Muslim College of Education,
No. 1 New Street, Thiruvithancode,
Kanyakumari District, Tamil Nadu, INDIA*

Construction and Demolition

Construction and demolition debris (C&DD) means those materials resulting from the alteration, construction, destruction, rehabilitation, or repair of any manmade physical structure including houses, buildings, industrial or commercial facilities, and roadways.

C&DD includes structural and functional materials comprising the structure and surrounding site improvements, including:

- brick, concrete, and other masonry materials
- stone
- glass
- wall coverings
- drywall
- framing and finishing lumber
- roofing materials
- plumbing fixtures (toilets, sinks, water heaters, pipes)
- heating equipment (furnaces, duct work)
- electrical wiring and components containing no hazardous fluids or refrigerants
- insulation
- wall-to-wall carpeting
- asphaltic substances
- metal incidental to any of the above
- weathered railroad ties and weathered utility poles

C&DD does not include materials whose removal has been required prior to demolition. For example, NESHAP regulated asbestos and TSCA regulated PCB containing materials.

C&DD does not include materials identified or listed as solid wastes, infectious wastes, or hazardous wastes pursuant to Chapter 3734. of the Revised Code, nor does it include materials resulting from mining operations, nontoxic fly ash, spent nontoxic foundry sand, or slag. Containerized or bulk liquids, fuel tanks, drums and

other closed or filled containers, tires, and batteries are also not C&DD.

Manual

Before any demolition activities, there are many steps that need to take place, including but not limited to performing asbestos abatement, removing hazardous or regulated materials, obtaining necessary permits, submitting necessary notifications, disconnecting utilities, rodent baiting, and development of site-specific safety and work plans.

The typical razing of a building is accomplished as follows:

Hydraulic excavators may be used to topple one- or two-story buildings by an undermining process. The strategy is to undermine the building while controlling the manner and direction in which it falls. The demolition project manager/supervisor will determine where undermining is necessary so that a building is pulled in the desired manner and direction. The walls are typically undermined at a building's base, but this is not always the case if the building design dictates otherwise. Safety and cleanup considerations are also taken into account in determining how the building is undermined and ultimately demolished. Hoe rams are typically used for removing the concrete road deck and piers during bridge demolition, while hydraulic shears are used to remove the bridge's structural steel.

In some cases, a crane with a wrecking ball is used to demolish the structure down to a certain manageable height. At that point undermining takes place as described above. However, crane mounted demolition balls are rarely used within demolition due to the uncontrollable nature of the swinging ball and the safety implications associated. High reach demolition excavators are more often used for tall buildings where explosive demolition is not appropriate or possible. Excavators with shear attachments are typically used to dismantle steel structural elements. Hydraulic hammers are often used for concrete structures and concrete processing attachments are used to crush concrete to a manageable size, and to remove reinforcing steel. For tall concrete buildings, where neither explosive or high reach demolition with an excavator

is safe or practical, the "inside-out" method is used, whereby remotely operated mini-excavators demolish the building from the inside, whilst maintaining the outer walls of the building as a scaffolding, as each floor is demolished.

To control dust, fire hoses are used to maintain a wet demolition. Hoses may be held by workers, secured in fixed location, or attached to lifts to gain elevation. Loaders or bulldozers may also be used to demolish a building. They are typically equipped with "rakes" (thick pieces of steel that could be an I-beam or tube) that are used to ram building walls. Skid loaders and loaders will also be used to take materials out and sort steel. The technique of *Vérinage* is used in France to weaken and buckle the supports of central floors promoting the collapse of the top part of a building onto the bottom resulting in a rapid, symmetrical, collapse. The Japanese company Kajima Construction has developed a new method of demolishing buildings which involves using computer-controlled hydraulic jacks to support the bottom floor as the supporting columns are removed. The floor is lowered and this process is repeated for each floor. This technique is safer and more environmentally friendly, and is useful in areas of high population density.

Building implosion

Large buildings, tall chimneys, smokestacks, bridges, and increasingly some smaller structures may be destroyed by building implosion using explosives. Imploding a structure is very fast—the collapse itself only takes seconds—and an expert can ensure that the structure falls into its own footprint, so as not to damage neighboring structures. This is essential for tall structures in dense urban areas.

Any error can be disastrous, however, and some demolitions have failed, severely damaging neighboring structures. One significant danger is from flying debris, which, when improperly prepared for, can kill onlookers. Another dangerous scenario is the partial failure of an attempted implosion. When a building fails to collapse completely the structure may be unstable, tilting at a dangerous angle, and filled with un-detonated but still primed explosives, making it difficult for workers to approach safely.

A third danger comes from air overpressure that occurs during the implosion. If the sky is clear, the shock wave, a wave of energy

and sound, travels upwards and disperses, but if cloud coverage is low, the shock wave can travel outwards, breaking windows or causing other damage to surrounding buildings. Stephanie Kegley of CST Environmental described shock waves by saying, "The shock wave is like a water hose. If you put your hand in front of the water as it comes out, it fans to all sides. When cloud coverage is below 1,200 feet, it reacts like the hand in front of the hose. The wave from the shock fans out instead of up toward the sky. Controlled implosion, being spectacular, is the method that the general public often thinks of when discussing demolition; however, it can be dangerous and is only used as a last resort when other methods are impractical or too costly. The destruction of large buildings has become increasingly common as the massive housing projects of the 1960s and 1970s are being leveled around the world. At 439 feet (134 m) and 2,200,000 square feet (200,000 m²), the J. L. Hudson Department Store and Addition is the tallest steel framed building and largest single structure ever imploded.

Preparation

It takes several weeks or months to prepare a building for implosion. All items of value, such as copper wiring, are stripped from a building. Some materials must be removed, such as glass that can form deadly projectiles, and insulation that can scatter over a wide area. Non-load bearing partitions and drywall are removed.^[6] Selected columns on floors where explosives will be set are drilled and high explosives such as nitroglycerin, TNT, RDX, or C4 are placed in the holes. Smaller columns and walls are wrapped in detonating cord. The goal is to use as little explosive as possible so that the structure will fail in a progressive collapse therefore only a few floors are rigged with explosives, so that it is safer (fewer explosives) and costs less. The areas with explosives are covered in thick geotextile fabric and fencing to absorb flying debris.^[6] Far more time-consuming than the demolition itself is the clean-up of the site, as the debris is loaded into trucks and hauled away.

Deconstruction:

A new approach to demolition is the deconstruction of a building with the goal of minimizing the amount of materials going to

landfills. This "green" approach is applied by removing the materials by type material and segregating them for reuse or recycling. With proper planning this approach has resulted in landfill diversion rates that exceed 90% of an entire building and its contents in some cases. In addition, it also vastly reduces the CO₂ emissions of the removing of a building in comparison to demolition.

The development of plant and equipment has allowed for the easier segregation of waste types on site and the reuse within the construction of the replacement building. On site crushers allow the demolished concrete to be reused as type 1 crushed aggregate either as a piling mat for ground stabilization or as aggregate in the mixing of concrete. Timber waste can be shredded using specialist timber shredders and composted, or used to form manufactured timber boards, such as MDF or Chipboard. Safety is paramount, a site safety officer is usually assigned to each project to enforce all safety rules and regulations.

References:

- "HD_20h_20070822_chunk_2 - Vidéo Dailymotion". Dailymotion.com. 23 August 2007. Retrieved 2012-05-06.
- "Kajima Demolition Tech". Popular Science. December 2008. Retrieved 2008-11-18.
- Cultice, Curtice (1997). "Blasting a path to world markets". BNET Business Network. Retrieved 2008-05-19.
- Bohart, Maura (26 September 2007). "Demolition Eliminates Final Remnant of Charlotte Hornets". Construction Equipment Guide. Retrieved 2008-05-19.
- "J.L. Hudson Department Store". Controlled Demolition, Inc.
- WGBH Boston (December 1996). "Interview with Stacey Loizeaux". NOVA Online. Public Broadcasting Service. Retrieved 2009-04-29. She learned the fine art of demolition from her father, Mark Loizeaux, and her uncle, Doug Loizeaux—president and vice-president of the company. NOVA spoke with Ms. Loizeaux a few days before Christmas, 1996.

New Curriculum for the Changing World and the Teachers' Responsibilities

P.T. ANBU HANNAH DORA

Assistant Professor of French, Holy Cross College (Autonomous) Nagercoil

We are living in an ever-changing world demanding simultaneous changes in curriculum designing. We cannot swear by the existing curriculum as it will be dubbed as stale and outdated. The changes the world has witnessed in the last two or three decades are enormous and amazing. The changes are visible in all compartments of life with higher education as no exception. Needs, demands, requirements and expectations are different in the ICT driven modern world of technology. These changes exert massive pressure on higher education which faces the mammoth demand from the world to cope with the changes. The world that was giving importance to knowledge till the first part of the twentieth century, slowly started demanding skill from the younger generation. This made a strong impact on higher education in all its components and educational planners and thinkers realized the inevitability of bringing about revolutionary changes in curriculum planning, teaching-learning and also testing and evaluation.

TeLeS, ISSN 2348-8409, Vol. 22, No 1. March 2022

*A publication of Muslim College of Education,
No. 1 New Street, Thiruvithancode,
Kanyakumari District, Tamil Nadu, INDIA*

Today the world has shrunk into a global village and higher education is expected to cater to the requirements and stipulations of global job market. This made policy makers of higher education all over the world give a serious thought to curriculum designing. What the world expects today is a curriculum that is relevant, useful and challenging which satisfies the expectations of the younger generation and caters to the needs of the world.

Curriculum designing in the new era

Higher education in India has experienced a rejuvenation in the post accreditation era. Instituting National Assessment and Accreditation Council has prompted institutions of higher learning to strive for quality and excellence. Institutions are made to move forward according to the vision and mission statements they are encouraged to design road maps for themselves. Universities and colleges started discussing Core Values and Graduate Attributes realizing their responsibility towards the younger generation. This impacted all compartments of higher education, especially curriculum planning and designing. The academia realized its greater responsibility in offering challenging curricula that meet the needs and demands of the ever changing world and naturally teachers as the backbone of the educational system realized the vital role they have to play in designing relevant and appropriate curricula.

A new feature of curriculum designing in India today is that it has to bear in mind the global job market. The changes to be brought about should therefore be raised to global standards and the students who pass through the portals of our institutions should have global competency. The curriculum and the transcripts job seekers from India present in the international job market should have the quality and content that can be equated with any university that is considered to have world class standards. This challenge and competition have made the role of teachers in curriculum designing very important.

In the University system of India of the past, the responsibility of curriculum designing was restricted to a few in the designated bodies and planners and policy makers of higher education. Today with the conferment of the status of autonomy and university to institutions, the responsibility of teachers has become greater.

Internationalization of Higher Education and the Need for a New Curriculum

Modern world, with its easy access to media looks for and verifies the quality of institutions before opting for one. International student mobility is made easier today and many Indian students opt for foreign universities. The Indian Government has allowed foreign universities to have their campuses in India. Many foreign universities find in India rich market potentiality and it is expected that many world class universities will vie with each other in establishing their campuses in India. In fact, this process has started, posing a great challenge to Indian institutions. The early birds are the University of Chicago and Virginia Tech with their centres in Delhi, Harvard Business School with its Indian research centre in Mumbai, and Australia's Deakin University having its campus in New Delhi.

This scenario and reality make us ask very seminal questions: What qualitative change should be brought to the curricula offered by Indian colleges and universities? Are our teachers informed of this development? Have they realized the inevitability of offering a curriculum that will have a world class standard? Are our teachers competent to respond to the challenges and competitions posed by the changed situations?

Though objected to by a section of people and some student and teacher organizations, presence of foreign universities in India has become a hard reality. Whether their campuses are present in India or not in the globalized world, students from India opt for institutions that have established the stamp of quality and proven track record. It must be admitted that in spite of all attempts of UGC and NAAC to ensure quality in higher education, only a negligible number of Indian Institutions find a place in the findings of the study of the world-class universities conducted by Center for World Class Universities of Shanghai Jiao Tong University (CWCU) and published as Academic Ranking of World Universities (ARWU).

The same disappointing state of Indian institutions is reflected in the annual publication of university rankings by Quacquarelli Symonds Company known as QS World University Rankings. From the above facts it is evident that the path Indian higher education is treading is not smooth and to mend it, it requires the contribution of teachers. This contribution is not limited to teaching-learning, but also is perceived as vital and inevitable in curriculum designing. Needless to say, teachers get a central position in raising Indian

higher education to a respectable pedestal that will be considered a fitting match to the education offered by any world class university including those campuses of foreign universities in India. This points to the vital role to be played by teachers in curriculum designing.

Role of Teachers

It is against this backdrop that every teacher should realize the significance of the role he or she has to play in ensuring a quality highly rated and globally acclaimed curriculum in Indian colleges and universities. It is the responsibility of the faculty as members of boards of studies, be it in autonomous colleges or universities, to design a curriculum that rises to the expectation of students and employers and also is comparable to the curriculum of any world class university. Curriculum is not just prescribing texts and syllabus and deciding on unitization. It is a highly responsible work that has to conceive a course design that addresses itself to the needs and expectations of the technology driven and globalized world.

It is not just changing the syllabus or pouring new wine into old wineskins. It is the willingness to take up the challenges and readiness for updating that serve as the basic requirement of the teachers. Teaching is not the only task of the teachers. They should realize that they are responsible for the destiny of the future generation and curriculum designing gains its importance in this role of teachers.

Responsibilities before teachers as curriculum designers

No curriculum can be considered good if it is designed without understanding its suitability and relevance to the needs of the ever changing expectations from the world. Learners should be helped to be prepared to face and react positively to the challenges of the world. The requirements, prescriptions and anticipations of the international job market are to be satisfied by the students who roll out of the universities. The knowledge acquired by students through stale and outdated curriculum most often are fit only to be thrown into the waste basket of companies and organizations that offer jobs not to merely knowledgeable young people, but to smart, talented young persons with a wholesome personality. Comprehending such

stipulations and anticipations of the job market, curriculum designers are expected to adopt a proactive approach.

Satisfying job market though is one of the most important components of curriculum, it alone should not be its sumumbonum. There are many other needs of man that are to be addressed by higher education. The world is in need of pure knowledge and research that play a pivotal role to any change. The new curriculum should churn new knowledge so as to stimulate thinking resulting in innovations and inventions needed for the steady and undisturbed growth in all segments of life.

The challenge before faculty does not end with designing a new, innovative, useful and relevant curriculum that is on par with the best in the world. It is only the beginning of a great task. Teachers should get ready to put into practice what is suggested and expected in a new curriculum. A shift from teacher centered to student centered methodology is obligatory and no doubt the change has to start from the teachers. The present day teachers, who probably were taught through teacher centred methodology need training and orientation and also a willingness and readiness to accept changes. Any new curriculum should aim at imparting education that is a pleasant experience to the teacher and the taught. Hands on experience to students should be encouraged and their creativity, innovations and originality should be encouraged. Students as well as teachers require a lot of freedom and flexibility today to make education an experience of wholesome development of a person. Prescribing water tight compartments of pedagogy kills the creativity both of the teacher and the taught and teachers who know the ground realities and aspirations of the students and demands of the world, no doubt will make successful curriculum designers.

Further, learning cannot be tested through the age old testing and evaluation system that is in vogue in many universities today. It is the responsibility of the teachers to rise up to the occasion and make revolutionary changes to design a testing and evaluating system that suits best.

Summing up

It is the responsibility of teachers, governments, universities and other curriculum designers and policy makers to ensure that the teachers who have realized the importance of these challenges are roped in and encouraged to contribute to a curriculum that is the need of the day. Contributions of teachers with competence and readiness to design instructional content, resource materials, with novel, imaginative and participatory teaching-learning process and an objective and fool proof testing-evaluation system, no doubt will ensure Indian universities possessing a curriculum worthy of global acclaim.

ICT Based Innovative Practices in Classroom Management

Mr. PRAMOD THOMAS GEORGE

Assistant Professor in Commerce Education Titus II teachers College, Tiruvalla

Education is like an engine for the development and improvement of any society. It does not just impart knowledge and skills, but it is also responsible for building human capital which breeds, drives and sets technological innovation and economic growth. Both the policymakers and teacher need to understand how technology and the education system interact with each other. The integration of ICTs in higher education brings many opportunities and also causes more challenges; that is why it is very important before implementing the use of ICTs to make sure that suitable levels of investment is in place, adequate training, good policy, careful planning, restructuring the teaching process, and a systematic approach also are required when integrating ICTs in education in order to achieve maximum educational benefits. It is also vital to think carefully about purpose of education or the context in which the ICTs can be used before implementation. ICTs are simply tools that help us achieve a purpose of education. In educational settings, this purpose will be linked to improved teaching and learning for students. ICTs do not in themselves improve student's learning

TeLeS, ISSN 2348-8409, Vol. 22, No 1. March 2022

*A publication of Muslim College of Education,
No. 1 New Street, Thiruvithancode,
Kanyakumari District, Tamil Nadu, INDIA*

opportunities; but educators who use ICTs thoughtfully do. It is the contextualized teaching and learning needs that ought to drive the ICTs intervention, rather than the technology itself.

Key Terms: ICT, CD ROM, E-learning, CMS, Multimedia Approach

Introduction

Experience is said to be a great teacher and this experience may be gained by the learner through direct and indirect means. Consequently, most of our learning is based on second hand experience in the form of information received by us about the objects, places, persons, ideas or events. This information provides a base for our knowledge. For this purpose the learner must be able to learner the art of getting information, store and make its use as and when desired. However the uses of such information as well as access to such information remain incomplete without the involvement of the involvement of the art of communication.

Globalization and technological change processes that have accelerated in tandem over the past years have created a new global economy –Powered by technology, fueled by information and driven by knowledge. The emergence of this new global economy has serious implications for the nature and purpose of educational institutions.

The international Labour organization defines the requirements for education and training in the new global economy simply as a

- Basic education for all,
- Core work skills for all
- Lifelong learning for all.

In this connection, Information and communication technologies (ICTS) which include radio and television, and the Internet - have been touted as potentially and powerful enabling tools for educational change and reform. When used appropriately, different ICTS are said to help expand access to education, Strengthen the relevance of education to the increasingly digital workplace, and raise educational quality by, among others, helping make teaching and learning into an engaging, active process connected to real life.

Definition of ICT

ICT is a type of technology employed in the shape of tools, equipments and application support which help in the collection, storage, retrieval use transmission manipulation, and dissemination of information as accurately and efficiently possible for the purpose of enriching the knowledge and development communication, decision making as well as problem solving ability of the user. The emergence of this new global economy has serious implications for the nature and purpose of educational institutions. "ICT implies the technology which consists of electronic devices and associated human interactive materials that enable the user to employ them for a wide range of teaching - learning processes in addition to personal use."

Characteristics of ICT In Education

1. ICT in education is any hardware and software technology that contribute in the educational information processing. In the context of present era, ICT mainly comprises of Computer technology with its hardware, like, Personal computer machine, infrastructure required for setting up Internet facility and also software like, CD ROM including various programme packages, E- learning strategies etc.
2. ICT in education is any Information Technology that focuses on the acquisition, storage, manipulation, management, transmission or reception of data required for the educational purpose.
3. ICT in education is any technology that deals with the exchange of information or in other words communication in the teaching learning process.
4. ICT in education is any educational technology that is applied in the educational process. It encompasses Hardware approach like use of machines and materials, Software approach like use of methodologies and strategies of teaching learning and Systems approach that uses the management technology that deals with the systematic organization of the hardware and the software.
5. ICT in education is the support material in the hands of the human resource involved in the educational process in order to enhance the quality of education.

Role of ICT In Classroom

ICT can provide situated learning, meta cognition, higher order thinking and a social basis for learning. It helps for the breaking of subject boundaries and for the development of project – based and real-world learning. The scope of ICT in the classroom is very wide. The uses of ICT in classroom are mentioned below.

1) Higher order thinking and ICT

The impact of ICT and new technologies is the shift of emphasis from teaching to learning and from the product to the process of learning. Castro claims that using ICT in classrooms has great potential to develop student's higher order cognitive skills.

2) ICT for equal opportunities

ICT helps the teaches to give equal opportunities for students according to individual difference and even the students with special educational needs. The students with special educational needs normally experience difficulties while engaging in ordinary learning.

But ICT can help the students with special educational needs in the following ways: -

- Learners who are dyslexic can use voice – activated computers
- Learners with cerebral palsy can use tablets.

3) ICT and Pedagogy

Schools exist to promote learning; it being their primary purpose. If this function is to be satisfied ICT will have to extend and improve the quality of student learning by making the related pedagogy dynamic. The ICT has successfully brought about many desirable changes in Pedagogy in several areas.

A few among these are

- Approaches to teaching and learning
- Teaching and learning style and behavior
- Context in which teaching and learning take place.

The tendency is to move away from teacher-centered instruction towards the facilitation of learning with ICT, particularly through group work and student – centered learning. Teachers and learners are partners in the co-construction of knowledge.

1. A Course Management System (CMS) is a collection of software tools providing an online environment for course interactions. A CMS typically includes a variety of online tools and environments, such as:
 - An area for faculty posting of class materials such as course syllabus and handouts
 - An area for student posting of papers and other assignments
 - A grade book where faculty can record grades and each student can view his or her grades
 - An integrated email tool allowing participants to send announcement email messages to the entire class or to a subset of the entire class
 - A chat tool allowing synchronous communication among class participants
 - A threaded discussion board allowing asynchronous communication among participants
 - In addition, a CMS is typically integrated with other databases in the university so that students enrolled in a particular course are automatically registered in the CMS as participants in that course.

Technical Tips

The CMS will likely not only have different modules, but also allow the user to select which of these modules they want to use in the class. If a particular module is not going to be used (e.g., if the online chat is not needed during the course), that module should be turned off so that it doesn't distract students

2. Multimedia Approach to Teaching Learning Process

Multimedia: Digital integration of Text, Graphics, Animation, Audio, Still images, Motion Video.

Nature of Multimedia Approach

Multi ----- Many Media ----- Techniques or methods

- Multimedia approach uses a number of media, devices, techniques in the teaching learning process.
- Multimedia approach can convey vast information and provide many sources from which student can access the information.
- Multimedia approach will improve the teaching learning process.
- Multimedia approach is not restricted to a single type of learning style. It can provide the support of a wide range of activities.
- Multimedia approach aims at providing meaningful learning experience via a mix of media in order to achieve predetermined objectives.
- Multimedia approach provides the opportunity to gain mastery of competencies and skills.
- The choice of the media has to be done carefully so that one does not hamper or reduce the effect of the other. That is each media must complement the other.
- Multimedia approach will enable the learner to get access to information in dynamic environment.

Procedure for Adopting Multimedia Approach

- The following are the six steps to be followed while adopting the Multimedia Approach.

- First Stage

In this stage the teacher initiates the teaching – learning activities.

Teacher delivers a well prepared lesson based on the objectives formulated.

Teacher uses a variety of media for his presentation.

- Second Stage

Teacher demonstrates a specific and specialized unit using a mix of media.

The teacher may provide learner with programmed learning materials, cassettes and CDs.

- Third Stage

This is a preparatory stage for the learner before he starts independent learning.

The student discusses with peer students and teachers his plan of action.

- Fourth Stage

In this stage the learner actively participates.

He uses variety of media and materials in his self-study.

- Fifth Stage

In this stage the learner integrates theory and practice.

- Sixth Stage

In this stage learner finds that teaching – learning activities have to be organized on a higher level.

The student involved in critical analysis, critical evaluation and exchange of ideas.

Role of Teacher in Multimedia Approach

- Teacher has to adopt a number of methods and techniques.
- Teacher has to be aware of the different available media and their availability.
- Teacher should be competent to use and demonstrate the use of the different media.
- Teacher should be skillful enough to make a judicious choice of media and competent enough to mix them sequentially and in an orderly manner.
- Teacher's role is that of a facilitator or manager of activities.
- Teacher has to lead his student for independent, individualized learning.

Prerequisites for developing a Multimedia Instructional device

1. Planning
2. Express the idea and purpose
3. Develop the objectives
4. Consider the learner
5. Find related material
6. Prepare the content outline

Designing the Multimedia Device

1. Identifying the factors or criteria for media selection
2. Select the media
3. Make a story board
4. Develop the script

Production of the multimedia Device

1. Take the picture and keep a record
2. Process the picture
3. Edit the picture
4. Edit the narration and captions

5. Mix sound
6. Prepare final copies

Follow-up

1. Use the materials
2. Evaluate for future use
3. Revise the materials
4. Obtain the copyright for the materials

Advantages of the multimedia Approach

- Multimedia approach enables the student to represent information using several different media.
- It can arouse the curiosity among the learner and provide them vivid impressions.
- Multimedia can take into account different learning styles – some pupil learn by interpreting text, while others require more graphical representations.
- Can develop a positive attitude among the learners towards the teaching-learning process.
- Multimedia Approach allows for self-pacing
- Technique of simulation can be effectively applied through the multimedia approach.
- Helps in development of higher order thinking skills.
- Multimedia approach provides the student the flexibility of 'any where', 'any time' learning.
- Helps in developing group and interpersonal skills.
- Effective remediation programmes can be implemented through the multimedia approach.
- Multimedia approach can bridge language barriers since audio is not the only means of communication.

Disadvantages of the multimedia Approach

- Requires highly sophisticated infrastructure facilities, which may lead to heavy financial burden.
- Expertise and skill are required to operate the multimedia devices, which will lead to the problem of non-availability of human resources.
- Not feasible in the all topics of study.

4) ICT for Assessment

Traditional assessment quite often degenerates into testing of recall, memorization and factual knowledge. Students sometimes have to wait for several days or, in the case public examinations, months for feedback in the form of a simple indication of the grade reached. ICT, however, has the potential to develop and use alternative strategies for more fruitful assessment.

Assessment using ICT, acts as a spring board for learning, having a strong formative potential. It provides a move to strengthen the links between assessment and learning.

5) ICT in Administration

Schools use the ICT in a variety of administrative matters. Teachers can use the ICT to streamline record keeping and related administrative tasks. With the ICT, reports become more reliable, updated, timely and easy to retrieve and read. This results in a reduction in the need to sort through files of documents. Also, statistical and comparative analyses can be made available immediately. Further, through the ICT, teachers and head teachers become more accountable, s achievements, complaints about teachers, deviation from curriculum planning and time tables. In short administration becomes more transparent.

6) Simulation and Game

Simulation is a quantitative procedure which describes a process by developing a model of that process and then conducting a series of organized experiments to predict the behavior of the process over time. The use of simulation is powerful technique which exploits some of the unique features of the computer as an aid to learning.

Game is also a powerful learning material. It promotes discovery learning. Games and simulations have considerable acceptances as interesting as pedagogical tools. Computer games and simulations can:

Improve the speed and quality of learning and performances

Stimulate and develop motivation and curiosity

Enhance learning through visualization, experimentation, prediction, manipulation and logical thinking.

Enable students to experience success and sense of achievement.

Conclusion

ICT plays very important role in classroom. The main advantage of ICT is that it has liberated human beings from tedious tasks and work which needs great physical effort. In the digital age bank dealings, medical assistance, learning and travel can all be controlled and managed by computer networks.

Everyday human life is being altered in accordance with the advancement in science and technology. Our increasingly technology-rich world raises new concerns for education while also expecting schools to become the knowledge societies. Firstly technology can provide the necessary tools for improving the teaching and learning process, opening new avenues and opportunities. In a knowledge economy driven by technology people who do not master these competencies may suffer from a new form of 'digital divide' that may affect their capacity to fully integrate the knowledge economy and society. Students are taken to a world of virtual reality where they simply conceive things without a second thought. No communication occurs when the child is left in the hands of these digital monsters. Science has proved the lack of

sustained attention among students, trained in modern educational system since they are not made to think with their brains.

Reference

- Kumar.K.L – Educational Technology – A practical for textbook for students, teacher's professionals and trainers. (2008 New Age International Publishers, New Delhi.
- Dr. Mangal. S.K – Information, Communication and Educational Technology, (2010) Bright Printers Ludhiana.
- Dr. Sivarajan.K and Dr. Shanavas – Information and Communication Technology, (2010) Calicut University Press, Calicut.
- Vajargah, K, F. &Jahani, S. Application of ICT in teaching and Learning at University level: The case of ShahidBeheshti University. The Turkish online journal of Education Technology, 9(2), (2010) 33-39.

The Key Concept of Mathematics Education

Dr. BINU B.L

Principal, Kerala University College of Teacher Education, Anchal P.O, Kollam, Kerala

JISHAD.A. SALAM

M. Phil Photonics (Student) University of Kerala, Kariavattom

Mathematical knowledge required today is far higher than what was required a century back. Also in many cases, its value portrays the social and economic conditions of the society. In this complex world passing through scientific and technological age, the practical value of Mathematics is increasingly felt and recognized. This has got its implication in the teaching of Mathematics in the beginning stage. Mathematics is isolated from life. It is actually required in every aspect of human life, activity, knowledge, understanding and interest. Mathematics is usually, and of course correctly, presented 'ready-made' to students, with techniques and applications presented systematically and in logical order. However, like any other academic subject, mathematics has a history which is rich in astonishing breakthroughs, false starts, misattributions, confusions and dead-ends.

TeLeS, ISSN 2348-8409, Vol. 22, No 1. March 2022

*A publication of Muslim College of Education,
No. 1 New Street, Thiruvithancode,
Kanyakumari District, Tamil Nadu, INDIA*

This history gives a narrative and human context which adds colour and context to the discipline. The inclusion of historical modules caused positive changes in mathematical communication, student achievement and attitudes. This echoes the views of many other academics and educators. Setting historical context can motivate and enthuse learning, but it also enriches the curriculum, shows connections between different branches of the subject, and helps to produce students with a greater sense of the breadth and, what might be termed, the creative life of mathematics as a discipline.

Historical Background of Mathematics Education

Mathematics holds the mirror up to civilization. It is no exaggeration to say that the history of Mathematics is the history of civilization. Mathematics can take pride in the fact that their Science, more than any other's is an exact science, and that hardly anything ever done in the Mathematics has proved to be useless. The geometry of the Greeks and the arithmetic of the Hindus are as useful and admirable as any research of today. Mathematics has led to the development of various subjects, vocations and technology. Mathematics has been a progressive science which is still playing an important role in various walks of life. Humanity has developed a systematic procedure for storing and passing on information from generation to generation-history. Much of what is passed on relates to Mathematics. Beginning recordings are more mathematical than historical. People chronicled how many long before they recorded events. Even civilizations that developed at different rates and locations exhibit a wide variety of mathematical commonalties. Listing or keeping track of things precedes a system of naming numbers in almost every development. Once numbers are named, rules of operation develop.

The origination of numbers is difficult to pinpoint in history. Early documents from China, Egypt, India, and Mesopotamia all show questions dealing with "how many"? This implies that the idea of cardinality was around long before the ability to write. This, however, can easily lead to the conclusion that the idea of sets must be one of humanity's earliest fascinations. As time progressed, body parts and words were used to represent specific numbers. It appears as if it was clear that the emphasis was not on the order in which things were presented but, rather, on the total number. Developmentally, a giant stride forward occurred when it dawned on

people that the last cardinal number named also gave a name for the total number of elements of a set. Even with this, it was not long before the number of objects exceeded the names for numbers. Body parts were limited. Another way was needed. This need prompted numeration systems. It must be remembered that spoken and written vocabulary limitations existed and, thus, formalization and extension of a numbering system was not an easy task. Look at the Roman numerals and you will see how it could have been cumbersome to write larger values. If nothing else, it should give an added appreciation for our Hindu Arabic place value system.

The Greeks and the Pythagorean Society did a lot to develop numbers. The Pythagorean Society was open only to aristocrats and all teaching was verbal. Written work would permit secrets to leak out more readily. The Pythagorean spent a lot of their energy on geometry, but they did develop some good number structure. They developed tables and the abacus to do computations. Although they would teach people how to do computations, they would not reveal how the tables were developed. They worked with a wide variety of topics seen today, including perfect squares, triangular numbers, perfect numbers, abundant numbers, deficient numbers, letters representing numbers, primes, and amicable numbers. These investigations involved computations, and that created a demand for some flexible, comprehensive, organized way to write numbers. This, in turn, led to place value.

Through the ages, different bases have been used for place value systems. Although base 10 has become the dominant base, the Duodecimal Society still pushes for base 12. Other bases that were used in the historical development include 20, 60, and 10,000. Imagine trying to get students to memorize operation facts in base 20! As the place value system got refined, computation demands increased. Computational devices have been available for a long time. Society slowly adapts to new devices and, in the process, provides acceptability. The abacus was probably the first computational device. It is great for addition and subtraction, but the major drawback is that the previous step is consistently eliminated. In 1946, a competition was held between a desk calculator and an abacus. Both operators were equally good with their respective devices. The problems included adding, subtracting, multiplying, and dividing three – to six – digit numbers. The abacus operator easily won the competition. Even today, we marvel at the abacus skills of speed and accuracy exhibited by some individuals. Other computational devices are Napier's bones, the slide rule, adding machines, desk calculators, pocket calculators, and software. We take so much for granted. Arithmetic as we know it did not take

form until close to the end of the 15th century. Fractions gave mathematicians of antiquity fits. Only in the past 500 or 600 years have fractions been relatively easy to deal with in a number system. Decimals did not appear until the 16th century. Think about it! How could they do some of the computations? It gives an even greater appreciation for the work of those individuals who developed so much of our Mathematics. The appreciation can be heightened by realizing that Napier did not develop the concept of logarithms until the beginning of the 17th century. Formative slide rules are shown to have existed in about 1620 A.D. Newton suggested a "runner" for the slide rule in 1675, but it was not put into use until about 1775. Pascal introduced the first line of computers in 1642. Leibniz completed a computing machine in 1694 and it had a moving carriage, wheels going in opposite directions for addition and subtraction, and latches to prevent over rotation. Babbage created a 'difference engine' in 1839, and his son completed the work and published results in 1906. Babbage had the idea, but the technology of the time was too limited to meet his dreams. He needed finer machining tools, electronic circuits, and better alloys. Given these, he had today's computer. Hollerith developed the idea of holes in cards in 1880. Eventually, IBM adopted this process for use with early computers. Burroughs in 1888 designed a machine that would print figures. Electronics entered the picture in 1944, transistors in 1948. By 1961 computers were taken over by transistors, and the rest is history (Kadhairavan & Balasubrahmanian, 2005). Algebra was available in rudimentary stages from about 1700 B.C. through 1700 A.D. Symbolization developed slowly, and only minor improvements were made in algebra until the general cubic was solved. Modern symbolism began to emerge in the 14th century. Concepts such as negative numbers were unknown or denied by many mathematicians from antiquity. Realizing these limitations should give you new appreciation for how far we have come in recent years. It certainly gives new meaning to information explosion. Mathematics as we know it started to be distinguishable only in the 19th century. Mathematics became known not as a tool, or as a descriptor of the world, but as a science. This development was a direct result of more and more people asking "why" something worked out the way it did. With these developments came higher levels of abstractions. Undefined terms were established and more rigorous definitions were devised. There was the understanding that, in response to the realization that as long as terms were loosely defined, varied interpretations would be available. The 20th century found Mathematics maturing on all fronts. It expanded in some areas and developed others. In accordance with the needs and requirements of the advancement of the society the mathematical

achievements also attained timely advancements and it has glorified the modern world.

The Vision for Mathematics Education

The vision with which mathematics has been placed in the school curriculum has evolved over the years. In the 1950s and the 1960s. India developed its mathematics education as a step towards industrialization and scientific research. The Kothari Commission was set up for thinking comprehensively about education in India during this period and published its report in 1966. The report underlined the need for mathematics and science in school as well as in higher education; it emphasized the importance of children learning mathematics for the development of science and technology and for industrial growth. To quote from the report, “One of the outstanding characteristics of scientific culture is quantification. Mathematics, therefore, assumes a prominent position in modern education. Apart from its role in the physical sciences it is now playing an increasingly if portent part in the development of the biological sciences” (Government of India- Ministry of Education, 1966, p.181). The 1968 and 1986 National Policies of Education. The system of Nai Talim (New Education) that had emerged in the 1930s and 1940s from the thinking of various people like Dr. Zakir Hussain and Gandhi working towards building responsible, capable and educated Indians also realized the importance of mathematics. However, it viewed mathematics in terms of its use for the day-to-day requirements of people. The emphasis was on ensuring that calculations necessary for the survival of the child in the circumstances in which she was growing were learnt. The national curriculum framework brought out by the NCERT in 2000 gave some idea of the content in the syllabus and the kind of teaching process to be followed. It felt that the teaching-learning process must heed the context of the child and their ‘zone of proximal development’ and learners should be able to relate the mathematics in their textbooks to their life experiences. This led to the idea of the mathematics lab and use of more and more concrete illustrations and activities in classrooms of mathematics. Under central government supported schemes, teachers and teacher educators made a lot effort to develop activities and games that would somehow be linked to the teaching of mathematics.

Conclusion

Some of the important aspects of our cultural heritage have been preserved in the form of Mathematics knowledge only, and the learning of Mathematics is the only medium to pass on this heritage to coming generations. Hence the mathematical teaching in all levels and in all stages should be always related to practical life applications. Thus Mathematics has a vital role and its importance cannot be denied in school curriculum. There are many observable trends in mathematics, the most notable being that the subject is growing ever larger, computers are ever more important and powerful, the application of mathematics to bioinformatics is rapidly expanding, the volume of data to be analyzed being produced by science and industry, facilitated by computers, is explosively expanding.

Reference

CBSE.(n.d).Course structure of Mathematics(Class XI and XII).Retrieved from <http://cbseportal.com/exam/Syllabus/cbse-11th-12th-2011-mathematics> Education Initiatives, (2010). Student Learning Study.

Gandhi And Educational Theory

Dr. V. KARTHIK NISHA

*Assistant Professor of History, SreeAyyappa College for Women,
Chunkankadai.*

The system of Education introduced by the Britishers was purely a literary type of education it produced only clerks for Government Offices. Theoretical knowledge could not help them to face difficult situation. Education was imparted only to a few people at the top. Education of the mass was neglected percent age of literary was very low. "By education I mean an all round drawing of the best in child & man body, mind & Spirit" said Gandhiji Education according to Gandhiji, should to Gandhiji, should be imparted through manual work so as to enable the children to be productive members of the society. According to Gandhiji, becomes the birth right of all in India where all people have equal opportunities, equal rights equal responsibilities and where there are no distinction between man & man on account of caste, colour & religion. Free & Compulsory primary education should be given to all boys & girls of the ages 6 to 14 in India.

TeLeS, ISSN 2348-8409, Vol. 22, No 1. March 2022

*A publication of Muslim College of Education,
No. 1 New Street, Thiruvithancode,
Kanyakumari District, Tamil Nadu, INDIA*

Gandhiji's Theory of Education

His theory of education is humanistic as it is rooted in his values and basic philosophy of life. The two well — known tenets of his his living were. Truth & non — violence. We believed in the existence of God & in his view there is no other God than Truth. "Truth is God" was Gandhiji's motto.

He evolved his theory of education on the basis of his high values he held in life and wished every. One to attain. Describing the real purpose of education he stated his view as follows.

By education I mean an all — round drawing out of the best in chilled & man — body, mind and spirit. Literacy is not the end of education nov even the beginning. It is one of the means where by man and woman can be educated Literacy in it self is no education.

There was no occasion when Gandhiji had a chance to enunciate or write fully his complete theory of education but in Yenvada Prison in 1932 he listed on paper some values and principles of education on which wardha scheme was later developed. These postulates are given hereunder.

1. Boys & Girls should be taught together.
2. Work should be entrusted to each boys and girls after as containing his or her inclinations.
3. General knowledge should be imparted to the child as soon as it is able to understand things. This knowledge should precede literary education.
4. The education commencing at the age of nine should be self supporting.
The student, while he is learning, should be engaged in such avocation that its produce may meet the expenses of the school.

Programme of Education

The next important phase of Gandhiji's of education is to programme base on his philosophy of education he evolved a scheme of education in 1937 after a deep thought & long consideration. His scheme is popularly known as the wardha scheme or Basic National Education.

1) Free compulsory Education

Education should be free and compulsory for all boys and girls between the ages of seven and fourteen. Girls may be withdrawn after the completion of their twelfth year if the guardians so desire it. This universal minimum education is called Basic National Education by the Zakir Hussain Committee.

2) Craft as the centre of Education

Education should be imparted through some craft or productive work which should provide the nucleus of all the other instruction provided in the school.

The committee reports, " Modern educational thought is practically unanimous in commending idea of educating children through some suitable form of productive work. This method is considered to be the most effective approach to the problem of providing an integral all — sided education".

Mother — tongue as the Medium

The problem of the medium of instruction was resolved by adopting mother — tongue of the child as the medium. Gandhiji was against the foreign medium of English at the School stage. Hence the basic education scheme English had no place at all.

Co-operative Community

The Wardha Scheme was based on the idea of developing a cooperative community by producing the motive of the motive of social service in children through all the group activities of the school. The programme of the training for the early seven Years was so framed that children learn to live an effective community life and to share their rights and responsibilities with the other.

Methods of Education

As the philosophy so are the methods in the Gandhian system of education. A brief analysis of the methods of teaching evaluation and organization will reveal basic relationship observed between the two.

1) Methods of Teaching

The Wardha scheme was based on the well known dictum of Dewey, 'Learning by doing'. The method of teaching accepted by the Gandhian education can be classified as Activity method or practical method since the activity or practice dominates the class —room instruction. Proper training of teachers was emphasized to implement the scheme. No formal text — books were given a place in the scheme.

2) Methods of Evaluation

The usual procedure of external year end examination was not given weight age but the internal assessment by the teachers themselves was found to be the suitable measure.

A teacher could certify if the child had successfully completed his study. The promotion to the next class would also be based on the day — today work of children and constant observation of the teacher.

Conclusion

Besides giving a practicable scheme of Education to the country as a great educational philosophy in his life. He believed in the dictum. 'An example is better than precept' and this is the chief characteristic of a good teacher. Every act of his life was lesson to the world. Gandhiji could be classified as the top ranking educationist of his times. We can hardly find his match even today in our age.

Reference

- Bose N.K.: "Selections from Gandhi, Navjivan".
- Dewey, John: "Schools of Tomorrow, London, Dent & Sons".
- Government of India: Report of the second Wardha Educational Committee of the central advisory Board of Education, Delhi.
- Hindustani Talimi Sangh: Educational Reconstruction (2nd Edition) wardhaSevagram.
- KherB.G. : "Basic Education. Bombay, The Directorate of Publicity".
Government of Bpmabay.
- Kirpalani J.B.: "The Latest Fad, Sevagram, HindustainTalimi Sangh".
- Patel M.S. : "The Educational Philosophy of Mahatma Gandhi Navjivan Publication", Ahmedabad 1952.

The Knowledge of Ethics

Mrs. BINI BABU

Research scholar, Department of Education, Mother Teresa Women's University, Kodaikanal.

Dr. K.C. BINDHU

Associate Professor, Department of Education, Mother Teresa Women's University, Kodaikanal

The word ethics in English can mean several things. It can refer to philosophical ethics a project that attempts to use reason in order to answer various kinds of ethical questions. It can also be used to describe a particular person's own, idiosyncratic principles or habits. The fact is that lawyers have been 'on the nose' for a long time now. Part of this can be explained by the fact that the client sees the lawyer as the 'means to justice' and so if they lose a case be it criminal or civil - the lawyer and 'the system' are easy targets of blame. It is also the case that the lawyer has divided loyalties - owing a duty to the court while at the same time owing a duty to the client. On occasions, these duties will be in conflict. In these cases, the lawyer is obliged to fulfill his or her obligations to the court. This is not generally understood by clients, or by some lawyers who carry the notion of the duty to the client too far and engage in practices that are unethical and that go to defeat the interests of justice.

TeLeS, ISSN 2348-8409, Vol. 22, No 1. March 2022

*A publication of Muslim College of Education,
No. 1 New Street, Thiruvithancode,
Kanyakumari District, Tamil Nadu, INDIA*

Introduction of Ethics

Ethics refers to well-founded standards of right and wrong that prescribe what humans ought to do, usually in terms of rights, obligations, benefits to society, fairness, or specific virtues. Ethics, for example, refers to those standards that impose the reasonable obligations to refrain from rape, stealing, murder, assault, slander, and fraud. Ethical standards also include those that enjoin virtues of honesty, compassion, and loyalty. And, ethical standards include standards relating to rights, such as the right to life, the right to freedom from injury, and the right to privacy. Such standards are adequate standards of ethics because they are supported by consistent and well-founded reasons. Ethics refers to the study and development of one's ethical standards. Feelings, laws, and social norms can deviate from what is ethical. So it is necessary to constantly examine one's standards to ensure that they are reasonable and well-founded. Ethics also means, then, the continuous effort of studying our own moral beliefs and our moral conduct, and striving to ensure that we, and the institutions we help to shape, live up to standards that are reasonable and solidly-based.

Definition of Professional Ethics

It must be noted that there is a distinction between a profession such as Information Systems, and controlled professions such as Medicine and Law, where the loss of membership may also imply the loss of the right to practice. Apart from codes of ethics, professional ethics also concerns matters such as professional indemnity. Furthermore, as will readily be appreciated, no two codes of ethics are identical. They vary by cultural group, by profession and by discipline. The former of these three variations is one of the most interesting, as well as controversial, since it challenges the assumption that universal ethical principles exist. In some cultures, certain behaviors are certainly frowned upon, but in other cultures the opposite may be true. Software piracy is a good case in point, in that attitudes towards software piracy vary from strong opposition to strong support - attitudes that are supportable within a particular culture. At the end of these pages is a section called Cultural Perspectives, where we hope to point you to alternative perspectives of ethical standards, attitudes and behaviors..

“The fundamental aim of legal ethics is to maintain the honors and dignity of legal profession to secure a spirit of friendly co-operation between the bench and the bar the promotion of the highest standards of justice, to establish honorable and fair dealing of the counsel with his client, opponent and witness to establish a spirit of brother-hood in the bar itself and to secure that lawyers discharge their responsibilities to the community generally”

- Chief Justice Marshall

Code of Ethics in Law

A code of ethics is a set of principles of conduct within an organization that guide decision making and behavior. The purpose of the code is to provide members and other interested persons with guidelines for making ethical choices in the conduct of their work. Professional integrity is the cornerstone of many employees' credibility. Member of an organization adopt a code of ethics to share a dedication to ethical behavior and adopt this code to declare the organization's principles and standards of practice.

Advocates Act 1961

The Advocates Act 1961 empowers the Bar Council of India to make rules so as to prescribe the standards of professional conduct and etiquette to be observed by the advocates. It has been made clear that such rules shall have only when they are approved by the Chief Justice of India. Under sec 7 of the Advocate's Act 1961, the functions of the Bar Council include the laying down of standards of professional conduct and etiquette which advocates must follow to maintain the dignity and purity of the profession. The Supreme Court has held that the High Court has the power and authority to strip down the post of the senior advocate designated by the High Court.

Contempt of Court Act 1971

The Act does not give statutory definition but classifies the term contempt of Court. Contempt of Court in general means to offend the dignity of the Court and lower the prestige of the Court. Contempt of

Court is disobedience to the Court by acting in authority, justice and dignity thereof. Halsbury defines as “any act done or writing published which is calculated to bring a pole or judge into content or lower his authority or to interfere with the due course of justice or the lawful process of the Court is contempt of Court”. The contempt of Court act, 1971 defines contempt as civil contempt and criminal contempt

Civil Contempt

The Act says that the civil contempt means any willful disobedience to any judgement, decree, direction order, writ or other process of Court or willful breach of undertaking given to the Court

Advantage of Ethical Codes

- ❖ Set out the ideals and responsibilities of the profession
- ❖ Exert a de facto regulatory effect, protecting both clients and professionals
- ❖ Improve the profile of the profession
- ❖ Motivate and inspire practitioners, by attempting to define their *raison d'être*
- ❖ Provide guidance on acceptable conduct
- ❖ Raise awareness and consciousness of issues

Improve quality and consistency

Rules of Conduct for An Advocate

The Bar Council of India has framed standard of conduct and etiquette of the Bar. They are called rules, and have been made in exercise of its rule making power under secs. 49(1)(c) of Advocates Act 1961. In so far as they are covered by the Rules of the Bar Council, they are statutory; the rest are traditional, and have their sanction in hoary past. In no circumstances may a lawyer be a party to a breach of the law. A lawyer may advise a client how to avoid a legal burden or restriction but is not bound to lend his services to an attempt to evade the policy of the law. No lawyer owes a duty to the

court to assist it in the administration of justice, and with respect to certain matters this duty overrides his duty to his clients. A Lawyer must not be a party to the fabrication of false evidence. If he knows that his client has given false oral evidence, he should withdraw from the case if the client refuses to correct it. If the client insists on a false affidavit being filed, he should refuse to continue to act for him. A lawyer should take care not to say anything to a client of whose honesty he is not sure, that may show the client how to improve his case by false evidence. Lawyers must not present to the court on behalf of his client a dishonest claim or defense. But a defense that does not more than put the plaintiff to proof is proper. Where the law lays on a litigant a duty to disclose facts, it is the duty of the legal advisor to see that true disclosure is made, and if the client refuses to retire from the case. He must not abuse the process of the court in order to injure the opponent or to benefit himself. When appearing as an advocate, he must disclose to the court any relevant legislation or cases of which he is aware.

Advocacy

Advocacy means good command over language, good voice, and good power of expression, good knowledge of the law, good common sense and presence of mind and in addition control over temper helps in becoming a successful advocate.

“The art of winning cases” is achieved by methodical preparation of the case with chronological brief statements of facts and the relevant provisions of the statute and minimum but relevant citations of cases is preferred which has same or similar principles than citing a large number of cases.

- Justice Ram Labhaya

Justice Abbot Parry has mentioned the seven lamps of advocacy:

- Honesty - Advocates of all generations have been devotee of honesty
- Courage - Courage is the quality that enables a person to control fear in face of danger, pain, misfortune etc. An advocate must possess courage.
- Industry - Advocacy is indeed a life of Industry. An advocate must study his brief in the same way that an actor studied his part.

“An advocate must live like a hermit and works like a horse” by Lord Eldon.

- Wit - Wit means cleaver and humorous expression of ideas, liveliness of spirit
- Eloquence - Success depends upon this characteristic. It means fluent Speaking and skillful use of language to persuade or to appeal to the feeling of others. I.e. art of oratory.
- Judgment - An advocate could be in a position to judge the merit and demerit of a case on hearing the brief and seeing the documents. He should inform his client the legal position openly to his client.

Justice Abbot Parry

Conclusion

The education recognizes the magnitude of the responsibility inherent in the teaching process. The desire for the respect and confidence of one's colleagues of student of parents and of the members of the community provides the incentive of parents and of the members of the community provides the incentive to attain and maintain the highest possible degree of ethical conduct. The code of ethics of education profession indicates the aspiration of all educators and provides standards by which to judge conduct.

Reference

- Green, W.11 beginner's to Airport Administration, Hilldale press, Inc., Madison, Wis.,2002.
- Mangal, SK., (2005), “Advanced Educational Psychology, Ludhiana, Tandon Publication” Pvt, Ltd
- Kothari, CR., (2006),” Pvt.,Ltd.

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

Dr. JITHESH KRISHNAN. R

Assistant Professor, Department of Botany, N.S.S College, Nilamel, Kollam, Kerala

Periyar Lake, situated inside the Periyar Tiger Reserve (PTR) and Wildlife Sanctuary, a major international tourist centre in Kerala, was studied for a year (January to December 2005), in order to explore the nutrient status and associated phytoplankton growth. This oldest manmade freshwater reservoir/Lake in the Western Ghats of Kerala, is getting more attention now a day due to the dispute between Kerala State and Tamil Nadu (TN) State for the ownership of the Mullaperiyar Dam. Moreover, it is situated inside India's prime Tiger reserve in its quantity, area and quality. Total Nitrogen and inorganic Phosphorus of the waters were studied every month and the data were grouped into three different seasons and analyzed the seasonal fluctuation if any, moreover, water samples from different parts of the entire Lake were also analyzed to account any spatial variation due the increasing anthropogenic influence in and around the Lake related with tourism. From the study, it was revealed that Nitrogen and Phosphorus concentration of the Lake was at an alarming rate during premonsoon and northeast monsoon in stations-1 and 5 (2400 to 3000 $\mu\text{g/L}$), with maximum human influence and

TeLeS, ISSN 2348-8409, Vol. 22, No 1. March 2022

*A publication of Muslim College of Education,
No. 1 New Street, Thiruvithancode,
Kanyakumari District, Tamil Nadu, INDIA*

sewage entry. While the inlets zones (station-4) showed minimum N and P contents (1500 µg/L). The density of Phytoplankton showed a positive correlation with the nutrients in almost all seasons. The highest plankton density (490 no./L) was recorded during premonsoon at station-5 and the lowest was at station-4 (253 no./L) during northeast monsoon. From this study it was clear that the nutrient and phytoplankton of the Lake is dependent on the seasonal fluctuations in the environment as well influenced by the increased anthropogenic activities in and around the Lake. Strict measures should be taken to monitor the water quality of this pristine water body within the sanctuary because this is the source of drinking water for 4 Districts of TN.

Key words: Nutrients, Nitrogen, Phosphorus, tropical, high altitude, freshwater, Western Ghats

Introduction

The PTR is one of the most fascinating wildlife sanctuaries of the world, a major site of tourist attraction for the last fifty years. It is designated by the Department of Environment as a major wetland site of the Country. Mullaperiyar Lake located in the Idukki District of Kerala is the largest (26km² area) and oldest (built in 1986) reservoir/Lake constructed in the state to irrigate the plains of TN. Mullaperiyar Dam was constructed near the confluence of Mullayar and Periyar (the largest river in Kerala with a length of 244km).

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

Materials and Methods

Collection of water samples

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

Estimation of N and P in water

Total nitrogen was determined by kjeldal method, and inorganic phosphorus was measured using UV visible spectrophotometer. All the analysis was carried out following the standard methods of APHA (1995) and Trivedy and Goel (1986).

Grouping of data

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

Statistical analysis

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

Results

Total Kjeldal Nitrogen (N)

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

Total Inorganic Phosphorus (P)

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

Phytoplankton Density

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

Discussion

An increase in trophic status of a Lake is associated with an increase in nutrient status. N and P are the major nutrients for all phytoplankton growth and the limited availability of these nutrients in water usually limits phytoplankton growth in natural aquatic

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

In the present investigation, the highest N content was noticed at PLS-5 during all the seasons coupled with an increased density of phytoplankton in that station. The highest value for N recorded in the Lake was $3000\mu\text{g/L}^{-1}$ during PM, and that of phytoplankton density was 490 no./L. In natural waters N, 150 $\mu\text{g/L}$ is a critical value and when the contents cross the limit algal blooms occur (Sawyer et al., 1945). The increased amount of N, in almost all stations during PM showed a significant positive correlation with phytoplankton density and significant P-values in t-test. The increased concentration during this season at all stations except PLS-4 (1900 $\mu\text{g/L}$) is undoubtedly related to the concentrated state of the Lake waters due to very less precipitation and dry climate. The high rate of N indicates that the lake at certain zones (PLS-1&5) exceeds the maximum level due to the high sewage disposal and human interaction. Other zones also showed a transitional stage between oligotrophy to eutrophy. Nitrogen fixation increases during summer in Lake Waco (summer N load is more), performed by certain Cyanobacteria which have become common. Some Cyanobacteria, can use dissolved gaseous N, periodic blooms are expected when mixing or flushing is low after pulsed inputs, especially with high temperatures (Joe Plotrowski et al., 2011).

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

Then again, the concentration showed an increasing trend during NEM (1500-2400 $\mu\text{g/L}$) may be due to the inflow to the Lake. Due to the intensive agricultural activities around the reservoir during this

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

P occurs almost solely as soluble phosphates in natural waters. All forms of phosphates such as orthophosphates, condensed phosphates, and organically bound phosphates are found in waters. P is considered to be the critical limiting nutrient, causing eutrophications of fresh water systems and required by algae in small quantities. P limits the growth of the algal forms most often, but N limits the algal growth of certain species alone. This is because of the fact that certain species of algae which fix nitrogen themselves are not affected by scarcity of N in the water they grow. Hence, the P nutrient assessment of waters is crucial to the monitoring investigations of natural freshwater bodies. P additions to landscape enter water via wastewater effluents and soil erosions, and also from detergents. Therefore, P in large quantities in water is an indication of pollution through sewage and industrial waste. P is the primary limiting nutrient in most lakes and reservoirs. Just like N, higher P in bottom water may result from decomposition of organic matter and its release from sediments under the anoxic conditions. More P leads to more algae (Cyanobacteria), more algae lead to lower water clarity. Key transition range is between of P is between 10 and 100 $\mu\text{g/L}$. N: P ratio determines which algae are dominant. P concentration 5 to 50 $\mu\text{g/L}$ is typical for an unpolluted water body (Joe Plotrowski et al., 2011).

In the present study, the P value ranged between 10-80 $\mu\text{g/L}$. The highest P of all stations was PLS-1&5 (80 $\mu\text{g/L}$) and season was PM, and the lowest was at PLS-4 (10 $\mu\text{g/L}$) during NEM. Comparatively higher values were observed during PM coupled with positive correlation of phytoplankton and significant P-values in t-test. Second highest P values were obtained during SWM and low amounts during NEM. The concentration of P is at an alarming rate during all seasons in the Lake. According to Welch (1980), a water body may be considered to be eutrophic if the total P value exceeds

30 µg/L. Romero et al., considered Lake Pamvotis with a P content of 110 µg/L as one of the intermediate nutrient status.

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

Acknowledgements

Author wish to thank UGC for the fellowship availed during the study period.

References

- Kerala State Gazetteer, Edited by Adoor K.K. Ramachandran Nair, 1986, pp188.
- APHA, Standard methods for the examination of water and waste water, American Public Health association, American waters works association, and Water Pollution Control Federation, 19thedn. Washington Dc, 1995.
- Trivedy, R.K., and Goel P.K., Chemical and biological methods of water pollution studies, Environmental Publications, Karad, India, 1986, pp244.

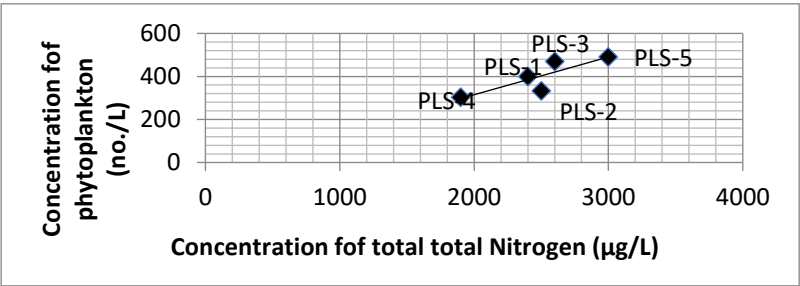
Huchinson, G.E., On the relation between the oxygen deficit and the productivity and typology of Lakes. *Int. Rev. Hydrobiol.*, 1938; 36: 336-355.

Rabalais, N., Nitrogen in aquatic system, *Ambio.*, 2002; 31(2):102-112.

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

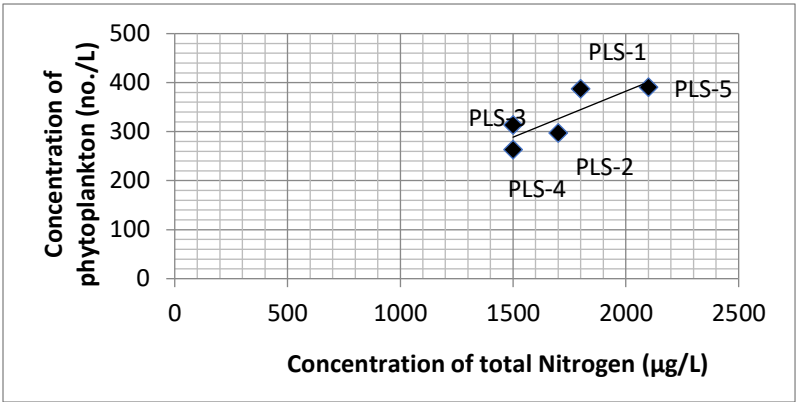
Fig-2: Total Nitrogen and concentration of Phytoplankton in different locations of the Lake during (1) PM (2) SWM and (3) NEM of 2005 (pp-10)

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



P-value critical= 1.4826E-06

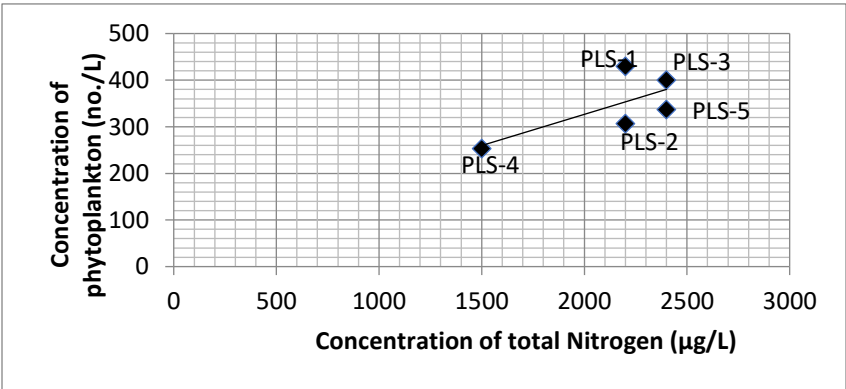
	2600		470
	2600	1	
Correlation co-efficient	470	0.886991	1



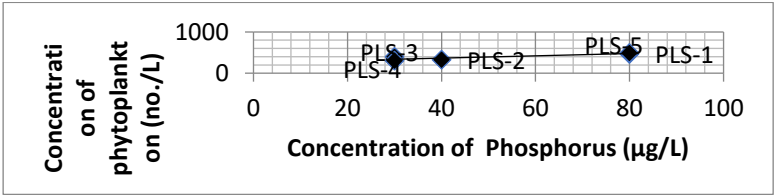
P-value critical= 9.60272E-07

	1800	387
1800	1	
387	0.895215	1

Correlation co-efficient =

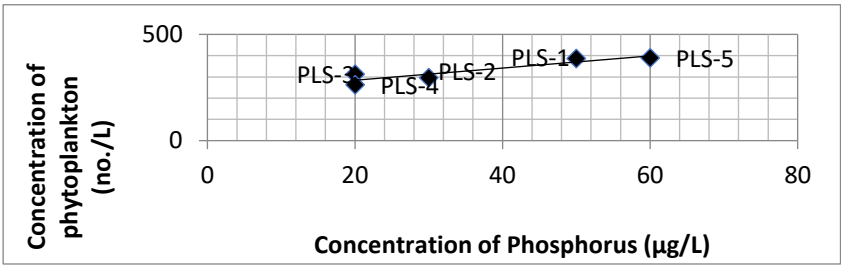


P-value critical= 2.7238E-06		2200	430
	2200	1	
Correlation co-efficient	430	0.860083	1



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

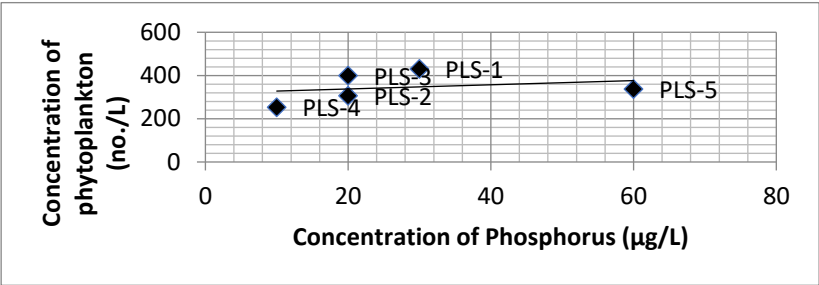
	80	470
80	1	
470	0.834187	1



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

	50	387
50	1	

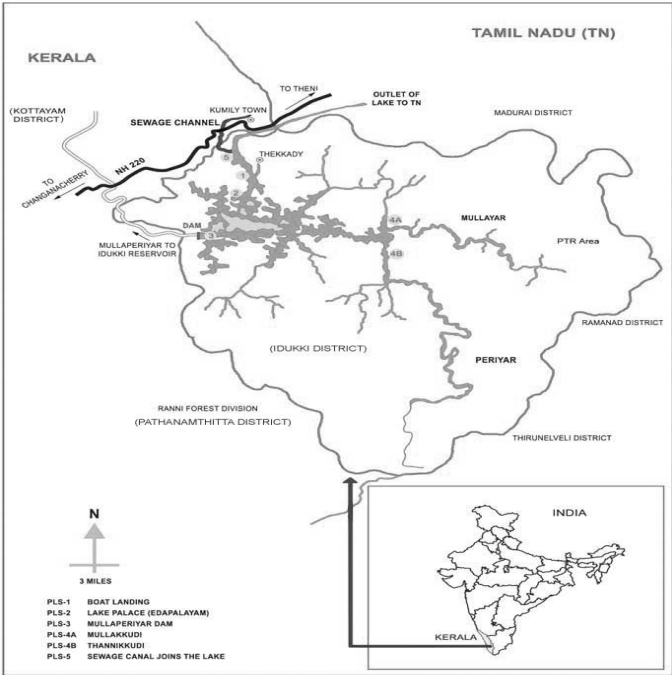
3870.9122291



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

30		430	
30	1		
430	0.299778		1

Figure-1: Different study stations in Periyar Lake



PARTHASARATHY TEMPLE AT A GLANCE

DR.T.G. SEEMA GOPAL & R. C. SELVARAJ

Associate Professor of History

Muslim Arts College, Thiruvithancode

A temple is a place of worship, a building used for spiritual rituals and activities such as prayer and sacrifice. By convention, the specially built places of worship of some religions are commonly called "temple". Hindu temples are known by many different names, varying on region and language, including Alayam, Mandir, Mandira, Ambalam, Gudi, Kavu, Koil, Kovil, Déul, Raul, Devasthana, Devalaya, Devagiriha, Degul, Deva Mandiraya, and Devalayam. Hindu temple architecture is mainly divided into the Dravidian style of the south and the Nagara style of the north, with other regional styles. The basic elements of the Hindu temple remain the same across all periods and styles. The most essential feature is the inner sanctuary, the garbhagriha, where the primary murti or cult image of a deity is housed in a simple bare cell. Around this chamber there are often other structures and buildings, in the largest cases covering several acres. On the exterior, the garbhagriha is crowned by a tower- like shikhara, also called the vimana in the south. The shrine building may include an ambulatory for parikrama (circumambulation), one or more mandapas or congregation halls, and sometimes an antarala antechamber and porch between garbhagriha and mandapa. Key : History of Temples – Boarding School@Vedic School

TeLeS, ISSN 2348-8409, Vol. 22, No 1. March 2022

*A publication of Muslim College of Education,
No. 1 New Street, Thiruvithancode,
Kanyakumari District, Tamil Nadu, INDIA*

Introduction

A Hindu temple is a symbolic house, the seat and dwelling of Hindu gods. It is a structure designed to bring human beings and gods together according to Hindu faith. Inside its garbhagriha innermost sanctum, a Hindu temple contains a murti or Hindu god's image. Hindu temples are large and magnificent with a rich history. The Parthasarathy Temple Parthivapuram in Kanyakumari District belongs to 9th- century A.D. The Hindu temple dedicated to Vishnu spread over 2.5 acres, the temple is notable for the extensive records about it that have been discovered in Huzur Plates of Kollam. The inscriptions on these plates describe how the temple was built along with a *salai* (boarding school) for 95 students to study the Vedas and other subjects in the Taittiriya, Talavakara and Bhavishya *śākhās*.

The temple has a square plan from adhisthana to its sikhara for the main shrine as well as smaller shrines in the compound. The main temple illustrates a tritala vimana with a Garuda namaskara mandapa in front.

Inside the main temple is a raised mukha- mandapa that connects to the *garbhagriha* (sanctum). Around the sanction is an open pradakshina-patha (circumambulation path), which is surrounded by walls and a raised platform with rooms. Outside is spacious courtyards and smaller shrines. The Vimana is in Chola style, while the temple layout reflects the early Kerala Hindu temple architecture.

Location

The Parthasarathy temple is located in the village of Parthivapuram (Tamil Nadu), about 50 kilometers northwest of Kanyakumari, Tamil Nadu and 50 kilometers southeast of Thiruvananthapuram – the capital of Kerala. It is along the Highway 179, east of the Thamiraparani river. It is very near to Marthandam and Kuzhithurai. The first Sivalaya temple Mahadeva temple located in Munchirai.

History

The temple was built by the Ay king Karunandadakkan. Huzur inscription, dated to 28 April 869

CE, records the construction of the temple of "Vishnu-bhattarakar" and the naming of the place as Parthiva-shekhara-puram, now shortened to Parthiva-puram. The temple site was originally called Ulakkudi-vilai, and comprised cultivated fields. It was a part of Pashungalam (present-day Painkulam or Paingulam, located south of Parthivapuram). The land originally belonged to the *sabhai* ("assembly") of Munchirai, and the king took it from them in exchange for land at another place.

According to the inscription, the temple was consecrated with an image of Vishnu on the Kali day. Archaeologist T.A. Gopinatha Rao (1910) calculated this date as 22 June 857 CE, but K.G. Krishnan (1989) corrected this to 869 CE. The inscription mentions that the king also established a school (*śalai*) of Vedic studies at the site (see below). The school was modeled after the school at Kandalur, and had 95 students.

In 923 CE inscription found in front of the temple records gifts to the temple, by Panchavan Brahmadhiraja alias Kumaran Narayanan. The donor was probably a high-ranking official in the Pandya administration (possibly that of king Rajasimha). The first gift was that of two perpetually-burning lamps, and was maintained by Kannan Manikkan and Pagan-Chivindravan, who were in-charge of the 14 buffaloes that provided the fuel (presumably clarified butter) for the lamps. The second gift was that of paddy for feeding students. The inscription also states that the donor arranged for a capital amount to provide for the repairs to the temple: a local potter named Kaman Chengodan and other men from his extended family were required to maintain major parts of the temple out of the interest accruing from this capital.

According to *Epigraphia Indica* Volume 42 (1989), this 923 CE inscription is the earliest known record dated in the Kollam Era. The era was mainly used in the Kerala region, and the village was a part of Kerala before it was transferred to Tamil Nadu. Although the inscription does not mention the name of the era it is dated in, there are strong reasons for believing that it is dated in the Kollam Era. The inscription is written in Sanskrit and Tamil languages, which are inscribed

in Grantha and Vatteluttu scripts.

Architecture

The temple architecture illustrates the *tritala-vimana* of Hindu temple architecture. It has a square plan from *adhishtana* (platform) to its *sikhara* (top crown) with a metallic *kalasha*. The main temple opens to the west, while the smaller shrines outside in the compound facing the main temple open west, south and north.

The main temple is a mix of bricks and stone. All its *talas* (levels of the tapering spire above the sanctum) are of bricks, and they include the architectural features such *kutas*, *panjaras* and *salas* found in Hindu temples of South India. The second *tala* above the sanctum include four deities: Brahma on the north side, Indra on east, Dakshinamurti (Shaiva) on the south as is typical in Hindu temples, and Narasimha (half lion - half man avatar of Vishnu) on west. The square plan architecture of the *shikhara* has a *nasika* at each cardinal direction.^[6] The sanctum's platform is made of granite and is moulded. The temple walls is built of laterite blocks, but over time the application of lime somewhat hides it. The *simha mala* and the *kapota* is also made from granite, unusual for temples so far in southern peninsula. The walls are decorated with *makara-torana* ornaments.

Beyond the square sanctum with Vishnu inside, the temple features a *mukha-mandapa* (main pavilion) allowing devotees to enter from three directions, a portico with a few steps, and a *namaskara-mandapa* with Garuda. According to Sircar, some of the elements in portico and mandapa are likely later additions in the 15th or 16th- century. These restorations or additions have preserved the original temple's classical *sandhara vimana* architecture, relatively common in much of Kerala. The smaller shrines are also from the 9th- century, and they have statues in them. These are similar to most Hindu temples where all three major traditions – Vaishnava, Shaiva and Shakti – are revered together. The smaller shrines are dedicated to Krishna, Shiva, Bhagavati (Shakti), Dakshinamurti, and Shasta.

The temple compound stones and the base mouldings

feature minor inscriptions, with one that mentions a "Vira Chola" – likely Virarajendra. These record a donation of silver image and of gifts to the temples by merchants and wealthy patrons.

Vedic school

The Parthasarathy Temple at Parthivapuram is notable for the detailed description about the history, motivation, construction and scope of the temple in the copper plate inscriptions among the Huzur Plates of Kollam (s 42), also called the *Palayam sasanam*. These plates were piled in an almirah and ignored through the early 20th-century. T.A. Gopinath Rao found them, translated and understood their significance, then published them to scholarly audience.

Only 5 of the copper plates have survived, and they are inscribed on both sides. The language and script is Tamil on 9 of the 10 faces, and it is Sanskrit in Grantha script on the last face. The first plate mentions that the land was purchased or exchanged for in-kind land by the king over time for the temple and school from the farming community of Minchirai (now about 2 kilometers of the temple location). Then the temple and *salai* (boarding school) for 95 *sattars*. The temple and school construction as recorded by the Ay king is notable and suggests that the farming community in Travancore region of India had highly developed land rights in the 9th- century. The king respected those rights.

The king announces a land grant for the college in the first plate. The second and third plates state that the temple will maintain a sacred perpetual lamp, a garden with gardener, temple musicians, assigns temple servants to maintain the temple and school at state expense, and provides resources of annual seven day community festival in the month of Panguni ending in a chariot procession to bathe the Vishnu statue in nearby river. The fourth plate calls upon the communities in the kingdom to protect and support the temple, the school and its students.

The selection and admission for students, and their behavior while at school; for example, it states that five senior students or teachers must test the candidate's ability to recite fluent Sanskrit and examples of Vedic passages; the students should not possess or carry weapons inside the school. The

students should not keep female companions or concubines inside the school; minor infractions by the student would lead to fines and loss of meals in the school

The temple illustrates and follows the guidelines given in the Hindu text *Karanagama*. It states that temples dedicated to worship of deities should serve many more social purposes, such as including and managing schools. These include the teaching elementary studies and alphabet, to higher studies for *chatra* such as the various Vedic philosophies. This was not the only temple with such a school, states T.A. Gopinath Rao – a Sanskrit scholar known for his many books on Hindu iconography and temples. These schools were supported by a combination of state financing, wealthy donors and the daily food and others donations of the Vishnu devotees.

Conclusion

According to Hindu tradition Temple is the abode of God. Temple is a holy place where God dwell. Temples are considered one of the most important places of in Hinduism. Temples hold an important place in one's mind and are often seen as symbol of hope. For many Hindus temple is a place of refuge during difficult times. The Parthasarathy temple is very famous ancient times. The vast area of temples are occupied by the people. The Government of Tamilnadu banned for the construction of tall buildings around the temples. Now this temple is under the control of Archaeological survey of India.

References

- ASI Thrissur Circle, Tamil Nadu: Parthasarathi Temple, Parthivapuram, ASI, Government of India K.G. Krishnan, Mysore (1989). "*Parthivapuram Inscription 1989*".
- H. Sarkar , *An Architectural Survey of Temples of Kerala*, Archaeological Survey of India, 1978.
- In K.V. Ramesh (ed.). *Epigraphia Indica* (PDF). Vol. XLI. *Archaeological Survey of India*.
- Justin Wilson, *Education in Medieval Tamilnadu: An Epigraphical Peep into its nature*, Proceedings of the Indian History Congress, 1998, Volume 59,

- Podmaja Jayadevan, Land Rights of Ay Kingdom based on inscriptions, Proceedings of the Indian History Congress, 1986, volume 47, *pp. 1-6*.
- SR Rajakrishnan and Ajit Kumar 2016, Heritage, Volume 4, University of Kerala.
- T.A. Gopinatha Rao (1910), Travacore Archaeological Series, 1910.
- T.A. Gopinatha Rao, Travacore Archaeological Series, 1910, Volume 1,