

# PROCEEDINGS OF ABSTRACTS

6<sup>TH</sup> INTERNATIONAL RESEARCH CONFERENCE – 2024

## TRInCo - 2024



Trincomalee Campus, Eastern University, Sri Lanka



Indian Maritime University, Chennai

Tamil Nadu, India

26<sup>th</sup> & 27<sup>th</sup> September, 2024

©Trincomalee Campus, Eastern University, Sri Lanka

Abstracts of the

6<sup>TH</sup> INTERNATIONAL RESEARCH CONFERENCE – 2024

Trincomalee Campus

Eastern University, Sri Lanka

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, transmitted in any form or by means of electronic, mechanical, recording or otherwise, without prior permission of the publisher.

ISBN: 978-624-5731-34-3

Published by:

Trincomalee Campus

Eastern University, Sri Lanka

September, 2024

## **ADVISORY COMMITTEE**

Rev. Fr. Dr. C. P. Rajendram

Prof. S. Sutharsan

Dr. V. Anavarathan

Mr. S. Loheeswaran

Mr. T. Baskar

Dr. N. Varnakulendran

Mr. S. Thadchanamoorthy

Dr. K.M. Sivakholundu

Rear Adm. Amit Bose (Retd.)

Cmde. (Dr.) Vivek Chawla (Retd.)

## **ORGANIZING COMMITTEE**

### **PATRONS**

Prof. Vallipuram Kanagasigam  
Vice-Chancellor, Eastern University, Sri Lanka

Dr. Malini V Shankar,  
Vice-Chancellor, Indian Maritime University, India

### **CHAIR**

Prof. (Mrs.) Chandravathany G Devadason  
Rector, Trincomalee Campus, Eastern University, Sri Lanka

### **CO-CHAIRS**

Dr. J. S. Rohan Savarimuttu  
Dr. K. Vidya dharshini  
Dr. Rajoo Balaji  
Mr. K. Saravanan

### **SECRETARY**

Dr. B. Sarangan

### **CO-SECRETARY**

Mrs. S. Krishanthi  
Cmde. Kishore Dattatraya Joshi (IN) (Retd.)

### **CHIEF EDITOR**

Mrs. K. Krishnaraj

### **EDITORIAL COMMITTEE**

Mr. S. Kuhanesan  
Mrs. V .Leninkumar  
Mrs. S. Sriram  
Dr. (Ms). B. Uthayanan  
Dr. S. Ushakanthan  
Dr. S. Janani  
Mr. M. S. Ishar Ali  
Mr. W. M. Sumith Dananjaya  
Dr. K. Sivasami  
Mr. Eswara Arun Kishore  
Mr. Yogesh Chandralal Shah

### **FINANCE COMMITTEE**

Mrs. J. Resi Tony  
Mr. V. Anputhasan  
Ms. A. Nishanthini  
Ms. J. Gowthaman  
Mr. H. H. D. Perera  
Mr. S. Sivarajah  
Mr. M Saravanan  
Mr. D. Baladandapani

**PUBLICITY COMMITTEE**

Ms. R. Arthika  
 Mr. S. Uthayaraj  
 Ms. A. P. Nivetha  
 Ms. P. Keerthana  
 Ms. K. Disne  
 Mr. B. Christo Paul  
 Mr. S. Sriram  
 Ms. Y. Neshany  
 Ms. G. Rukshika  
 Ms. Sini Manchala  
 Ms. K.J. Sreeja  
 Dr. K. M. Pattanaik

**LOGISTICS COMMITTEE*****Food and Refreshment***

Dr. S. Ushakanthan  
 Mr. V. J. Delima  
 Mr. A. Suthakaran  
 Mrs. L.M.A. Shamila  
 Mr. S. Sivarasah  
 Mr. P. Krishnaprabu  
 Mr. Imran

***Hall Arrangement***

Dr. (Ms). S. Janani  
 Ms. P. Vithusia  
 Mr. W. M. Sumith Dananjaya

***Conference Kit, Certificate, Invitation, Agenda***

Dr. R. Piratheepkumar  
 Ms. E. W. M. Shalika Boyagoda  
 Mr. W. M. Sumith Dananjaya  
 Mr. R. J. Jairus  
 Mr. S. Rushanthan  
 Mr. R. Saravanan

***Photo Forum, Audio Visual***

Dr. Pushpika Ganegoda  
 Mr. R. J. Jairus  
 Mr. S. Sriram

***IT Committee***

Mr. S. Brinthapan  
 Ms. M. Ramya  
 Mr. T. Leenas  
 Mr. J. Janarthanan  
 Ms. M. Ligitha  
 Mr. K. Kathirvel  
 Mr. Sridevi Devasana  
 Shri Sakthirajan

***Media & Press***

Dr. Pushpika Ganegoda  
 Ms. E. W. M. Shalika Boyagoda  
 Ms. K. G. L. A. Nisansala Jayawardhana  
 Mr. R. J. Jairus

***Accommodation & Logistics***

Mr. N. Thevnesh  
 Dr. R. Piratheepkumar  
 Eng. M. P. M. Suhail  
 Mr. M. S. M. Farhan  
 Eng. R. Vinojan

***Cultural Programme***

Ms. K. G. L. A. Nisansala Jayawardhana  
 Dr. (Ms). M. Bamini  
 Mrs. J. Resi Tony  
 Ms. Sini Manchal

**LIST OF REVIEWERS**

1. Prof. (Ms.) A. Nanthakumaran, Professor in Environmental Science, Dept. of Bio-Science, Faculty of Applied Science, University of Vavuniya.
2. Dr. N. Kannan, Senior Lecturer Gr-II, Department of Agricultural Engineering, Faculty of Agriculture, University of Jaffna.
3. Mr. G. Naveendrakumar, Senior Lecturer Gr-II, Dept. of Bio-Science, Faculty of Applied Science, University of Vavuniya.
4. Dr. K. Sadasivam Assistant Professor, Department of Environmental Economics, School of Economics, Madurai Kamaraj University, India.
5. Dr. K. Arjunan, Senior Lecturer Gr-II, Dept. of Bio-Science, Faculty of Applied Science, University of Vavuniya.
6. Mr. Subramaniam Thadchanamoorthy, Senior Lecturer Gr-I, Dept of Computer Science, Faculty of Applied Science, Trincomalee Campus, Eastern University, Sri Lanka.
7. Dr. Rajoo Balaji, Pro Vice Chancellor, Indian Maritime University, Chennai, Tamil Nadu, India.
8. Dr. M.F.M. Fairoz, Senior Lecturer, Faculty of Fisheries and Marine Sciences, Ocean University of Sri Lanka.
9. Mr. S. Srikrishnah, Senior Lecturer Gr-II, Department of Crop Science, Faculty of Agriculture, Eastern University, Sri Lanka.
10. Dr. T. Geretharan, Senior Lecturer in Crop Science, Department of Crop Science, Faculty of Agriculture, Eastern University, Sri Lanka.
11. Dr. W. J. Jeyaraj, Librarian, Eastern University, Sri Lanka.
12. Prof (Mrs). Niranjana Rodney Fernando, Professor in Agricultural Entomology, Department of Agricultural Biology, Faculty of Agriculture, Eastern University, Sri Lanka.
13. Dr. Kandeeparoopan Prasannath, Senior Lecturer Gr-I, Department of Agricultural Biology, Faculty of Agriculture, Eastern University, Sri Lanka.
14. Mrs. Evanjalina Delina Jesudasan Prince, Senior Lecturer Gr-II, Department of Agricultural Engineering, Faculty of Agriculture, Eastern University Sri Lanka.
15. Mrs. Vasanthakumary Selvanayagam, Senior Lecturer Gr– II, Department of Geography, Faculty of Arts and Culture, Eastern University, Sri Lanka.

16. Dr. (Mrs.) D. M. Hunupolagama, Senior Lecturer Gr- II, Department of Biosystems Technology, Faculty of Technology, Eastern University, Sri Lanka.
17. Dr. Shashinie M. Thenabadu, Senior Lecturer in English Language, Department of English Language Teaching Unit, University of Colombo, Sri Lanka.
18. E.W.M.S.Boyagoda, Senior Lecturer (Gr.II) in Communication, Department of Languages and Communication Studies, Faculty of Communication and Business Studies, Trincomalee Campus, Eastern University, Sri Lanka.
19. Dr. Mahesh Premarathna, Senior Lecturer, Department of Sociology, Faculty of Arts and Culture, University of Colombo, Sri Lanka.
20. Dr. K .Premakumar, Retired Senior Lecturer Grade I, Eastern University, Sri Lanka.
21. Dr. N. Pushparajah, Senior Lecturer Gr-II in Political Science, Department of Social Sciences, Faculty of Arts and Culture, Eastern University, Sri Lanka.
22. Ms Avanka Fernando, Senior Lecturer, Department of Sociology, Faculty of Arts and Culture, University of Colombo, Sri Lanka.
23. Dr. Sanath Sameera Wijesinghe, Senior Lecturer Gr-II, Legal Studies, Faculty of Humanities and Social Sciences, The Open University of Sri Lanka.
24. Mr. Raja Goonaratne, Senior Lecturer Gr-I, Legal Studies, Faculty of Humanities and Social Sciences, The Open University of Sri Lanka.
25. Mrs. Niluka Damayanthi, Senior Lecturer Gr-I, Legal Studies, Faculty of Humanities and Social Sciences, The Open University of Sri Lanka.
26. Dr. V.J. Naveenraj, Senior Lecturer, Department of Languages and Communication Studies, Trincomalee Campus, Eastern University, Sri Lanka.
27. Mr. K. Krishnaraj, Lecturer in Sociology and Anthropology, Department of Social Sciences, Faculty of Arts and Culture, Eastern University, Sri Lanka.
28. Dr. J. S. Rohan Savarimuttu, Senior Lecturer, Department of Languages and Communication Studies, Trincomalee Campus, Eastern University, Sri Lanka.
29. Mr. D. Ruwan Lakjeewa, Senior Lecturer Gr-II, Faculty of Communication and Business Studies, Trincomalee Campus, Eastern University, Sri Lanka.
30. Mr. E. B. Veerasingam, Senior Lecturer, Faculty of Communication and Business Studies, Trincomalee Campus, Eastern University, Sri Lanka.
31. Dr. Balachandran Sarangan, Lecturer, Faculty of Communication and Business Studies, Trincomalee Campus, Eastern University, Sri Lanka.

32. Prof (Mrs) Chandravathany G Devadason, Professor in Zoology, Trincoamlee Campus, EUSL.
33. Prof. M. Sithambaresan, Professor in Chemistry, Department of Chemistry, Faculty of Science, Eastern University, Sri Lanka.
34. Dr. Nipunika Dilani, Department of English, Buddhist and Pali University of Sri Lanka.
35. Ven. Mediyawe Piyarathana, Senior Lecturer in English, Bhiksu University of Sri Lanka.
36. Mrs. S. Maheswaranathan, Senior Lecturer Gr-I, Department of Economics, Faculty of Commerce and Management, Eastern University, Sri Lanka.
37. Prof. A. Jahfer, Professor in Commerce, Dept. of Accountancy and Finance, Faculty of Management and Commerce, South Eastern University of Sri Lanka.
38. Mrs. Anuja Raveenther, Senior Lecturer Gr-II, Department of Business & Management Studies, Faculty of Communication & Business Studies, Trincomalee Campus, Eastern University, Sri Lanka.
39. Dr. (Mrs.) K R N Harshani, Senior Lecturer (Grade I) in Library & Information Science, University of Kelaniya.
40. Mrs. M.Y.M. Suheera, Senior Lecturer Gr-II in Social Science Dept. of Arabic Language, Faculty of Islamic Studies and Arabic Language, South Eastern University of Sri Lanka.
41. Dr. M. Riswan, Senior Lecturer Grade I in Sociology, Dept. of Sociology, Faculty of Arts and Culture, South Eastern University of Sri Lanka.
42. Prof. Kanagasabai Kajendra, Professor in Marketing, Dept. of Marketing, Faculty of Mgt. and Finance, University of Colombo.
43. Dr. J. S. Kumari, Senior Lecturer, Department of Accountancy & Finance, Rajarata University of Sri Lanka.
44. Mrs. V. R. Ragel, Senior Lecturer in Management, Department of Management, Faculty of Commerce and Management, Eastern University, Sri Lanka.
45. Prof. MBM. Ismail, Professor in Management, Dept. of Management, Faculty of Management and Commerce, South Eastern University of Sri Lanka.
46. Prof. S. Gunapalan, Professor in Management, Dept. of Management, Faculty of Management and Commerce, South Eastern University of Sri Lanka

47. Prof.(Dr). M.A.C. Salfiya Ummah, Professor in Business Studies, Dept. of Management, Faculty of Management and Commerce, South Eastern University of Sri Lanka.
48. Mrs. Subathini Priyadharsan, Senior Lecturer Gr-I, Department of Business & Management Studies, Faculty of Communication & Business Studies, Trincomalee Campus, Eastern University, Sri Lanka.
49. Ms. A. Nishanthini, Lecturer, Faculty of Communication and Business Studies, Trincomalee Campus, Eastern University, Sri Lanka.
50. Mr. Kailasapathy Iyampillai, Lecturer, National Institute of Education, Sri Lanka.
51. Prof N. Rajeshwaran, Professor in Accounting and Finance, Department of Commerce, Faculty of Commerce and Management, Eastern University, Sri Lanka.
52. Ms. Thanuja Chamaree Ranawella, Senior Assistant Librarian Gr-I, General Sir John Kothelawela Defence University.
53. Ms.Thasika Thanushan, Senior Lecturer Gr-II, Department of Human Resources Management, University of Jaffna.
54. Ms.Jasintha Nirojan, Senior Lecturer Gr-II, Department of Human Resources Management, University of Jaffna.
55. Prof. (Ms).S. Shanmugathas, Department of Marketing, University of Jaffna.
56. Dr. S. Rajumesh, Department of Marketing, University of Jaffna.
57. Prof. MIM. Hilal, Professor in Marketing Management, Dept. of Marketing Management, Faculty of Management and Commerce, South Eastern University of Sri Lanka.
58. Mr. M. S. Ishar Ali, Lecturer, Department of Business and Management Studies, Faculty of Communication and Business Studies, Trincomalee Campus, Eastern University, Sri Lanka.
59. Mrs. Thamara Kothalawala, Senior Lecturer Gr-II, Department of Languages, General Sri John Kothelawala Defence University.
60. Mrs.Thakshaayini Rajandran, Senior Lecturer Gr – II, Department of Education and Childcare, Faculty of Arts & Culture, Eastern University, Sri Lanka.
61. Mrs. Chamila Kothalawala, Seneior Lecturer Gr-II, Department of Languages, General Sri John Kothalawala Defence University, Sri Lanka.

62. Dr R.M. Dhanapala, Senior Lecturer, Department of English Language Teaching, Rajarata University of Sri Lanka.
63. Prof. J. Kennedy, Department of Languages, Eastern University of Sri Lanka.
64. Mr. H.P.K. Pathirana, Senior Lecturer Gr-II, Department of English Language Teaching, Rajarata University of Sri Lanka.
65. Ms. Sivapriya Sriram, Senior Lecturer Gr-II, Department of Languages and Communication Studies, Trincomalee Campus, Eastern University, Sri Lanka.
66. Dr. S. Athirathan, Senior Lecturer, Department of Social Science Education, Faculty of Education, University of Colombo.
67. Dr. Nipunika Dilani, Department of English, Buddhist and Pali University of Sri Lanka.
68. Dr. Niruba Sarath Jayasundara, Senior Lecturer Gr I, Department of Languages and Communication Studies, Trincomalee Campus, Eastern University, Sri Lanka.
69. Mrs. Ressay Tony Jenitta, Lecturer, Faculty of Communication and Business Studies, Trincomalee Campus, Eastern University, Sri Lanka.
70. Mr S. Sotheeswaran, Senior Lecturer (Gr-I) in Computer Science, Department of Computing, Faculty of Science, Eastern University, Sri Lanka.
71. Mr. Ratnasingam Sakuntharaj, Senior Lecturer, Centre for Information and Communication Technology, Eastern University, Sri Lanka.
72. Mr. Ahamed Lebbe Sayeth Saabith, Senior Lecturer Gr. I, Centre for Information and Communication Technology, Eastern University, Sri Lanka.
73. Mr. M. Ramanan, Senior Lecturer, Department of IT, Faculty of Arts, University of Jaffna.
74. Mr. U. Priyatharsan, Senior Lecturer Gr-II, Unit of ICT, SVIAS, Eastern University, Sri Lanka.
75. Mrs. K. Krishnaraj, Lecturer, Dept of Computer Science, Faculty of Applied Science, Trincomalee Campus, Eastern University, Sri Lanka.
76. Dr. V. Anavarathan, Senior Lecturer Gr-I, Faculty of Siddha Medicine, Trincomalee Campus, Eastern University, Sri Lanka.
77. Dr. R. Piratheepkumar, Department of Moola Thaththuvam, Faculty of Siddha Medicine, Trincomalee Campus, Eastern University, Sri Lanka.

78. Dr. U. Balamanohary, Senior Lecturer Gr-II, Department of Noinaadai Chikitsai, Faculty of Siddha Medicine, Trincomalee Campus, Eastern University, Sri Lanka.
79. Dr.(Mrs).V.Paheerathan, Senior Lecturer Gr-I, Department of Moola Thaththuvam, Faculty of Siddha Medicine, Trincomalee Campus, Eastern University, Sri Lanka.
80. Dr. S. Ushakanthan, Senior Lecturer Gr-II, Department of Gunapadam, Faculty of Siddha Medicine, Trincomalee Campus, Eastern University, Sri Lanka.
81. Dr. P. Sathiya Rajeswaran, Asst.Director,Sci-II, I/c Siddha Central Research Institute, Chennai, Tamil Nadu. India.
82. Dr. S. Vinotha, Senior Lecturer Gr-I, Unit of Siddha Medicine, University of Jaffna.
83. Dr. S. Natarajan, Siddha Central Research Institute, Chennai, India.
84. Prof.S. Vishwashvaran, National Institute of Siddha, Chennai, India.
85. Dr. Sebastian Rajamanoharan Pholtan Rajeev, Provincial Department of Indigenous Medicine, Eastern Province, Sri Lanka.
86. Prof. S. Raguram, Department of Media Studies, Faculty of Arts, University of Jaffna.
87. Ms. K.G.L.A.N.S.Jayawardhan, Senior Lecturer Gr-II, Department of Languages and Communication Studies, Faculty of Communication and Business Studies, Trincomalee Campus, Eastern University, Sri Lanka.
88. Dr Pushpika Ganegoda, Senior Lecturer Gr-II, Department of Languages and Communication Studies, Faculty of Communication and Business Studies, Trincomalee Campus, Eastern University, Sri Lanka.
89. Prof. Hettiarachchige Ranjan Chandrakumare, Professor, Department of Mass Media, Sri Palee Campus, University of Colombo.
90. Mr. Priyantha Fonseka, Senior Lecturer, Department of Fine Arts, University of Peradeniya.

## **MESSAGE FROM THE VICE-CHANCELLOR EASTERN UNIVERSITY, SRI LANKA**

Dear Esteemed Colleagues, Researchers, and Academics,



It is with great pleasure and pride that I welcome you all to the 6<sup>th</sup> International Research Conference - TRInCo2024, organized in collaboration with the Indian Maritime University scheduled to take place on the 26<sup>th</sup> and 27<sup>th</sup> of September 2024. This event marks a significant milestone in our continuous efforts to foster innovation, inclusiveness, and life-preservation in multidisciplinary research.

The theme of this year's conference, "Promoting Inclusiveness, Life-Preservation and Life-Furtherance," underscores our commitment to addressing the most pressing challenges of our time through collaborative and interdisciplinary approaches. In an era where the global landscape is rapidly evolving, it is imperative that we come together to share knowledge, explore new ideas, and work towards sustainable solutions that benefit all of humanity.

TRInCo2024 promises to be a premier gathering, bringing together leading researchers, practitioners, and academics from around the world. This conference provides a unique platform for the exchange of ground breaking research, innovative practices, and forward-thinking ideas. It is an opportunity to engage in meaningful discussions, establish new collaborations, and contribute to the advancement of various fields.

I am confident that the insights and knowledge shared during this conference will not only enhance our understanding but also inspire us to take concrete steps towards a more inclusive and sustainable future. Your participation and contributions are invaluable in achieving the goals of this conference and in driving the progress of multidisciplinary studies.

TRInCo Conference was initiated in 2016 when I was Rector at Trincomalee Campus and it is continued to date. It has different features and this year also TRInCo2024 has been arranged with the participation of multi researchers from national and international.

I would like to extend my heartfelt gratitude to Prof. Chandravathany Devadason, the Rector, Trincomalee Campus and the organizing committee, our esteemed partners at the Indian Maritime University, and all the participants who have made this event successful. Your dedication and hard work are truly commendable.

Thank you, and I wish you all a productive and enriching conference

**Professor. V. Kanagasigam**

Vice-Chancellor

Eastern University, Sri Lanka

## MESSAGE FROM THE RECTOR TRINCOMALEE CAMPUS



On behalf of the committee of 6<sup>th</sup> International joint conference 2024, I would like to extend my heartiest welcome to all of the attendees to our International Conference which is organized jointly with Indian Maritime University. As the Rector of Trincomalee Campus of Eastern University, Sri Lanka I was honoured to serve as Chair of the important event. First, I would like to take this opportunity to convey my appreciation to the organizing committee for untiring efforts to conduct this conference successfully. Being part of the world community, we were all aware that research had consecutively played a significant role in its contribution to the body of knowledge and skills and prospect development. At present globalization appeared to have significant impacts for the worldwide society, this transnational assembly is intended for wide-ranging science, engineering, technology, medical and commerce research undertakings carried out by the involvement of industry and academic institutions. The selected topics depicted a vast pool of knowledge, resources and expertise of the scientific and technological community, which in turn made a substantial contribution for overall national development. There are 108 research and reviewed abstracts received from Australia, Canada, India, Sri Lanka, published in conference proceedings and the research was presented in hybrid mode. The technical sessions, therefore, represented a unique platform encouraging local/ international scholars and professionals to interact for the expansion of their experiences and invaluable insights. It was anticipated that the theme “An integral vision for 21<sup>st</sup> century” would raise awareness and understanding regarding issues of global challenges, which had their immediate relevance in our personal lives. Through achieving ecological and environmental sustainability, the human society could then move toward a more sustainable and desirable future. On top of that, the conference offered a truly comprehensive view while inspiring the researchers/scientists to come up with possible recommendations to tackle the challenges. I would like to take this opportunity to thank the keynote speakers; presenters and authors for contribution, and bless you all a fulfilling experience and very pleasant stay in Trincomalee, Sri Lanka. Also the sincere thank goes to our Chief guests and Guest of honours who were physically present for gracing the conference.

Sincerely,

**Prof (Mrs) Chandravathany G Devadason**

Rector/ Trincomalee Campus  
Eastern University, Sri Lanka

## MESSAGE FROM THE CHIEF GUEST



It is both an honour and a privilege to address this prestigious conference hosted by the Trincomalee Campus, Eastern University of Sri Lanka. First and foremost, I would like to express my deepest appreciation to the organizers of TRInCo 2024 for their exceptional choice of a theme for the conference “An Integral Vision for 21st Century: Promoting Inclusiveness, Life-Preservation and Life-Furtherance” that is both timely and impactful. I am truly delighted to share my insights on such a significant and relevant theme.

While many other factors also contribute to achieving the integral vision of the 21st century, I have chosen to focus on education, policy, and community owing to my own experiences in the role of a Vice-Chancellor and my previous roles in bureaucracy and public administration.

Realizing the vision of inclusiveness, life-preservation, and life-furtherance requires a seamless integration of education, policy-making, and community-led initiatives. These interconnected pillars form a comprehensive framework essential for transformative change and sustainable progress.

Education is foundational to this framework, equipping individuals and communities with awareness, crucial knowledge, and skills. The United Nations Sustainable Development Goal 4 specifically highlights the need for inclusive and equitable education and lifelong learning opportunities for all. As of 2022, global primary school enrolment rates have exceeded 90%, with significant progress in reaching marginalized groups. Curricular reforms focusing on environmental studies and global citizenship are crucial, as the 2022 Global Environmental Education report highlights that climate-aware students are 25% more likely to engage in sustainable practices. Lifelong learning is also vital, with the Organisations for Economic Co-operation and Development’s Skills Outlook report of 2021 showing that adults in life-long learning are 20% more likely to secure new job opportunities and experience income growth. Furthermore, 92% of business leaders emphasize the importance of critical thinking for success. Enrolment in higher educational institutes reached over 220 million students in 2022, offering expanded learning opportunities. The World Health Organization’s report on higher education correlates with better health outcomes, noting that educated individuals are 50% more likely to adopt preventive health practices and enjoy longer life expectancies.

In India, the Maritime India Vision 2030 and Maritime Amrit Kaal 2047 promote quality maritime education, while the National Education Policy 2020 ensures inclusive, equitable access for all students.

Policy-making provides the structural support and incentives necessary for inclusive and sustainable practices. Effective policies create environments conducive to progress. For

example, the World Bank's 2021 report reveals that each additional year of schooling can boost earnings by up to 10%. Policies promoting renewable energy and sustainable agriculture are vital for life-preservation. The International Energy Agency reported an 8% rise in global renewable energy capacity in 2022, and the Food and Agriculture Organization estimates that sustainable agriculture could reduce greenhouse gas emissions by up to 25% by 2030. Social equity policies, such as targeted social safety nets, have lifted around 30 million people out of poverty globally since 2010.

Community-led or grassroots initiatives play a vital role in turning policies into real-world impact. Over 3,500 community-led waste management projects have increased recycling and reusing by 20%, while local clean energy efforts have reduced carbon emissions by 15%. Social justice movements like #MeToo have driven policy changes in 25 countries addressing sexual harassment and gender inequality. Additionally, more than 1,000 social enterprises launched annually in developing nations have created over 200,000 jobs in education and healthcare. Community-led efforts have also boosted voter turnout among marginalized groups by 40% and helped adopt over 50 new policies tackling climate change and poverty.

The synergy among education, policy-making, and community-led initiatives constitutes a multi-faceted approach to achieving inclusiveness, life-preservation, and life-furtherance. Education provides the tools to understand and address complex issues, policy-making offers the necessary framework and incentives, and community-led initiatives ensure effective implementation. By harmonizing these elements, societies can work towards a more inclusive, sustainable, and equitable future, realizing the 21st century's vision of inclusiveness, life-preservation, and life-furtherance.

I wish TRInCo 2024 a resounding success.

Thank you

**Dr. Malini V. Shankar, I.A.S. (Retd.)**

Vice Chancellor

Indian Maritime University, Chennai, India.

## MESSAGE FROM THE CONFERENCE CO-CHAIRS



The Co-Chairpersons are proud to announce the 6<sup>th</sup> International Research Conference TRInCo 2024 entitled “An Integral Vision for the 21<sup>st</sup> Century” with a particular focus on “Promoting Inclusiveness, Life-Preservation



and Life-Furtherance” in partnership with the Indian Maritime University, Chennai, Tamil Nadu, India. The red thread of this conference is the pivotal aspect of cultivating an integral vision in contra to today’s context where compartmentalization vis-à-vis sciences, academia, geographical territories, race, ethnicity, religion, caste, class, colour, and gender are creating a non-conductive environment that are challenging life-preservation and life-furtherance through their exclusive outlooks. Hence, this conference emphasizes the quintessence ‘inclusiveness’ which has been the underlying key element in the lifeworld steering mediums of the archaic societies exhibited through their liminal existence which has been also translated into modern management mantra as trusteeship and very much used and made famous by M. K. Gandhi. In a sense, this conference creates a validation in revisiting the past so as to interpret the present and foresee the future.

The guest speakers, keynote speakers, plenary speakers, and presenters have shared their findings and suggestions in line with having a futuristic hope by promoting an ideologue to build a better society through an integral vision which will foster life-preservation and life-furtherance. This proceedings of the TRInCo 2024 International Research Conference is a compilation of outstanding papers from scholars of numerous disciplines and walks of life who have been involved in various searches via scholarly and creative activities. The committee received 100 papers of which 97 have been selected after the scrutiny of review.

We thank all the contributors for providing such a variety of research articles on broad range of topics. Further we thank the reviewers from Sri Lankan and Indian Universities. We take this opportunity to express our thanks to all academic, administrative and non-academic staff who have contributed to make this international conference a great success. In addition, the efforts of the various conference committee members even sacrificing their personal time for the success of this conference is highly commendable. We also especially thank the hardworking and dynamic editorial team for helping us in many ways and in bringing out the conference proceedings.

**Dr. K. Vidhya dharshni**  
Senior Lecturer  
Faculty of Siddha Medicine

**Dr. J. S. Rohan Savarimuttu**  
Senior Lecturer  
Faculty of Communication & Business Studies

## MESSAGE FROM THE SECRETARY AND THE CO-SECRETARY



It is with immense pleasure that we present this message on the occasion of the 6<sup>th</sup> International Research Conference - TRInCo 2024. We extend a warm welcome to all participants of the 6<sup>th</sup> International Research Conference, organized in collaboration with the Indian Maritime University,



under the theme of "An Integral Vision for the 21<sup>st</sup> Century." This theme resonates deeply in today's rapidly evolving world, where the need for interdisciplinary approaches and holistic perspectives has never been more urgent. The collaboration with the Indian Maritime University highlights the importance of bridging diverse domains of knowledge whether maritime studies, environmental science, technology, social sciences, and humanities. It is a reminder that the challenges we face in the 21<sup>st</sup> century climate change, globalization, technological advancements, and socioeconomic inequalities are deeply interconnected. Therefore, our solutions must also be interconnected, drawing from a rich tapestry of ideas, disciplines, and cultures.

The book of abstracts you hold in your hands is a testament to the incredible depth and breadth of research that has come together for this event. It reflects the shared commitment of scholars, researchers, and innovators to exploring new paradigms, fostering collaboration, and building a vision that embraces inclusivity, sustainability, and progress for all. As you explore these abstracts, we encourage you to think about the connections between the different fields, to engage in meaningful dialogue, and to seek ways to collaborate across borders both geographical and disciplinary. It is through such integrative efforts that we can truly address the complex challenges of our time and pave the way for a brighter, more harmonious future.

On behalf of the organizing committee, we extend our heartfelt gratitude to the Vice-Chancellor and Rector for their unwavering support and guidance. We are also deeply thankful to our Chief Guests, Guest of Honours, Keynote Speakers, Plenary speakers, session chairs and co-chairs and all other distinguished guests for their valuable participation and contributions. A special thanks goes to the Indian Maritime University, Chennai, Tamil Nadu, India, for their collaboration, which has been instrumental in enhancing the international scope of this conference. Furthermore, we appreciate the hard work and dedication of the academics, administrative staff, organizing committee members, non-academic Staff, presenters, and participants who have played pivotal roles in making this event a success.

May this gathering spark new ideas, partnerships, and visions that will continue to inspire us all as we navigate the uncharted waters of the 21<sup>st</sup> century.

Thank you, and we wish you all a successful and enriching conference experience.

**Dr. B. Sarangan**  
Secretary/ TRInCo 2024

**Mrs. S. Krishanthy**  
Co-Secretary/ TRInCo 2024

## KEY-NOTE ADDRESSES

### *Integral Vision and Inclusiveness*



The choices we make today will shape the world of tomorrow. Although our path forward is not easy, we are fortunate that it is illuminated by the beacon of knowledge passed on by previous generations. Therefore, it is our duty to follow a just path and enhance the transformative power of education to shape our own existence and that of our future generations.

The overarching theme of your Research Conference is about “an integral vision” and how it could lead to “inclusiveness, life preservation and life furtherance”. The talks and seminars encompass 12 broad areas that together have the potential to transform our society. The concept of “an integrated vision”, recognises the interconnectedness of all aspects of life and society. Here, we can draw inspiration from the work of contemporary theorist and writer Kenneth Earl Wilber, whose integral theory offers a framework for understanding and addressing the complexity of our world.

Ken Wilber in his writings proposes a four-quadrant grid to encompass all human knowledge and experience and teaches us that progress can come from integrating all quadrants of existence – the individual interior (our thoughts and feelings), the individual exterior (our behaviours and actions), the collective interior (our shared culture and values), and the collective exterior (our social systems and environment). By considering all these dimensions, we can develop more comprehensive and effective solutions for the global challenges we face today.

In today’s world we need to adhere to the concept of higher-level interdisciplinary research approach or “convergence research”, if solutions to complex problems are to be found that will promote inclusiveness and life preservation and furtherance. Therefore, the concept of an integral vision is supreme. Gone are the days where a sole individual or a group of researchers and academic could do impactful research. Every discovery, every innovation, every breakthrough should be measured not just by its scientific merit alone, but by its potential to improve lives. As we push the boundaries of knowledge, let us never lose sight of our ultimate goal – to create a world where every individual can thrive – not just for a few in certain societies or groups - but for all. Let us support the fundamental premise: research must serve humanity.

Yet, we must remember that progress demands effort. Education – the foundation of all advancements – is hard work. It requires dedication, perseverance, and often, sacrifice. But make no mistake: this investment in ourselves and our communities will pay dividends beyond measure. Through education, we not only acquire knowledge and skills but also develop the critical thinking and creativity needed to embrace an integrated vision, to effectively tackle complex global challenges.

The central cause of conflicts is the lack of equity and justice. In a world torn by conflicts, peace is not merely the absence of war, but the presence of justice, understanding, and cooperation. In a global sense, promoting inclusiveness is not just about fairness – it is a strategy for life-preservation and life-furtherance. In our interconnected world, the challenges we face – from climate change to pandemics – do not respect borders or discriminate based on race, wealth or status. As we strive for progress, we must never forget the importance of peace. In this country we live in a period of fragile peace after three decades of ethnic conflict. Our solutions, therefore, must be as inclusive and far-reaching as the problems they address.

The power to shape the future lies in your hands. Seize these opportunities with courage, compassion, and unwavering commitment to equity and justice that will promote inclusiveness and life preservation. The journey may be long, but with each step, you will move closer to realising that a shared vision of a just, peaceful, and thriving society – is the only way forward for one and all.

Natkunam Ketheesan MD, PhD  
Professor in Biomedical Science (Infection & Immunity)  
School of Science & Technology  
University of New England, Australia

## KEY-NOTE ADDRESSES

### *Agricultural Sustainability and its Contribution to the Economy of Sri Lanka*



Distinguished invitees, Researchers, Ladies and Gentlemen,

Today, we all gather for this pivotal conference on Promoting inclusiveness, Life preservation, and Life furtherance and its contribution to the economy and scholarly field of Sri Lanka. Standing before you today as a keynote speaker at this event is a privilege. Today, I will discuss and explore the critical intersections of agriculture, sustainability, and economic growth in our beloved nation. Also, this extensive discussion elaborates on the way forward and how sustainable agriculture is linked to green and blue economies and thereby promotes inclusiveness, life preservation, and life furtherance.

Sri Lanka, a country blessed with fertile lands and a rich agricultural heritage, has always been rooted in its agrarian foundation. From the lush green tea plantations in the central highlands to the sprawling paddy fields in the rural heartlands, agriculture has not only been a source of livelihood for millions but also a cornerstone of our economy. Today, as we navigate the complexities of the 21<sup>st</sup> century, the importance of sustainable agricultural practices cannot be overstated.

Agriculture remains a significant pillar of Sri Lanka's economy both green and blue economic concepts. The agricultural sector contributes approximately 7% to the national GDP and employs nearly one-third of the population. The sector not only provides food security and raw materials for industries but also plays a crucial role in export earnings, particularly through commodities such as tea, rubber, and spices. However, the traditional methods that have sustained us for generations now face unprecedented challenges. Climate change, soil degradation, water scarcity, and the need for modern technological integration demand a rethinking of our agricultural practices. Therefore, there is a higher necessity to incorporate sustainability into the agricultural sector by thinking about nature and environmental sustainability.

Sustainability in agriculture is not just a buzzword; it is an imperative. It calls for a balanced approach that meets the needs of the present without compromising the ability of future generations to meet their own needs. Sustainable agricultural practices aim to enhance environmental health, economic viability, and social and economic equity. The transition to sustainable agriculture is both environmentally responsible and economically advantageous. Let's see how sustainable agriculture aids in the economic development of the country. When we use Good Agricultural Practices (GAP), we can have healthier soils as well as healthier food for our consumption. Healthier soils and efficient resource use often result in higher crop yields and better-quality produce, leading to sustainable food

security while securing higher agricultural productivity. Further, when we reduce the reliance on chemical inputs and fossil fuels, it can lower production costs over time and aid in economic development. Currently, there is a growing demand for organic food items and if we practice organic agriculture, it will open up doors for new market and export opportunities and generate a higher income. Not only that, the general consequences of organic agriculture create positive impacts on the environment where we all are living. Certified organic farming prohibits using artificial pesticides or fertilizers to both prevent and reduce chemical runoff, pollution of soil and watersheds, etc. Therefore, it will enhance the quality and food safety by providing chemical-free highly nutritious food items for human consumption and it will ensure life preservation and life furtherance.

Now, let us focus our attention on how sustainable agriculture aided in moving towards a green economy in Sri Lanka. Sustainable agriculture plays a crucial role in leading towards a green economy by integrating economic growth with environmental sustainability. When creating a green economy through agriculture and environmental sustainability, agroforestry is a major concern. There is a growing demand for agroforestry in the modern world. Integrating trees and shrubs into agricultural landscapes enhances biodiversity, improves soil health, and provides additional sources of income. Ultimately it will open up doors for a green economy. Further, agroforestry encourages the carbon sequestration process and it will reduce the emission of greenhouse gases to the atmosphere and aid in combating the bad effects of climate change. Therefore, as scholars and responsible people in this country, it is our ultimate obligation to disseminate this knowledge to the general public to plant more trees to save our planet earth and the fascinating environment. Sustainable agricultural practices such as drip irrigation and rainwater harvesting reduce water usage, ensuring that water resources are used efficiently and preserved for future generations. Techniques like crop rotation, cover cropping, and organic farming improve soil fertility and structure, reducing the need for chemical fertilizers and preventing soil degradation. All those activities enhance resource efficiency and conservation for future generations. Moreover, by fostering local food systems and reducing dependency on imported goods, sustainable agriculture supports local economies to create jobs in rural areas and aids in poverty alleviation. Also, they often lead to the production of higher-quality, organic, and specialty products that can command higher market prices, benefiting farmers economically. Therefore, it is evident that sustainable agriculture is a way forward in achieving the green economy in Sri Lanka.

Let's see how sustainable agriculture contributes to the blue economy. The blue economy is simply the sustainable use of marine resources for economic purposes. Aquaculture plays a pivotal role in agriculture and the sustainable use of aquaculture resources is crucial in achieving the blue economy and an overall sustainable economy. The seabed supplies 32% of world hydrocarbons and supports the global tourism industry. Only 5-7% of the ocean has been investigated, indicating significant potential for growth and development. Technological advancements enable bio-prospecting of the ocean, mining of seabed minerals, extraction of oil and biogases, and renewable energy sources such as wind, tidal,

thermal, and biomass. Sustainable agriculture often involves conserving natural habitats and promoting biodiversity on farmland, which benefits adjacent aquatic ecosystems by maintaining ecological balance. Further, fish-friendly activities such as reducing water extraction for irrigation and maintaining natural water flow support the sustainable surveillance of fish populations and other aquatic life.

Sri Lanka is an island and having a coastal area that covers 14 administrative districts and accounts for approximately 23% of the country's land area. 25% of Sri Lanka's population lives in the country's coastal area. The blue economy offers opportunities for them to engage in fisheries, aquaculture, renewable energy, marine biotechnology, tourism, and coastal management. Therefore, there is a huge potential for achieving a blue economy through sustainable agricultural practices in Sri Lanka. According to the Food and Agriculture Organization, fish serve as the main source of protein in Sri Lanka and account for 70% of the total animal protein share. To meet the demands of an adequate and sustainable supply of fish through aquaculture, sustainable fishery methods like freshwater farming and Mari-culture should be encouraged, thereby managing the food security situation. As Sustainable agriculture is a key component of integrated coastal zone management (ICZM), which aims to balance the use of coastal resources with environmental conservation and socio-economic development, we can popularize sustainable agricultural practices among the coastal and fishing communities. Actions should be taken to mitigate the illegal and unhealthy fishing practices, that disturb the marine ecosystem which has long-term effects on the regional marine resources, and to protect the marine resources. We should develop a network, engaging stakeholders from agriculture, fisheries, and coastal communities that foster collaborative governance and sustainable resource management to attain a blue economy.

As we look to the future, we must embrace a holistic approach to attain green and blue economic growth through agricultural sustainability in Sri Lanka. This requires the collaboration of government bodies, universities, research institutions, private enterprises, and farming communities. Policy frameworks must be strengthened to support sustainable practices, incentivize innovation, and provide access to necessary resources and technologies. Education and training programs should be developed to equip farmers with the knowledge and skills needed for sustainable farming. Moreover, we must invest in research and development to explore new frontiers in sustainable agriculture. This conference, bringing together some of the brightest minds and dedicated practitioners in the field, serves as an ideal platform for sharing knowledge, exchanging ideas, and forging partnerships that will drive our nation toward a sustainable and prosperous agricultural future.

In conclusion, the journey towards agricultural sustainability, economic development and thereby enhancing inclusiveness, life preservation, and life furtherance is not an easy one, but it is a journey we must undertake for the sake of our environment, our economy, our

well-being, and our future generations. Let us seize this opportunity to lead the way, innovate, and transform our agricultural practices for a sustainable Sri Lanka.

Thank you, and I look forward to the insightful discussions and collaborations that will emerge from this conference. Together, we can cultivate a future where agriculture thrives sustainably, contributing robustly to the economic and social well-being of our nation.

**Prof (Mrs.) G.A.S. Ginigaddara**

Vice Chancellor

Rajarata University of Sri Lanka

## INVITED ABSTRACTS

### **An Evaluation on Changing Landscape of Ship Building Industry in India**

Shipbuilding is a very complex process of configuring and constructing ships. The Indian shipbuilding industry dates back to 9<sup>th</sup> Century with evidence of the Cholas and Pandya dynasty known for construction of ships for transportation. Currently Indian ship builders are facing tough competition from reputed foreign players like China, South Korea and Japan. These nations have advanced technological capabilities, robust supply chains and economies of scale, leading them in a competitive advantageous position over Indian shipyards. In fact, the shipbuilding industry has experienced substantial changes driven by a variety of features such as advancements in technology, varying global economic conditions, and changing regulatory requirements. Off late the focus is more on safety and efficiency factors on shipbuilding, this is due to the growing number of accidents in shipping. This paper examines the efficiency among the public sector units of the shipbuilding industry in India. The data is collected from the secondary sources. If Indian ship building units can construct and deliver ships on time, India could be a hub for international ship building and repairs. The data may be analysed using rank correlation and regression. The study will also cover the number of ships ordered and number ships delivered, in fact the study will is very rigorously use order delivered ratio to find out the efficiency. While doing the study through an unstructured interview it is observed the performance of public sector ship building units are suffering infrastructure availability, there is an acute requirement of modernized shipyards, most of shipyards lack emphasis on green and sustainable shipping, many of them suffer non-availability of dry dock capacities, absence of transportation network and lack of proper collaboration with global players.

**Keywords:** *Ship Building, Ships Ordered, Ships Delivered, Efficiency*

**Dr. M. Sekar**

Assistant Professor

School of Maritime Management

Indian Maritime University, India

## INVITED ABSTRACTS

### **Strengthening Global Regulatory Framework for Sustainable Ship Recycling**

The ships, after completing a 20 to 25-year lifespan, are dismantled at the recycling yards in developing countries, posing severe environmental, health, and safety risks. Enforcing environmental standards led the ship-owning nations to shift recycling operations to relatively inexpensive developing nations. To ensure best practices in ship recycling yards, the International Maritime Organisation, under the auspices of the UN, put forth the Hong Kong Convention for Safe and Environmentally Sound Recycling of Ships in 2009. Though the Convention is considered to be a major milestone in the ship recycling sector, it has been criticised for exemption of small vessels and vessels of strategic importance, lack of mention of pre-cleaning of ships, no suggestions for alternatives to beaching, no provision to stop the change of flags of end of life vessels, directions on treatment and handling of hazardous wastes at the recycling yards, etc. The Convention comes into force in 2025 and entrusts the recycling yards to ensure worker-specific and environment-specific measures that uphold the ‘polluter pays’ principle.

As shipping services have international implications, ship recycling, one of the integral functions of this market, draws the attention of the stakeholders to identify the regulatory gaps and propose measures to strengthen national and international regulations. This paper throws light on the need for appropriate amendments to the Hong Kong Convention, fostering a collaborative and constructive discussion among ship-owning and ship-recycling nations. A transparent regulatory mechanism is essential to correct the existing lopsided distribution of responsibility on recycling nations at the cost of better-off ship-owning nations. Each ship recycling nation may be encouraged to implement country-specific worker regulations, whereas hazardous waste management, as an international issue, may be discussed and handled at the international level through appropriate institutional means.

**Keywords:** *Green ship recycling, Hong Kong Convention, Regulations for ship recycling, Ship recycling, Sustainable dismantling of ships*

**Emil Mathew**

School of Maritime Management

Indian Maritime University, India

## INVITED ABSTRACTS

### **The Development of Molecularly defined T Cell Vaccines**

Infectious diseases are one of the leading causes of morbidity and mortality worldwide. Vaccines represent the most cost-effective strategy to control infectious diseases. The immune correlate of protection for most currently used vaccines is long lived humoral immunity. By contrast, many of today's most pressing infectious diseases of public health importance are caused by intracellular pathogens such as *Mycobacterium tuberculosis*, *Salmonella*, malaria and HIV/AIDS. For these diseases, vaccines that induce cellular immune responses via T cells are essential. Experience has shown that developing vaccines for pathogens that require cellular immune responses is more difficult than for pathogens that require protective antibody. One major impediment in developing vaccines against intracellular pathogens is the difficulty in identifying relevant T cell antigens. Genomics and proteomics now provide the tools to allow unbiased selection of candidate T cell antigens. Pathogens contain a large number of possible T cell antigens to be presented via major histocompatibility complex (MHC) molecules to induce T cell mediated immune responses. An approach called immunoproteomics, in which peptides presented by MHC molecules are identified by tandem mass spectrometry (MS/MS) is pioneered in our laboratory for many intracellular pathogens. This approach allows genomic information to guide the delineation of the complete T cell immunoproteome of the organism. My presentation mainly focuses on the immunoproteomic approach used in our laboratory to identify *Chlamydia*, *Salmonella* and tuberculosis T cell antigens and how these T cell antigens can be developed into a future human vaccines.

#### **Karuna P. Karunakaran**

Vaccine Research Laboratory

University of British Columbia

Centre for Disease Control and Department of Biology

Faculty of Science and Technology, Douglas College

Canada

## **INVITED ABSTRACTS**

### **Volatile Biomarkers in Health and Disease**

A biomarker is a naturally occurring molecule, gene or characteristic by which a particular disease can be identified. SIFT-MS is a form of direct mass spectrometry. It applies precisely controlled chemical ionization reactions to detect and quantify trace amounts of Volatile Organic Compounds (VOCs) and inorganic gases.

SIFT-MS enables selective, sensitive, real-time detection of trace gases in indoor, outdoor, and mobile settings. It can detect Volatile Organic Compounds (VOCs) and inorganics that cannot be easily targeted by traditional chromatographic methods. No sample preparation is required for direct detection of samples. Several volatile breath metabolites have been quantified by SIFT-MS, including ammonia, acetone, hydrogen cyanide, alcohols, pentane, acetic acid, methane, and sulphur compounds. Their potential as biomarkers is discussed.

#### **Prof. Senti Senthilmohan**

Consultant Scientist, Melbourne, Australia

Visiting Professor, BHC, Trichy, India

## INVITED ABSTRACTS

### **Marine resource sharing between India and Sri Lanka in Palk Bay – dispute and solution**

There is a long history and cultural connection between the communities living on the northern and southern shores of Palk Bay in India and Sri Lanka. The traditional fisheries in both countries have provided a vital source of protein, employment, and opportunities for economic development for these poor coastal regions. In the past, the traditional systems of community-based fisheries management, such as padu and tadai, were used in southern India and Sri Lanka to define the group of rights holders, fishing gears, resource boundaries and fishing grounds based on rotational access that provides equitable access, collective social responsibility, rule making and conflict resolution. The conflict between the fisheries in Palk Bay has escalated into a serious issue which needs to be resolved to avoid increasing shortages of fish, malnutrition and hunger in this region. Over capacity of the industrial shrimp fishery in southern India has led to overfishing of both marine resources and environmental damage to fish nursery areas. The fish bycatch of shrimp trawlers is high because of the small mesh sizes currently being used in the fishery. Seagrass habitats and traditional fishing gear are being damaged by the trawlers. Following depletion of the shrimp stocks in the northern parts of Palk Bay, the trawlers have moved south to fish on Sri Lankan fishing grounds, where this fishing method is prohibited and where there is now investment in the development of traditional fishing methods. In this paper, we outline a management process to build Governance and community consensus for sharing marine resources to address overfishing by the shrimp trawlers based on the traditions and local culture, existing legislation and negotiation of a comprehensive fishery management plan by an interactive joint working platform of stakeholders from India and Sri Lanka.

**Keywords:** *Fisheries Management; Shrimp fishery; Trawler; Palk Bay; Stakeholders*

**K. P. Sivakumaran**

Centre for Aquatic & Fish Ecology  
Australia

## INVITED ABSTRACTS

### **Marine bacteria as the potential ecological and economic frontiers in the blue economy**

Marine bacteria encompass a diverse array of species that inhabit various marine environments, including mangrove ecosystems. Within mangrove habitats, marine bacteria play essential roles in nutrient cycling, organic matter decomposition, and pollutant degradation, contributing to the ecological balance and functioning of these unique coastal ecosystems. Central to their significance is the formation of bacterial biofilms, intricate communities encapsulated within extracellular polymeric substances (EPS). These biofilms play multifaceted roles in fostering ecological resilience and driving economic activities. In mangrove/ marine ecosystems, bacterial biofilm and EPS are instrumental in promoting plant growth and enhancing soil health. Through symbiotic interactions with mangrove roots, these bacteria facilitate nutrient cycling, soil aggregation, and plant growth promotion. Moreover, bacterial biofilm and EPS contribute to the bioremediation of organic and inorganic pollutants by enzymatic degradation and sorption mechanisms. Furthermore, bacterial EPS holds promise in the development of hydrogels for medical applications. EPS-based hydrogels exhibit unique properties, such as biocompatibility, biodegradability, and moisture retention, making them ideal candidates for wound healing and tissue regeneration. EPS from marine bacteria offers diverse array of benefits, encompassing the augmentation of ecosystem resilience and the facilitation of innovations in biotechnological applications and environmental remediation. Exploitation of their versatile properties will pave the way for a more sustainable and prosperous future in the blue economy landscape.

**Keywords:** *Marine bacteria, Biofilm, Extracellular polymeric substances, Plant growth promotion, Bioremediation, Hydrogels*

#### **Surajit Das**

Professor

Laboratory of Environmental Microbiology and Ecology (LEnME)

Department of Life Science

National Institute of Technology

Odisha, India

## INVITED ABSTRACTS

### **Marine Microbiology: Status, Challenges and Opportunities**

Marine microbes, the hidden majority of the oceans are uniquely important to life. Since life most began in the oceans, marine microbes are the closest living descendants of the original forms of life. That's why the diversity of these organisms is often referred to as "the key to earth habitability". Even though a great deal of research on the form and function of these organisms has been carried out, our knowledge is still far from complete. It is true that even today 99 % of these organisms cannot be cultured under laboratory conditions. Now that we know the presence of microbes in every corner of the oceans, our task of understanding their diversity and distribution has become the major challenge. Even with the use of several advanced technologies, we are unable to develop a clear map of the "hidden majority" of our oceans. The knowledge on the existing biodiversity is really incomplete due to the declining number of taxonomists and lack of interest in the emerging scientists. In order to develop the importance of taxonomy, more number of scientists should actively involve themselves in this field, inculcate the students to develop interest on biodiversity and taxonomy, give sufficient importance to taxonomy in the curriculum and allocate sufficient funds on taxonomy and biodiversity research. A rich pool of fungal species is yet to be discovered and investigated over the coming years.

Natural products are both a basic source of new chemical diversity and an integral component of today's pharmaceutical component. There are about 33,000 natural products from microbial sources are reported. Although, marine plants and invertebrates have received considerable attention as a resource for natural product discovery, the microbiological source of this diversity relatively unexplored. Competition amongst microorganisms to generate multifarious metabolites can offer novel bio-molecules with extraordinary properties. Further, the complexity of the recent investigations revealed that the marine fungi are producers of numerous useful natural products including pharmaceuticals, peptides, growth promotion in agriculture and aquaculture, low molecular weight enzyme inhibitors, immune-modifiers, enzymes for use in a number of industrial applications. The innovative methodologies are need of the hour which synchronises biotechnology, bioengineering and bioinformatics can be feasible and effective for marine microbial sustainability and also for the production of high quality bio-molecules for future.

**Key words:** *Marine Microbes, Diversity, Biomolecules, human welfare*

#### **Kalaiselvam, M**

Centre of Advanced Study in Marine Biology

Faculty of Marine Sciences

Annamalai University

Tamil Nadu, India

## INVITED ABSTRACTS

### **Research on the Ecological Significance of Marine Microzooplankton Communities and its Trophodynamic Role in Indian and Japanese Marine Coastal Waters**

Research on the ecological significance of marine microzooplankton and its trophodynamic role in tropical marine coastal ecosystems are poorly documented/investigated. However, researchers have identified that microzooplankton often constitute a significant component of the marine plankton community in many marine coastal systems owing to their higher mass-specific physiological rates compared with larger zooplankton and its important role in the pelagic food web by providing a link between pico- and nanoplankton and higher trophic levels of meso- and macrozooplankton and fish larvae.

Exhaustive research has been conducted to understand the population dynamics (abundance, biomass and production rate), food and feeding, and grazing activities of microzooplankton at marine coastal ecosystems. Here, summarized the results obtained by the research conducted at the tropical coastal ecosystems (estuary, backwaters and mangrove ecosystems), southeast coast of India and in Japanese marine coastal waters. This was one of the first comprehensive studies on microzooplankton in India.

A total of 72 species of microzooplankton were identified from these tropical ecosystems and the total population was dominated by a single group i.e. tintinnid ciliates, both in terms of species diversity (mean 62%) and abundance (mean 65%). The remaining taxa included rotifers, copepod nauplii, naked ciliates (only 2 species) and some metazoan larval forms. Further, most of the tintinnid species found in these waters are cosmopolitan rather than endemic. The abundance of total microzooplankton exhibited clear seasonal variations: - being highest in summer and lowest in winter. The overall mean abundance (327 indiv. l<sup>-1</sup>) was four-fold higher during summer which is attributable mainly to the combined effects of higher temperature, salinity as well as abundant food supply, as the most important factors affecting their diversity, abundance and growth rate.

Biomass of tintinnids ranged from 0.04 to 3.01  $\mu\text{g C l}^{-1}$  and the maximum and minimum daily production 2.5 and 0.07  $\mu\text{g C l}^{-1}$  day was estimated. Due to large thermal gradients (ranges 22.5 – 33.8°C), the overall mean biomass and production rate was highest in summer than during monsoon months.

The trophodynamic role of tintinnids, with reference to phytoplankton grazing, and the rate of daily removal of phytoplankton biomass was estimated in the tropical waters varied seasonally (estimated highest (1.24%) in summer and lowest (0.03%) in winter).

Whereas, in Japanese marine coastal waters, 42 species of tintinnids and 2 species of naked ciliates were identified. Besides that, copepod nauplii were also identified. Among them, ciliated protozoans (naked ciliates and tintinnids) were numerically overwhelming (81 and 83%, respectively), followed by copepod nauplii. There was a remarkable seasonal and geographical variation in taxonomic composition, abundance, biomass and production rate of microzooplankton. The overall mean abundance and biomass of total microzooplankton was higher 2.1 and 2.3 fold respectively in summer than in winter.

There were marked decreases in abundance, biomass and production rate from inshore eutrophic to offshore oligotrophic stations. The potential percentage of the initial

phytoplankton biomass removed by grazing of microzooplankton was relatively constant at different transects. It varied from 4.1 to 9.6% in summer and from 1.5 to 3.9% in winter with mean values of 7.2% and 2.6% in summer and winter, respectively.

First qualitative and quantitative study was conducted on microzooplankton in Lake Shinji–Ohashi River–Lake Nakaumi brackish-water system, highly productive brackish-water lagoonal systems at present in Japan. It was observed that naked ciliates numerically dominated the microzooplankton community (annual mean 39.6%), followed, in order, by tintinnids (30.3%), copepod nauplii (24.6%) and rotifers (5.5%). The chlorophyll a concentration was extremely high (over the entire area-annual mean: 31.6  $\mu\text{g l}^{-1}$ ). However, the average biomass of microzooplankton (mean range 0.19 – 18.7  $\mu\text{g C l}^{-1}$ ; and annual mean 21.0  $\mu\text{g C l}^{-1}$ ) in this brackish-water lagoonal systems.

Based on the comprehensive study conducted at Indian and Japanese marine coastal waters, it was concluded as follows:

- i. In tropical waters, seasonal environmental factors/climate variations exert major influence on the species composition, abundance, biomass, production rates of microzooplankton and food web dynamics of the ecosystem.
- ii. Tintinnid ciliates are the dominant taxonomic group in tropical waters, whereas in temperate waters, naked ciliates are most abundant.
- iii. There are many factors such as salinity and thermal gradients, food abundance, size of the prey, predation etc., determine the distribution patterns and control physiological, growth and grazing activities.
- iv. The ecological and trophodynamic roles of microzooplankton may not be the same in all systems and tend to show variations in abundance according to bathymetry and environmental conditions.
- v. The more removal rate at the oligotrophic waters suggested that the trophodynamic roles of microzooplankton might be more important in the offshore regions, where the food resources are limited.
- vi. The occurrence of most tintinnid species was confined to certain months or locations, closely associated with species specific temperature and salinity preference and/or tolerance.
- vii. Further, it was confirmed that microzooplankton play an important role as a trophic link between pico- and nanoplankton and meso- and macro-metazoan predators in this eutrophic brackish – water system.
- viii. Based on the geographical distribution of microzooplankton in the Inland Sea of Japan and adjacent waters can be roughly summarized as follows: - ‘they are always most abundant in heavily eutrophic embayments and gradually decrease towards the Pacific Ocean’.

Based on the extensive research conducted, microzooplankton will emerge as one of the important thrust research areas in biological oceanography, especially in studies on the microbial food web, where microzooplankton is acting as a central link between the bacterial population and metazoan consumers and larval fish consumers. Further, biotechnological applications can be incorporated in the study of microbial food web and also to estimate the magnitude of the carbon cycling pathways at different trophic levels. Besides, molecular tools may be used in future to study the physiological activities, evolution and species characterization of microzooplankton.

**Keywords:** *Biomass, Estimated Production Rate, Environmental Factors, Microzooplankton, Phytoplankton Grazing, Tropical and Temperate Ecosystems*

**N. Godhantaraman**

Academic Consultant - Indian Maritime University, Chennai,  
Tamil Nadu, India

Former Faculty - Centre for Environmental Sciences  
& Centre for Ocean and Coastal Studies, University of Madras

## INVITED ABSTRACTS

### **The Global Energy Market: An Analysis of Energy Economics and Trade**

The global energy landscape is characterised by the complex interaction between supply and demand, which is the leading research problem. Energy resources like hydrocarbons have historically impacted economic growth, international trade, geopolitical relations, and environmental policies. Addressing current challenges in energy economics, resource management, and sustainability is crucial to understanding how these factors interplay. This paper provides an overview of energy economics and trade, focusing on hydrocarbons, which account for 90 per cent of the global energy demand. This study investigates the role of hydrocarbons in major industries such as transportation, residential, and agriculture and the factors that affect energy demand in these sectors, such as price shocks, efficiency, and technological advancements. A historical data analysis of key events, such as the 1973 and 1979 energy price shocks, can be applied to this study to explore the degree to which demand for energy can be elastic. It also reviews the trends in residential energy consumption, focusing on the impact of efficiency, technological substitution, and cost structure. In addition, the paper examines the geopolitical and economic factors that drive hydrocarbon production and the evolution of the energy supply chain. This study shows that hydrocarbons still dominate despite being exhaustible. Hydrocarbon-rich nations, such as those in the Middle East and Russia, have continued to wield strategic power in the global energy market as long as hydrocarbon resources are present; even though oil accounts for 35 per cent of the global energy supply, emerging sources of energy such as natural gas liquids and non-conventional oils are steadily gaining in popularity. The study's conclusion states that, while hydrocarbons are still the mainstay of the energy market, renewable energy and sustainability initiatives are slowly reshaping the landscape, indicating that a slow but significant transition towards alternative energy sources is taking place.

**Keywords:** *Hydrocarbons, Energy demand, Global energy market, Oil consumption  
Natural gas*

#### **Dr B. Swaminathan**

Associate Professor, School of Maritime Management  
Indian Maritime University, Chennai Campus, India

## INVITED ABSTRACTS

### **Environmental Monitoring and Governance of Marine Waters for Emerging Chemicals**

Emerging chemicals (ECs) are mostly of anthropogenic origin, and they have been used in everyday use. There are several ECs belonging to antimicrobials, preservatives, pharmaceuticals and personal care products (PPCPs), plasticizers, fragrances, etc. are released through a number of anthropogenic activities. Apart from conventional pollutants (pesticides, PAHs, Heavy Metals etc.) these ECs also cause ecosystem dysfunction and health risks in organisms. Land and marine based activities such as waste discharges from community, industries, ships and offshore exploration are contributing to marine pollution of ECs. Since the last century the marine environment has continuously witnessed pollution from plastics. During Covid 19 the health of the beaches were further aggravated with large quantity of personal protective equipments (PPEs) such as gloves, face masks, etc. Leaching of plasticizers (phthalates and phenolics) from the plastics and PPEs contribute significantly. In general, ECs cause endocrine disruption in organisms and lead to ecological imbalance. Good number of research pertaining to ECs are reported in global waters, however, environmental monitoring, governance and health assessment of marine environment with respect to ECs in Indian subcontinent is scarcely carried out. Monitoring and managing our marine environment with respect to ECs is of highest priority for conserving and sustainable use of the marine resources.

**Keywords:** *Bay of Bengal, Emerging chemicals, endocrine disruption, marine pollution, risk assessment*

**Babu Rajendran, R., Gayathri Ramachandran**

Department of Environmental Biotechnology, School of Environmental Biotechnology  
Bharathidasan University, Tiruchirappalli-620024, Tamil Nadu, India

## LIST OF ABSTRACTS

1. Influence of Corporate Social Responsibility Practises on Building Customer Loyalty in the Banking Sector, with special reference to the People’s Bank in Uva province of Sri Lanka.....	1
<i>Madushani, R.K.R.N.</i>	1
2. The impact of audit quality on earnings management: A study of S&P Sri Lanka's top 20 companies on the Colombo Stock Exchange.....	2
<i>Ruwan Lakjeewa, D., Fathima Sheeba, M.A.</i>	2
3. An empirical analysis of twin deficit hypothesis and reverse causality: a case study of Sri Lanka.....	3
<i>Shiyalini, K.</i>	3
4. Attire as a sign system: exploring the symbolism of costumes depicted in low country temples.....	4
<i>Rathnayaka, R.M.T.D.K.</i>	4
5. Assessing work-life balance of female sub warden in university sector .....	5
<i>Usharanjini, S.</i>	5
6. Revitalizing Tourism in Sri Lanka Post-COVID-19: A Qualitative Exploration of Marketing Strategies .....	6
<i>Shameem, ALMA., Sivesan, S.</i>	6
7. The moderating effect of demographic factors on financial management practices and business performance of SMEs in Sri Lanka .....	7
<i>Logeswary Sooriyakumaran</i>	7
8. Spatial Pattern of the Formation of Female-Headed Households (FHHS) in Batticaloa District, Sri Lanka: Status and Driving Forces .....	8
<i>Vasanthakumary, S., Sindhuja, S.</i>	8
9. Determinants of Employee Job Satisfaction - Business Process Outsourcing Organizations in Sri Lanka .....	9
<i>Francke, J. H.</i>	9
10. Assessment of Investment opportunities in Ayurveda.....	10
<i>Niranjan, M., Malini, M., Sarvananthan, T.</i>	10

11. The rise of E-books and Audiobooks: Redefining public library collections and services in the Digital Age .....	11
<i>Karunanayaka, K.P.G.I., Warnasooriya, W.P.I.M.</i>	11
12. Determinants influencing investment decisions among Generation Y investors: The moderating role of gender .....	12
<i>Delima, V.J., Delima, L.</i>	12
13. Exploring the Relationship of Augmented Reality Characteristics on Consumer Adoption Intention in Cosmetic Industry in Sri Lanka .....	13
<i>Ranathunga, H. G. C. K.</i>	13
14. Challenges and Issues of women entrepreneurs: A Study of women entrepreneurs in Vavunya District .....	14
<i>Sivanenthira, S., Pushpanathan, A.</i>	14
15. Predictors of career development in the employees of finance sector .....	15
<i>Rasika, S., Piraveena, T.</i>	15
16. Organizational professionalism and its impacts on teachers: A case in the Paddiruppu education zone .....	16
<i>Kaptheepan, P.</i>	16
17. Entrepreneurship Education and Entrepreneurial Intentions among Engineering Undergraduates in State Universities in Sri Lanka .....	17
<i>Salfiya Ummah, M.A.C.</i>	17
18. Impact of Green Marketing Strategies on Business Performance in Hotel Industry .....	18
<i>Ismail, M. B. M.</i>	18
19. Unlocking linguistic potential: Effectiveness of an English Language Skills Development Programme at a state university in Sri Lanka .....	19
<i>Abesooriya, A.P.L.P., Balasooriya, B.L.W.K., Herath, H.M.I.K., Edirisinghe, J.C., Udugama, J.M.M., Dissanayake, K.M.</i>	19
20. A Content Analysis of Textbook: Investigating the Environmental Literacy Skill in Sri Lankan Grade 6 Science Textbooks .....	20
<i>Agalya, V., Vinoharan, V.</i>	20
21. “How sad, very very sad”: A Discourse Analytical Reading with Humour .....	21
<i>Wickramasinghe, W.M.A.N., Supun, M.K., Jayasundara, N. S.</i>	21

22. Impact of Hypermedia-based Literature Learning on Vocabulary Development: A Study on ‘Higher National Diploma in English.....	22
<i>Nowzath, M.B., Umashankar, S.</i>	22
23. Masturbation in Atonal World: A Philosophical Humourist Analysis .....	23
<i>Supun, M.K., Kuruppu, I.A., Savarimuttu, J.S.R.</i>	23
24. The Importance of Water in Norman Maclean's <i>A River Runs Through It</i> : A Theological Reading .....	24
<i>Perera, A. K. M. D., Savarimuttu, J. S. R.</i>	24
25. An Exploration on the Efficacy of AI-generated Instructional Materials in Facilitating Spaced Reception for Enhanced Vocabulary Acquisition in Second Language Learning .....	25
<i>Sumangala, S.</i>	25
26. A comparative study on the effectiveness of Task-Based Language teaching in fostering language fluency and acquisition.....	26
<i>Hoorul Firthouz, Z.</i>	26
27. An investigation into how sexuality is evoked in the novel .....	27
<i>Kirinde Chandima Thero, Siyabalanduwe Suchiththa Thero</i>	27
28. The effectiveness of Guided Writing Technique in teaching argumentative writing with special reference to Higher National Diploma in English students of ATI, Jaffna.....	28
<i>Sivasankar, S., Abirame, T.</i>	28
29. Improving the writing ability of grade 11 students of Kn/Kilinochchi Central College .....	29
<i>Mahishija, P.</i>	29
30. Exploring determinants for repetitive selection of the same students in English Language and Drama Competitions in Jaffna zone .....	30
<i>Sivakugan A.</i>	30
31. Navigating the Global Hospitality Landscape: Advanced Insights into English Language Proficiency and Its Influence on Career Trajectories and Professional Mobility among Future Industry Leaders .....	31
<i>Ramanayaka, S.K.L.J.</i>	31
32. Fort Design and Techniques of the Batticaloa Dutch Fort .....	32
<i>Barath, N.</i>	32

33. Early childhood teachers’ sustainability in the classroom activities of the young learners.....	33
<i>Soba, B.</i>	33
34. Automatic Facial Makeup Detection .....	34
<i>Ligitha, S., Tharmini, K.</i>	34
35. Augmented Reality and Virtual Reality in Education Sector .....	35
<i>Narangamma, B.P.K</i>	35
36. An approach for predicting atmospheric carbon dioxide concentration: Application of Artificial Neural Network techniques.....	36
<i>Fernando, J.K.R.</i>	36
37. Hybrid CNN-SVM model for face mask detector to protect from a seasonal allergy .....	37
<i>Thevaka, S.,Suthesan, K.</i>	37
38. Personalized Book Recommendation System Using Machine Learning Techniques .....	38
<i>Rajapaksha, R.M.D.M, Disne, K., Thadchanamoorthy, S.</i>	38
39. Comparative Study of Machine Learning Algorithms for Handwritten Digit Recognition.....	39
<i>Muthunayaka, M. A. G. K., Disne, K., Khedika, K.</i>	39
40. Predictive modeling for early heart disease detection through machine learning	40
<i>Weerakkodi, S., Linosh, N. E.</i>	40
41. Comparison of wound healing activity of 5% and 10% <i>Soodan</i> (Camphor) ointments in Wistar albino rats .....	41
<i>Vijayarajah Thanushiyan, Bamini Mithurendran</i>	41
42. Health benefits of types of water according to ancient <i>Ayurveda</i> texts .....	42
<i>De Silva, C.S., Wimalasiri, Y.S.G., Ishara, M.D.P.</i>	42
43. Microbial fibrinolytic enzymes in traditional Sri Lankan buffalo curd: A novel approach to thrombosis management.....	43
<i>Daranagama, D.A.N.D., Devagiri, D.H.N.</i>	43
44. Comparison of body composition between long-term yoga exercisers and non-exercisers in Colombo District.....	44
<i>Yogeswaran, S, De Silva Welliange S., Arambepola C.</i>	44

45. Influence of yoga exercises on psychosocial well-being between yoga practitioners and non-yoga practitioners in Colombo District.....	45
<i>Yogeswaran, S., De Silva Weliange, S., Arambepola, C.</i>	45
46. Knowledge, Attitudes, and Practices Regarding Dengue Fever among Residents of Konesapuri in the Kuchchaveli MOH Area: A Descriptive Study .....	46
<i>Vithiyasini, P., Akeel, M. R. M., Sumaiya, M. S. F., Piyarathne S. H. M. C. B., Krishnaruby, R., Mithurendhran, B.</i>	46
47. Explore the selected risk factors of myopia among the Children (age 6–13years) in Konesapuri Trincomalee-Cross-sectional study .....	47
<i>Muralithasan, S., Loganathan, P., Doole, Z. S., Sampath, G. H. W. P., Gimhani, S. A. A. S., Mithurendran, B.</i>	47
48. Assessing the Efficacy of Media Literacy Education Programs in Schools and Communities: Special Reference to Kuchchaweli Division under the Trincomalee District.....	48
<i>Divaincy Fernando, M., Sobika Danial, T.J.</i>	48
49. Effects of visual storytelling techniques on audience engagement in digital media: A study based on Batticaloa.....	49
<i>Ahallya, D., Divaincy, M.</i>	49
50. Exploring media literacy strategies for empowering marginalised communities in Trincomalee, Sri Lanka: Promoting life furtherance .....	50
<i>Ahallya, D., Divaincy, M.</i>	50
51. Evolving portrayals: Unveiling the shifting trends in advertising .....	51
<i>Poongulaly, S., Anutharsi, G.</i>	51
52. A Study on the use of creative communication in comics in Sri Lankan children’s newspaper.....	52
<i>H.M.P. Kumari</i>	52
53. The impact of User-Generated Content (UGC) on Brand Perception across different product categories .....	53
<i>Jayawickrama, H.N., Piyumali, W.M.</i>	53
54. Semiotic analysis of trauma and loss representation in Purahanda Kaluwara ( <i>Death on a Full Moon Day, 1997</i> ) by Prasanna Vithanage.....	54
<i>Boyagoda, E.W.M.S., Siriwardhana, H.M.P.G.</i>	54

55. Digital Networking for Career Success; Exploring the Benefits and Barriers of LinkedIn Utilization among Undergraduate Students .....	55
<i>Boyagoda, E.W.M.S., Samarawickrama, K.A.R.K., Upananda, M.G.C.L.</i>	55
56. Representation of Transgender Community in Sri Lankan Cinema with Special Reference to Film "Maya" - A Content Analysis .....	56
<i>Kuruppu, I.A., Nasooha, I.</i>	56
57. Identifying the Creative Communication Strategies in Epic Movies in Sri Lanka – Special Reference to “Yashodara” Movie – A Content Analysis .....	57
<i>Dananjana K.K.G.C.M</i>	57
58. Impact of Agricultural Risks on Farmers' Climate Change Adaptation in Riverbed and Rainfed Areas of India .....	58
<i>Sadasivam, K.</i>	58
59. Navigating environmental justice in renewable energy development: challenges and opportunities.....	59
<i>Selvakumar, S.</i>	59
60. Assessment of sustainable approach for Waste management in Jaffna Town-Case study.....	60
<i>Recopayam, J., Raveendran, S.</i>	60
61. Solochrome Black T removal from aqueous solution using raw rice husk and rice husk biochar as a cost-effective adsorbent.....	61
<i>Venujah, P., Sabrina, S. T. F., Arasaretnam, S.</i>	61
62. Exploring the potential of adoption of indigenous plants for promoting Agri-tourism in Sri Lanka.....	62
<i>Jayasinghe, J. K. V. M., Nanayakkara, N.A. P. S. R., Perera, P. K. U., Mahaliyanarachchi, R. P.</i>	62
63. Performance and Prospects of Crop Production in India: Critical account of Selected Crops over Seven Decades of Indian Experience.....	63
<i>Kannan A.</i>	63
64. Infestation of different spices by Cigarette beetle <i>Lasioderma serricorne</i> (F.) (Coleoptera: Anobiidae).....	64
<i>Senevirathne, W. M. S. S., Premathilaka, P. A. P. I., Egodawatta, W. C. P., Wijayaratne, L.K.W.</i>	64
65. Development of Set Yoghurt in Combination with Gelatin and Glasswort ( <i>Salicornia europaea</i> ) Agar as Texturizers.....	65
<i>Jasira, J. F, Nimalan Jeyagowri, Lakmini, G.W.A. S</i>	65

66. A study of Sri Lanka's potential in optimizing the economy to being a blue economic hub in the South Asian region .....	66
<i>Sampath, T.M.I.</i>	66
67. The Spectrum of Blue in Sri Lankan Literary Cannon: with Special Reference to Nayomi Munaweera's <i>Island of a Thousand Mirrors</i> .....	67
<i>Gunasinghe, G.L.S., Supun, M.K., Savarimuttu, J.S.R.</i>	67
68. The traumatic experience of 21st century maritime tragedy: an archetypal reading of Sonali Deraniyagala's <i>Wave</i> .....	68
<i>Fernando, D.T.N, Savarimuttu, J.S.R.</i>	68
69. Inclusiveness and Furtherance: A Blue Cultural Perception in Yann Martel's <i>Life of Pie</i> and Amitav Ghosh's <i>The Hungry Tide</i> .....	69
<i>Isaac, Jasmine M.</i>	69
70. India's Blue Economy: Tracing its past, evaluating the present, and envisioning the future .....	70
<i>Indra, T.</i>	70
71. Trend Analysis of Production, Consumption and Trade of Fish in India .....	71
<i>Suthacini, V.</i>	71
72. Legitimization of inequality under the Legitimacy Act of Sri Lanka.....	72
<i>Ahamed, M.M.A., Purathani M.</i>	72
73. The Community Participation in Furtherance of The Right to Self Determination in International Law; An Analysis of The Chagos Archipelago Dispute .....	73
<i>Ishara Kumudumalee Munasinghe</i>	73
74. Unveiling LGBTIQ Community' Activism; Insights from the Gotagogama Protest for Advancing Social Justice and Rights .....	74
<i>Pathirana, N.C., Gunarathna, I.U.</i>	74
75. An analysis of the effectiveness of the preventive measures of indirect biodiversity loss in the Sri Lanka laws .....	75
<i>Wickramaarachchi, R. J. F.</i>	75
76. The impact of technology on privacy rights: legal policy and reform perspectives .....	76
<i>Selvakumar, S.</i>	76

77. Redefining the Roles and Services of Local Government Institutions in Sri Lanka with Special Reference to Ratnapura District.....	77
<i>Hasitha Jeewanthi, H.D., Chandradas, D.M.</i>	77
78. The Value of a Culture towards the Mental Therapeutic Techniques: An Approach from the Buddhist Perspective .....	78
<i>Nethmi Vithakshi, M.G.</i>	78
79. Harmonizing Bhikkuni Ordination Practices: Exploring Paths to Unity and Inclusivity in Theravada and Mahayana Buddhism.....	79
<i>Hewawasam, S.S.</i>	79
80. Promoting spirituality and peace studies through guided meditation and visual arts .....	80
<i>Senheweera, L.</i>	80
81. Women’s freedom and discrimination in Religious Teachings in South Asian Society: A Historical Exploration.....	81
<i>Ekanayaka, H.M.N.M</i>	81

# **Influence of Corporate Social Responsibility Practises on Building Customer Loyalty in the Banking Sector, with special reference to the People's Bank in Uva province of Sri Lanka**

**Madushani, R.K.R.N.**

*Academic, National institute of cooperative development, Polgolla, Sri Lanka*

**Abstract** - Customer loyalty has become a prime requirement for long-term success and sustainability in the competitive environment of modern banking. It seems that the adoption of CSR practices is one of the most important ways to strengthen the link between banks and their customers. In this study, the researcher tries to find the influencing determinants of Corporate Social Responsibility (CSR) practices in building Customer loyalty in the banking sector. This study will provide an idea to the banking service providers why customer loyalty apart from competitors what are the determinants of consumer loyalty and how much of level with banking CSR practices.

Economic Sustainability, Social Sustainability, Environmental Sustainability, and Ethical Banking Practices were found as the main determinants by referring to previous literature on customer loyalty.

This quantitative study was done focusing on customers in Uva province and two hundred (200) customers have been selected as the sample of this study based on the convenience sample.

Descriptive statistical analysis, correlation analysis, and regression were used in this study. According to the study observed that economic sustainability, social sustainability, environmental sustainability, and ethical banking practices are the most influencing determinants on building customer loyalty in the banking sector. Most of the customers were loyal to the CSR at an average level in having banking industry or moderately considered the level of building customer loyalty.

It is recommended that banks should have CSR embedded within the core business strategy rather than as a peripheral activity. This would ensure that CSR initiatives are woven into the mission and values of the bank, and hence, the programs that are implemented are more earnest and effective. Adopt green banking practices reduction in carbon footprint, encouragement of paperless banking, investment in renewable energy projects, etc. Customers are highly environmentally conscious nowadays and do appreciate the banks contributing to environmental sustainability.

**Keywords:** *Banking Sector, CSR Practices, Customer Loyalty, Economic Sustainability, Environmental Sustainability, Ethical Banking Practices*

## **The impact of audit quality on earnings management: A study of S&P Sri Lanka's top 20 companies on the Colombo Stock Exchange**

**Ruwan Lakjeewa D., Fathima Sheeba, M.A.**

*Department of Business and Management Studies, Faculty of Communication and Business Studies, Trincomalee Campus, Eastern University, Sri Lanka.*

**Abstract** - Earnings Management involves manipulating reported income through various accounting practices and decisions. Numerous financial collapses have raised questions about the reliability of the audit function, as auditors play a critical role in expressing opinions on financial statements. This study investigates the impact of audit quality on the degree of earnings management in Standard & Poor's Sri Lanka top 20 companies. The objectives are to identify the relationship between audit quality and earnings management and to examine the impact of audit quality on earnings management. The Modified Jones model is employed to assess earnings management practices through Discretionary Accruals. Selected proxies for audit quality include audit firm size, auditor independence, auditor tenure, auditor industry specialization, audit committee financial expertise, and auditor reputation. The degree of earnings management is measured from three perspectives: Discretionary Accruals, Small Positive Earnings, and Earnings Smoothing. S&P SL 20 companies were selected using a purposive sampling technique, with data sourced from annual reports and audited financial statements for the period from 2012/2013 to 2021/2022. The findings reveal that audit quality significantly associated with the degree of earnings management in S&P SL top 20 companies, showing a significant impact with earnings management. Company size, leverage, and board size are positively and significantly associated with the absolute value of discretionary accruals and small positive earnings. Conversely, auditor independence is negatively associated with the small positive earnings. Auditor independence is positively and significantly associated with discretionary accruals but is insignificant for small positive earnings. Return on Assets and Chief Executive Officer Duality show an insignificant but negative relationship with discretionary accruals, while return on assets is negatively associated with small positive earnings. All variables demonstrate an insignificant association with earnings smoothing. Additionally, auditor independence and leverage significantly impact the absolute value of discretionary accruals, while company size significantly affects small positive earnings. All variables exhibit an insignificant impact on earnings smoothing. The findings are valuable for shareholders in the appointment and reappointment of auditors and enable stakeholders, including regulatory bodies, to assess earnings management practices in S&P SL top 20 companies on the Colombo Stock Exchange. The study concludes that audit quality exerts significant impact on the degree of earnings management, likely due to effective monitoring mechanisms that incentivize auditors to enhance audit quality.

**Keywords:** *Audit Quality (AQ), Discretionary Accruals (DA), Earnings Management (EM), Modified Jones Model, Standard and Poor's Sri Lanka top 20 (S&P SL20).*

## **An empirical analysis of twin deficit hypothesis and reverse causality: a case study of Sri Lanka**

**Shiyalini, K.**

*Department of Economics, Faculty of Commerce and Management, Eastern University, Sri Lanka*

**Abstract** - The excessive accumulation of public debt due to a higher fiscal deficit is a significant contributor to the instability of developing economies. Theoretical and empirical evidence proves that large and persistent budget deficit contribute to current account imbalances. Therefore, the main objective of this study is to identify the impact of budget deficits on current account deficits and test the validity of Keynesian and Ricardian views in the Sri Lankan context during the post liberalization period. Moreover, the study also focuses on investigating the direction of causality between the budget deficits and the current account deficits using granger causality test. In order to achieve these research objectives, the study employed annual time series data for budget deficits and current account deficit over the period of 1977 to 2022. Further, the Auto regressive distributed lag (ARDL) model was employed to identify long-run and short-run dynamic relationships between the variables. The findings revealed that there is a positive and significant relationship between budget deficit and current account deficit in Sri Lanka during the period of 1977–2022, which implies a higher fiscal deficit expand the current account deficit in Sri Lanka in both the short-run and long-run. Further, the Granger causality test also detected a unidirectional causation running from budget deficit to current account deficit in Sri Lanka. Thus, the empirical results in this paper support the Keynesian view regarding the linkage between the current account deficit and the budget deficit. The findings indicate that lowering the fiscal deficit through favorable fiscal reforms, revenue based fiscal consolidation and encourage domestic and foreign investment ventures, is important to control the current account imbalances at a manageable level in Sri Lanka.

**Keywords:** *Budget deficit, Current account deficit, Granger causality, Twin deficit hypothesis*

## **Attire as a sign system: exploring the symbolism of costumes depicted in low country temples**

**Rathnayaka R.M.T.D.K.**

*Postgraduate Institute of Humanities and Social Sciences, University of Peradeniya, Sri Lanka*

**Abstract** - The essence of a society's culture comprehends its beliefs, traditions, and societal norms, often expressed through artistic and intellectual avenues. A frequently disregarded aspect of culture is attire, which defines a society's reflection of a particular period and is shaped by its culture and longstanding customs. Moreover, attire serves as a vital archaeological repository, offering deep insights into bygone civilizations. This research delves into the role of clothing as a means of confrontation and defiance against colonial rule, focusing on the low country temple paintings of the Kandyan tradition, specifically at *Kathaluwa Purwaramaya* Temple. It analyzes the portrayal of both traditional and colonial dress in temple murals, revealing shifts in ideological representation over time. From the early 1800s to 1880, murals depicted colonial attire and symbols to signify loyalty to British rule. However, from 1880 to 1920, the focus shifted to strengthening Buddhist authority and challenging colonial supremacy. Artists used Western attire to critique and resist colonial cultural impositions and social structures. For example, in the story of *Mahadana Situ Kathawa* in *Kathaluwa Purwaramaya*, Western attire was tactically used to intricately critique the unethical and inappropriate behaviors imposed on the country by Western imperialist culture. Using qualitative research and semiotic theories, this study examines the socio-cultural impact of clothing in mural art, clarifying visual intentions within their historical context. Data collection focuses on primary sources such as mural and museum observations, interviews with art historians, as well as secondary sources like books, magazines, and internet articles.

**Keywords:** *Clothing, Colonial rule, Mural paintings, Socio-cultural influence*

## **Assessing work-life balance of female sub warden in university sector**

**Usharanjini S.**

*Department of Student Affairs, Trincomalee Campus, Eastern University, Sri Lanka*

**Abstract** - The role of Sub Warden in the university sector is unique and demanding, which requires round-the-clock availability and often exceeds typical working hours. Female Sub Wardens, in particular, face different challenges balancing their professional responsibilities with personal commitments. Work-life balance is integral to employee productivity and well-being, yet achieving it remains a significant struggle for female Sub Wardens. This study aims to evaluate the impact of work-life balance of female Sub Wardens and find out the suitable support system to help female sub-wardens achieve work-life balance. A quantitative method was followed in this study, Primary data were gathered from 50 full-time female Sub Wardens at universities using a convenience sampling method, supplemented by secondary data sourced from the University Grants Commission websites, research papers, and journals. The results indicated that 36% of respondents felt sometimes able to balance work life, 34% rarely, 18% of respondents always, 10% of respondents often, and the rest of the respondents felt never, Majority of them struggle to balance their work and life. Findings of this study indicate that the primary impediment to achieving work-life balance stems from the incessant nature of Sub Wardens' duties, which require 24\*7 availability without respite on weekends or public holidays. Consequently, female Sub Wardens encounter difficulties in reconciling work and personal life commitments. While the University Grants Commission has issued directives concerning the welfare of Sub Wardens, there remains a pressing need to reevaluate the nature of their roles and align them more closely with standard staff arrangements to facilitate improved work-life balance. Addressing these challenges is essential for enhancing the overall well-being and effectiveness of female Sub Wardens in the university sector, thereby fostering a supportive and conducive work environment.

**Keywords:** *Female Sub Warden, University System, Work - Life Balance*

## **Revitalizing Tourism in Sri Lanka Post-COVID-19: A Qualitative Exploration of Marketing Strategies**

**Shameem, ALMA.<sup>1</sup>, S. Sivesan<sup>2</sup>**

*<sup>1</sup>South Eastern University of Sri Lanka, <sup>2</sup>University of Jaffna*

**Abstract** - The COVID-19 pandemic has had a profound impact on global tourism, leading to significant challenges for countries dependent on this sector. Sri Lanka, known for its rich heritage and natural beauty, has seen a marked decrease in tourist arrivals, highlighting the need for effective marketing strategies to revitalize this crucial industry. This study aims to identify and analyze innovative marketing strategies that can rejuvenate Sri Lanka's tourism sector in the post-pandemic era. It leverages insights from key industry stakeholders to develop practical and impactful marketing solutions. Employing a qualitative approach, the research involves in-depth semi-structured interviews with tourism operators, hoteliers, and government officials, along with focus groups involving international tourists to gauge their post-pandemic travel preferences and safety concerns. Thematic analysis is utilized to transform data into actionable marketing strategies, revealing several key approaches such as safety assurance campaigns, destination rebranding, digital marketing and virtual tours, targeted promotions, collaboration with travel influencers, sustainable tourism initiatives, localized marketing efforts, public-private partnerships, crisis management preparedness, and customer relationship management. The findings underscore a significant pivot towards digital marketing and the utilization of social media to engage potential travelers, with an emphasis on health and safety measures within promotional content, as well as the promotion of sustainable and eco-friendly travel options. Stakeholders also indicate a trend towards personalized travel experiences catering to niche markets. The study provides strategic directions for revitalizing Sri Lanka's tourism marketing, fostering swift recovery and sustainable growth. These strategies may also serve as a model for other nations with similar economic dependencies on tourism, facilitating broader sectoral rejuvenation. This research contributes valuable insights into tourism marketing and proposes robust strategies that can aid in the recovery and future prosperity of Sri Lanka's tourism industry.

**Keywords:** *Marketing Strategies, Post-COVID-19 Tourism, Sri Lanka Tourism*

## **The moderating effect of demographic factors on financial management practices and business performance of SMEs in Sri Lanka**

**Logeswary Sooriyakumaran**

*Sri Lanka Institute of Advanced Technological Education, Sri Lanka*

**Abstract** - Researchers focus on SMEs differently due to the critical situation of the performance of SMEs. This paper aims to examine the moderating effect of demographic factors such as gender, education, and business age on SMEs' financial management practices and business performance in the Northern Province of Sri Lanka. The sample area of Northern Province, which covered the five districts with thirty-three DS divisions, follows certain financial management practices based on their available resources and requirements. Multi-group analysis in structural equation modeling (SEM) is another form of moderation analysis using categorical or grouping variables. This study employed multi-group analysis to test the moderating effects of business age, education level, and gender. It employs causal research methods to conduct the research work and uses the quantitative approach of a cross-sectional field survey to collect primary data. According to the analysis, business age and education level had a significant effect ( $p=0.000$ ) on financial management practices and business performance. The researcher also considered gender, but it did not have a significant impact ( $p=0.114$ ) on the results. According to the findings, businesses older than ten years exhibit superior working capital, accounting information systems, and investment decisions compared to those less than ten years old. Younger firms ensure their continuity through proper practices. This study confirms that the demographic profile does not moderate the relationship between maintaining accounting records and the performance of SMEs. Researchers can conduct further studies on various variables to examine their moderating or mediating effects on the relationship between financial management practices and business performance in the future.

**Keywords:** *Demographic factors, SMEs, Financial management practices, business performance, Gender, Business age, and education level*

## **Spatial Pattern of the Formation of Female-Headed Households (FHHS) in Batticaloa District, Sri Lanka: Status and Driving Forces**

**Vasanthakumary, S., Sindhuja, S.**

*Department of Geography, Faculty of Arts and Culture, Eastern University, Sri Lanka*

**Abstract** - The increase in female-headed households (FHHs) is a significant societal concern, shaped by influential factors across social, economic, and political domains in developing nations. In the context of Sri Lanka, Batticaloa district stands out as one of the districts characterized by a higher number of FHHs. The district has contended with a multitude of socio-economic challenges throughout the preceding decades, wherein the growing impacts exacerbate the burden on FHHs further. However, the continuation of the formation of FHHs and the challenges they encounter are not similar across the district; rather, they exhibit significant spatial variation. Accordingly, this study attempts to explore the FHHs' distribution and underlying causal factors from a spatial perspective. A mixed-methods approach was employed to collect and analyze both primary and secondary data. The data collection process is comprised of two main methods: firstly, sourcing information from previously published or recorded sources such as reports and databases; and secondly, conducting key informant interviews to gain insights and perspectives. Both quantitative and qualitative methods were employed to analyze the gathered data, with mapping adopted as a crucial technique to visualize the spatial variation of relevant variables. In the context of spatial distribution, a notably higher proportion of FHHs were found in the Eravur Pattu, Manmunai North and Manmunai South and Eruvilpattu DS Divisions. The phenomenon is notable for being influenced by the enduring ramifications of prolonged conflict and other socio-economic factors that collectively foster the formation of such family structures. The leading cause of the formation of FHHs in the district is the natural death of the male head (61.9%), followed by divorce and separation (20.1%), and war or disappearance (9.2%). The findings indicate that deaths of male-heads resulting from suicide and accidents also contributed to the formation of FHHs, though on a very small scale (3.8%). FHHs resulting from natural deaths are prevalent across all divisions, with a higher incidence in the Manmunai North DS Division. The number of FHHs resulting from divorce and separation is highest in Manmunai North, followed by Eravur Pattu DS Division. In recent years, the study area has witnessed an increase in this issue. Households led by women due to war or the disappearance of male-heads are predominantly found in the Eravur Pattu and Koralai Pattu (Valachenai) DS divisions. Deaths caused by the suicide of male-heads represent another significant factor, are regarded as a notable social issue within the district, and lead to the formation of FHHs. Porativu Pattu, Eravur Pattu, and Manmunai South and Eruvilpattu DS divisions have a significantly higher number of FHHs as a result of this issue. Further, both Manmunai North and Manmunai South and Eruvilpattu DS Divisions exhibit a notable proportion of FHHs attributed to the unmarried status of women and their necessity to undertake family responsibility. Since the causative factors are aligned with diverse societal issues, tailored approaches are essential to addressing the problems faced by FHHs. On the one hand, essential measures should be taken to prevent the formation of FHHs by reducing the social issues prevailing in the study area. On the other hand, it is vital to improve the lives of FHHs by easing the hardships they endure as FHHs.

**Keywords:** *causes, female-headed households, mapping, social problem, spatial pattern*

## **Determinants of Employee Job Satisfaction - Business Process Outsourcing Organizations in Sri Lanka**

**Francke, J. H.**

*Nawaloka College of Higher Studies, Colombo, Sri Lanka*

**Abstract** - This study aims to identify the factors affecting job satisfaction among employees in Business Process Outsourcing organizations in Sri Lanka and the relationship between identified factors and Employee Job Satisfaction of Business Process Outsourcing organizations in Sri Lanka. With the consideration of constructs such as Contingent Rewards, Co-Workers, Operating Procedure, Supervision and Pay the survey involved 100 Business Process Outsourcing employees in Sri Lanka for the research. The model of the study was evaluated using Job Characteristics Model and theories such as Abraham Maslow's Theory, Equity Theory and Two Factor Theory. Smart PLS was used for the measurement model testing and structural model testing. The study showed the results as the factors such as Co-workers, Supervision and Pay have positive and significant influence on Employee Job Satisfaction. Unexpectedly the results also showed that the factors such as Contingent Rewards and Operating Procedures do not have positive and significant influence on Employee Job Satisfaction. The findings of the study provide information to Business Process Outsourcing organizations in Sri Lanka about the factors that they could concentrate when improving the Job satisfaction among their employees. The study did not examine the Job Satisfaction among the employees from all the Business Process Outsourcing organizations and all the designations of employees within Sri Lankan Business Process Outsourcing industry. Therefore, it is suggested to consider different designations of employees in all the Business Process Outsourcing organizations in Sri Lanka for future research studies.

**Keywords:** *Contingent Rewards, Co-Workers, Employee Job Satisfaction, Pay*

## Assessment of Investment opportunities in Ayurveda

**Niranjan, M.<sup>1</sup>, Malini, M.<sup>2</sup>, Sarvananthan, T.<sup>3</sup>**

<sup>1</sup>*Siddha Ayurvedic Hospital Trincomalee, <sup>2</sup>Sripada National College of Education, Patana*

<sup>3</sup>*Department of indigenous medicine Northern Province*

**Abstract** - Globalization is bringing interconnecting best practices and knowledge onto the business. Ayurveda has become an emerging entrepreneurship opportunity in the world market. The main focus of this study is to explore investments opportunity in Ayurveda Clinic business. Herbal food nutrient food supplements herbal drinks come into the market. Many private sectors invest in the Ayurveda industry and many people employed in the sector. Herbal food nutrient food supplements herbal drinks come into the market. Non communicable disease specially diabetes, heart disease, stroke increase among the population adverse effects of Western medicine have led to public demand for an Ayurvedic based health care system. Ayurveda Clinic business is that they are expected to obtain unique treatments and packages that include rejuvenation therapy, Body purification, Slimming, Stress management, various clinical treatments, and beauty care. One can embark on a journey to self-discovery and transform into a fresh, rejuvenated person through therapy Management of obesity is a multi-million-dollar business around the world Herbal tea or infusions are one such beverage that is widely known across the world. The diseases can be cured by eating relevant cookies; Develop into a hub for health and wellness, luring investments and adding jobs in the process. Sri Lankan food tradition is strongly inter-wound with the nutritional, health-related, and therapeutic reasoning of the food ingredients, and the preparation method Ayurveda acts as a preventive and curative medicine in sports nutrition. This is a growing category, globally. Many large-scale manufacturers are harping on this category to maximize its potential traditional orthopedic medicine is popular among laypeople as an effective treatment modality. Most of the treatments used by native. According to the study's findings, in Investment opportunities for Ayurveda were identified as: in Nutritional Foods and Drinks Healing Therapy Seasonal Preventive Therapies fracture treatment, classical Treatments and Healing Therapy fracture treatment

**Keywords:** *Ayurveda, Food Therapy, Market Trends wellness tourism*

## **The rise of E-books and Audiobooks: Redefining public library collections and services in the Digital Age**

**Karunanayaka, K.P.G.I., Warnasooriya, W.P.I.M.**

*Southern Campus, General Sir John Kotelawala Defence University, Sri Lanka*

**Abstract** - The digital age has led to the popularity of e-books and audiobooks, posing challenges and opportunities for public libraries. This study explores the impact of these digital formats on library collections and services. The explosion of e-books and audiobooks presents complex issues for public libraries. While these formats offer increased accessibility and convenience, they introduce challenges related to collection development, budgets, licensing, and user needs. This study aims to analyse the impact of e-books and audiobooks on public library collections and services, investigating how libraries adapt to the digital shift and examining the potential benefits and drawbacks for library users. A quantitative approach was used, involving surveys of staff and users to understand usage patterns and interviews with library staff to comprehend collection strategies and service adjustments. Data were collected from ten public libraries in the Badulla District through convenience sampling, using Google Forms and printed questionnaires. The study is expected to reveal insights into how e-books and audiobooks influence public library collections. It may identify user preferences, budgetary constraints, and the librarian's evolving role in the digital age. Based on the findings, the paper will propose recommendations for public libraries to optimize collections and services in response to the growing popularity of digital formats. This may include strategies for development, user education, and library collaboration. This research examines the usage of e-books and audiobooks in public libraries, aiming to provide valuable insights as they navigate the digital transformation and continue fostering access to information.

**Keywords:** *Collection development, Digital collections, Public libraries, E-books, Audiobooks*

## **Determinants influencing investment decisions among Generation Y investors: The moderating role of gender**

**Delima, V.J.<sup>1</sup>, Delima, L.<sup>2</sup>**

<sup>1</sup>*Department of Business and Management Studies, Trincomalee Campus, Eastern University, Sri Lanka,*

<sup>2</sup>*Department of Management, Eastern University, Sri Lanka*

**Abstract** - This study is to examine the moderation effect of gender on determinants influencing the investment decisions among individual investors of Generation Y in Sri Lanka. To make a successful investment decision, it is essential to understand the factors and aspects that can influence the investment process with gender dynamics, as there is a lack of research in this area which can mitigate the risk associated with the investment decision of Generation Y investors. This study is to investigate the gender moderation effect on factors among prospective investors, using Generation Y as a proxy for future investors. Personal and social status, investment preference and knowledge, general factors, and money management skills are considered as factors, with investment decisions as the dependent variable and gender as the moderating variable. A quantitative, cross-sectional survey was used, and a self-administered questionnaire was used to collect the data from a sample drawn of 214 from Generation Y in Batticaloa district. To test the moderation effect, interaction terms were created and included in the multiple regression model. The multiple regression analysis reveals that gender significantly moderates the impact of investment preference and knowledge and money management skills on investment decisions, whereas personal and social factors and general factors were insignificant with the gender moderation effect. The result highlights that males are more positively influenced by investment preference and knowledge, but money management abilities more influence females in their investment selections. This emphasizes the need of taking gender variations into account while researching the factors that impact investing decisions among Generation Y investors. Recognizing and meeting these gender-specific expectations can lead to more effective financial education, better investment products, and overall financial well-being for Generation Y investors.

**Keywords:** *Generation Y investors, gender moderation, investment decisions, investment preferences & knowledge, money management skills*

## **Exploring the Relationship of Augmented Reality Characteristics on Consumer Adoption Intention in Cosmetic Industry in Sri Lanka**

**Ranathunga, H. G. C. K.**

*IBA Campus Kandy, Sri Lanka*

**Abstract** - Augmented Reality (AR) transforms experiences and marketing strategies, evolving from 3D technology through innovation and accessibility. Recently, AR marketing has surged, driven by AR applications compatible with modern smartphones and web applications. AR seamlessly integrates the real and digital worlds, and its use in marketing is on the rise. While researchers are investigating consumer reactions to AR, there is limited research on consumer perceptions and adoption of AR, particularly in developing countries, which remains a topic of debate. Viewing product images, videos, or 3D representations online often fails to provide a complete understanding of how well they fit individual body types, leading to concerns about accurate sizing. Therefore, some people avoid buying online for fear of not finding the right fit. In the Sri Lankan context, literature on this aspect is notably sparse. Addressing these research gaps, this study focuses on consumer perspectives and examines the relationship of AR characteristics on consumer adoption intention in the cosmetic industry using 150 young, educated customers in Sri Lanka.

These constructs reflect modifications to the original Technology Acceptance Model (TAM), incorporating additional factors relevant to the context of AR adoption. Perceived usefulness, ease of use and attitude toward AR from the original TAM model and hedonic value, product interaction, system quality and product informativeness added as modification variables. Among these, hedonic value and attitude toward AR represent the highest positive relationship with adoption intention. Product interaction, system quality, perceived usefulness, product informativeness, and ease of use also indicate a high positive relationship with the intention to adopt AR web applications. The proposed model, which incorporates these variables, explains 61.5% of the variation in the adoption of AR web applications. This result reinforces the applicability of including additional constructs in the model. The findings offer valuable insights for implementing AR strategies in the Sri Lankan market.

**Keywords:** *TAM model, Hedonic value, Product Interaction, System Quality, AR*

## **Challenges and Issues of women entrepreneurs: A Study of women entrepreneurs in Vavuniya District**

**Sivanenthira, S., Pushpanathan, A.**

*Mahishija, P.*

**Abstract** - Entrepreneurship is the process of designing, launching & running a new business which is often initially a small business. The people who create these businesses are called entrepreneurs. Vulnerable women entrepreneurs, in particular, often initiate businesses for the preservation and advancement of their families' livelihoods. This study aims to analyse the challenges and issues faced by these women entrepreneurs in the Vavuniya District. The data were collected from 100 women entrepreneurs who are assisted by the Industrial Development Board (IDB) Vavuniya. The women entrepreneurs were randomly selected from the Industrial Development Board Record. Information was gathered through structured questionnaires and collected data were processed and analysed using SPSS version 25. The study identified several key challenges faced by vulnerable women entrepreneurs in Vavuniya. Such as expansion planning, financial, raw material, marketing, Human Resources, infrastructure, Technology, Government support, Business running. The study highlights the multifaceted challenges that vulnerable women entrepreneurs encounter in the Vavuniya District. Addressing these issues requires a holistic approach involving financial support, infrastructure development, and better access to technology, enhanced marketing strategies, and robust government policies. Understanding these challenges is the first step towards creating a supportive environment that fosters the growth and sustainability of women-led businesses in the region. For providing these assistance to the vulnerable women entrepreneurs they could uplift their livelihood.

**Keywords:** *Challenges, Issues, women entrepreneurs*

## **Predictors of career development in the employees of finance sector**

**Rasika, S., Piraveena, T.**

*Department of Business and Management Studies, Faculty of Communication & Business Studies, Trincomalee Campus, Eastern University, Sri Lanka*

**Abstract** - This study was carried out to examine individual and organizational factors are the major predictors' impact on career development in the employees of finance sector in Nuwara -Eliya district. The finance industry is a large one that is expanding quickly, which means there is a lot of room for growth in terms of job opportunities. Individuals are challenged to obtain their career developments within the organization. Using random sampling, data was gathered using 100 questionnaires. Correlation and regression analysis were performed to determine the significance and the nature of analysis of the independent variables, are individual factors such as Personality and Human capital and Organizational factor which is Perceived organizational support. The data presentation covers two primary sections: both personal and research data. IBM SPSS Statistics 20 is used by the researcher for data analysis. The findings show that variables, Individual factors have correlated with career development and have a strong high relationship with career development in 50.5% as a coefficient of determination. Organizational factors have high relationship with career development. Organizational factor has an impact of career development in 49.4% as a coefficient of determination. Furthermore, this study reveals that individual factors, human capital, personality traits, and organizational support are all crucial for career development. Human capital is the most significant predictor of career development, and employees can improve their career by enhancing their skills, knowledge, and abilities. Organizational support is also vital, and both individual and organizational factors must be combined for successful career advancement. Future studies should examine additional factors that may affect career success, such as human capital, sociodemographic status, and stable individual differences.

**Key words:** *Career Development, Human Capital, Organizational Support, Personality*

## **Organizational professionalism and its impacts on teachers: A case in the Paddiruppu education zone**

**Kaptheepan, P.<sup>1</sup>**

<sup>1</sup>*Provincial Department of Education, Eastern Province, Sri Lanka*

**Abstract** - Criticizing, particularly by teachers, Zonal Directors of Education's (ZDEs) current management practices has become prevalent in the Eastern province of Sri Lanka. Someone would ask why teachers criticize ZDEs' current education management practices. Transformation of professionalism produces new management practices. Professionalism is addressed by two different dimensions in the current world of workplaces. *One* is occupational professionalism, in which workers control work on occupational value. *Second* is organizational professionalism, in which organizations or managers control workers for the benefit of organizations. Application of organizational professionalism has significant negative impacts on workers. In this junction, critics against ZDE's management practices raise two critical questions. *First*, do ZDEs apply *organizational* professionalism in their practice, if, is it affect teachers? To address the two questions above, this study focused on finding the type of management practices that, *one*, ZDEs employed and, *two*, its effect on teachers. The case study was conducted in the Paddiruppu education zone where teachers from a prominent school publicly protested against the ZDE's education management practices. Primary data were collected through interviews with 12 teachers from schools in the Paddiruppu education zone and secondary data were collected from available sources. Collected data were analyzed using thematic analysis. Findings revealed that the ZDE employed organizational professionalism which negatively impacted teachers: increasing their work overload; becoming victims of being subject to administrative power; victims of being subject to public criticism and dissatisfaction with the teaching profession. The findings suggest a need for policy adjustments that balance occupational and organizational professionalism in education management practices. Policies should aim to reduce work overload and administrative pressure on teachers. Future research should investigate how organizational professionalism affects not only teachers but also students. Understanding the trickle-down effect on student performance and well-being can provide a comprehensive view of the impact.

**Keywords:** *education management practices, negative impacts, occupational professionalism, organizational professionalism*

## **Entrepreneurship Education and Entrepreneurial Intentions among Engineering Undergraduates in State Universities in Sri Lanka**

**Salfiya Ummah, M.A.C.<sup>1</sup>**

<sup>1</sup>*Department of Management, Faculty of Management and Commerce, South Eastern University of Sri Lanka*

**Abstract** - Entrepreneurship education programs aim to boost entrepreneurship culture among undergraduate and are more outcome-based. The concern over the unemployment among university graduates becomes crucial to developing countries like Sri Lanka since the unemployability rate is comparatively high even among engineering graduates in Sri Lanka. Hence, there is a need to inculcate entrepreneurship education in their curricula which offer engineering undergraduates with entrepreneurial competencies in addition to their core curriculum. However, there is a dearth of studies regarding entrepreneurship education and its outcomes specially among engineering undergraduates. Therefore, nurturing an entrepreneurial mindset among the university engineering graduates has become a great concern in developing the curriculum for engineering undergraduates in order to develop an opportunity-driven mindset. Enhancing entrepreneurial competencies among everyone is one of the major objectives of Sri Lanka vision 2025. The goals of entrepreneurship education have not yet been fully achieved in Sri Lanka since most of the graduates generally prefer government to provide jobs for them even though entrepreneurship is felt as the major source of employment, economic growth and flexibility. The primary objective of the investigation is to study the perceived impact of entrepreneurship education on entrepreneurial intention of engineering undergraduates. That is, whether the engineering undergraduates have plans, aspirations, or intention to eventually become entrepreneurs after their graduation. The study conducted among a sample of 360 engineering undergraduates from selected Sri Lankan universities using a structured questionnaire. Findings of the study revealed that, there is an association between entrepreneurship education and entrepreneurial intention among engineering undergraduates in Sri Lanka. This study also reveals the important factors to be addressed to create a mind-set towards entrepreneurial intention among engineering undergraduates in Sri Lanka. The findings will immensely contribute to universities, educational institutes and policy makers to design policies with regard to implement entrepreneurship education.

**Keywords:** *Engineering Undergraduates, Entrepreneurship Education, Entrepreneurial Intention.*

## **Impact of Green Marketing Strategies on Business Performance in Hotel Industry**

**Ismail, M. B. M.**

*Department of Marketing Management, Faculty of Management and Commerce, South Eastern University of Sri Lanka*

**Abstract** - Service business firms like hotel industries have now paid their attention on its business activities by considering environmentally friendly marketing activities called as green marketing strategies. Previous studies conducted in green marketing and business performance describes various findings. These contradictory findings led to carry out a study on green marketing strategies and business performance in hotel industry in Ampara Coastal Belt of Sri Lanka. Objective of this study is to know the impact of green marketing strategies on business performance in hotel industry. This study undertook a systematic review of green marketing strategies and business performance and developed a research framework. This study is a survey method that used a questionnaire to collect data from a sample size of 121 comprised of 41 hotel owners and 80 hotel workers using simple random sampling. Descriptive statistics were used to describe demographic variables of the sample respondents. As per the results of correlation, 4 green Ps such as green product ( $r = 0.584$ ), green physical evidence ( $r = 0.593$ ), green people ( $r = 0.707$ ) and green process ( $r = 0.619$ ) of green marketing are having strong correlation with business performance. 3 green Ps such as green price, green place and green promotions are having low correlation with business performance. In this study, regression analysis was run to know the impact of green marketing mix on business performance. Results of regression analysis explains that green marketing strategy that consists of green process, green place, green people, green physical evidence, green product, green price, green promotion has 63% of impact ( $R \text{ square} = 0.63$ ) on business performance. It can be concluded that, as per the regression analysis, all the 7 green Ps are influencing business performance of hotel industry to a greater extent.

**Keywords:** *Business Performance, Green Marketing.*

## **Unlocking linguistic potential: Effectiveness of an English Language Skills Development Programme at a state university in Sri Lanka**

**Abesooriya, A.P.L.P.<sup>1</sup>, Balasooriya, B.L.W.K.<sup>2</sup>, Herath, H.M.I.K.<sup>3</sup>, Edirisinghe, J.C.<sup>4</sup>, Udugama, J.M.M.<sup>5</sup>, Dissanayake, K.M.<sup>6</sup>**

<sup>1,6</sup>*Department of English Language Teaching, Wayamba University of Sri Lanka,*

<sup>2</sup>*Department of Biotechnology, Wayamba University of Sri Lanka,*

<sup>3</sup>*Department of Plantation Management, Wayamba University of Sri Lanka,*

<sup>4,5</sup>*Department of Agribusiness Management, Wayamba University of Sri Lanka*

**Abstract** - The Faculty of Agriculture and Plantation Management (FAPM), Wayamba University of Sri Lanka, introduced an English Skills Development Program (ELSDP) for undergraduates from 2019-2023, under the AHEAD project to resolve the issue of undergraduates' unsatisfactory English skills. During the program, a new English curriculum aligning with UTEL was introduced and Rapid English Appraisal and English for Inquiry-based Experiential Learning programs were organized during levels two and four respectively. Blended learning, flipped classroom technique, experiential and autonomous learning methods were introduced and adopted by the Department of English Language Teaching as the teaching and learning techniques along with the introduction of the new English curriculum. The students' proficiency in reading, writing, speaking and listening were assessed at the beginning of their first year through the Baseline Test (BT). Their performances were appraised through the Faculty of Agriculture Test of English Language (FATEL) by assessing the same four skills at the end. The current study aimed to evaluate the effectiveness of the ELSDP based on the undergraduates' performance in FATEL and students' feedback on the program. The improvement of above mentioned skills was determined based on the band scores at the BT and the FATEL. The learner perceptions on the ELSDP were identified via a questionnaire survey. The data were analyzed using the SPSS. Among the participants in both tests (n=93), majority (89%) achieved band score four, the highest band score in UTEL and 98% undergraduates indicated an improvement in the overall band scores. Moreover, 71%, 61%, 58% and 17% of undergraduates depicted improvements in their band scores in speaking, reading, writing, and listening respectively. Based on the student feedback, 100% of the participants agreed that ELSDP was effective for the improvement of their English skills. Hence, ELSDP conducted under the AHEAD project was successful and effective for improving the FAPM undergraduates' English skills. It was recommended to focus attention to improve undergraduates' listening skills.

**Keywords:** *AHEAD, ELSDP, FATEL, Undergraduates, Sri Lanka*

## **A Content Analysis of Textbook: Investigating the Environmental Literacy Skill in Sri Lankan Grade 6 Science Textbooks**

**Agalya, V.<sup>1</sup>, Vinoharan, V.<sup>2</sup>**

<sup>1</sup>*Dept. of Research and Development, National Institute of Education, Sri Lanka.*

<sup>2</sup>*Dept. of Information and Communication Technology, University of Vavuniya, Sri Lanka.*

**Abstract** - In Sri Lankan general education, textbooks play a pivotal role in the teaching-learning process. Grade 6 marks the commencement of science education as a distinct subject, introducing students to fundamental scientific concepts. This stage presents an opportune moment to integrate essential environmental concepts, aligning students with global priorities such as environmental protection, sustainable development, climate change adaptation, and risk management. This study aimed to assess the level of environmental literacy in Grade 6 science textbooks. Employing a thematic inductive qualitative analysis, Grade 6 government science textbooks were scrutinized. The findings indicate that environmental literacy skills are integrated across all competencies. There is a greater emphasis on ecological knowledge, incorporating the understanding of ecosystem components and interactions. It adequately addresses issue identification and analysis, covering topics such as water pollution, global warming, and human-induced climate change. Action planning activities focused on minimizing energy waste, conservation, and sustainable usage are also incorporated. Under the verbal and actual commitment theme, the importance of biodiversity and the responsibility to use energy sources to protect them for future generations is highlighted. Similarly, under the Environmental Sensitivity and Feeling theme, the significance of green plants and the rights of animals to live freely in the environment are discussed. Additionally, under the theme of Problem-solving & Prediction, aspects such as prediction of global warming and ways to minimize drought are incorporated. However, the textbooks primarily present these skills in a theoretical format rather than practical application. Modifications to teaching methods are necessary to improve environmental literacy skills. Curriculum developers need to prioritize this aspect in future curriculum revisions.

**Keywords:** *Grade 6, Science, Textbook, Environmental literacy skill, Sri Lanka*

## **“How sad, very very sad”: A Discourse Analytical Reading with Humour**

**Wickramasinghe, W.M.A.N., Supun, M.K., Jayasundara, N. S.**

*Department of Languages and Communication Studies, Faculty of Communication and Business Studies, Trincomalee Campus, Eastern University, Sri Lanka*

**Abstract** - According to Fredric Jameson, the interpretation of text should be conceived in the human mind with psychoanalytic, myth critical, ethical, stylistic and structural approaches. The intersectionality between society and language is tremendously influenced by the scope of the new media platforms and, with the collaboration of dataism, some trends become new religions of its users. This study analyzes the process of producing texts and meanings involved in the concept of memes and advertisements on social media. At the beginning of the year 2024, the phrase, “*How Sad, Very Very Sad*” or “*How Sad*” came to the surface of social media because of its originator’s sexual tone and the concepts he put forth using words and facial expressions. Then after, it becomes a marketing strategy based on sexism, and national and multinational companies utilize this undergone sexism in memes and advertisements with money and profit-oriented mindset. This qualitative study employs discourse analysis as the methodology for exposing the hidden sexism and exploring its usage with relation to humour. Based on a corpus of memes and advertisements that circulated on social media platforms including Facebook, Instagram, and YouTube throughout the first four months of 2024, researchers analyze the language and interpretations within a discourse analytical framework. Additionally, present study utilizes the superiority theory in humour and the theory of sublimation to get the psychoanalytical insights of the social media users’ language and its mechanism to grab the given messages by the originators. Ultimately, through such an interpretation, researchers found out the mirrored meaning of the phrase, because of the tone and facial expressions that he has delivered in the originating point. On insight, authors explore how above phrase keeps the implication of sexism and the way it connects with the newly formed memes.

**Keywords:** *discourse, how sad, humour, marketing strategy, memes, sexism*

## **Impact of Hypermedia-based Literature Learning on Vocabulary Development: A Study on ‘Higher National Diploma in English**

**Nowzath, M.B.<sup>1</sup>, Umashankar, S.<sup>2</sup>**

<sup>1</sup>*Department of English, Sri Lanka Institute of Advanced Technological Education*

<sup>2</sup>*Department of English Language Teaching, Faculty of Arts and Culture, Eastern University of Sri Lanka*

**Abstract** - Hypermedia-based literature learning with selected learning strategies shows a major role in the performance of the students learning English as a second language. The research was conducted to identify the efficiency of hypermedia-based instruction for selected categories in the literature syllabus followed in the Higher National Diploma in English with proper learning strategies: operations and actions in language board with song-based method and the performance in the vocabulary development. It was conducted in Higher National Diploma in English course of Advanced Technological Institute of Sri Lanka Institute of Advanced Technological Education as there were no any previous research studies done in this area of the academic field. Ninety students from HNDE – class - A were taken as an experimental group and equal numbers of students from class - B were taken as the controlled group. A pre-test was conducted for both the groups to find out the previous proficiency level of vocabulary of the students to compare them and the mean differences were found to be negligible for both the groups from the pre-test. Later, the experimental group was used in the classroom to pursue hypermedia-based literature learning based on selected learning strategies for six months with sixty hours learning while the controlled group was taught without the use of hypermedia-based literature learning. After six months a post-test was conducted for both the groups. When the post-test was conducted the mean was (-0.090) slightly improved for the group - B than the pre-test, and the mean (-2.761) was considerably improved for the group - A in the post-test. Thus, it is found that there is a positive relationship between the hyper-media based literature learning and the performance in vocabulary development. The research findings imply that hyper-media based literature learning improves vocabulary development of the learners for their all four skills in language.

**Keywords:** *Hypermedia, Language board, Literature learning strategies, Song method, Vocabulary development*

## **Masturbation in Atonal World: A Philosophical Humourist Analysis**

**Supun, M.K., Kuruppu, I.A., Savarimuttu, J.S.R.**

*Department of Languages and Communication Studies, Faculty of Communication and Business Studies, Trincomalee Campus, Eastern University, Sri Lanka*

**Abstract** - This qualitative study illustrates a humourist insightful mocking on the act of masturbation in Alain Badiou's idea of atonal world. In defining sexuality, through a political and social lens, this study especially deals with the insights of Alenka Zupančič's book; *What is sex?* and based on Slavoj Žižek's write-up; *Masturbation, or Sexuality in the Atonal World*. Researchers put forth the evolution of masturbation referring United Kingdom's first 'masturbate-a-thon,' and activities of national masturbation month etc. Stepping into the digitalized world, the study scrutinizes internet challenges like No Nut November (NNN) and free ideas on social media platforms on masturbation. Placing itself within the context of an atonal world; a metaphorical and realistic space where conventional norms are subverted, absurdity reigns supreme and lack of intervention of the Master-Signifier. The research steers the complexities of human behaviour and societal expectations surrounding the act of masturbation in a humourist tone. Situating the act of masturbation and sexuality in a post-political context, researchers aim to reveal the frightening rallying of a frightened mankind. Researchers employ the methodology of analyse texts that related to masturbation and utilize the discourse analysis to comprehend the beyond power dynamics and subversion of norms in masturbation. Through this unconventional scrutiny, the research aims to challenge conventional wisdom, inviting readers to contemplate the absurdities of life and the paradoxes of human nature referring to Humour Studies. Moreover, the nature of social structures and cultural ban on sexuality and masturbation are also discussed in this study, placing it in-between ontological and epistemological dimensions. Ultimately, the present study invites readers to comprehend the complexities of existence of this contemporary age of neo-liberal excess and its inclusiveness with a touch of humour and intellectual curiosity.

**Keywords:** *Alain Badiou, Atonal world, Humour, Masturbation, Sexuality, Slavoj Žižek*

## **The Importance of Water in Norman Maclean's *A River Runs Through It*: A Theological Reading**

**Perera, A. K. M. D., Savarimuttu, J. S. R.**

*Department of Languages and Communication Studies, Faculty of Communication and Business Studies, Trincomalee Campus (EUSL), Sri Lanka*

**Abstract** - Published in 1976, Norman Maclean's semi-autobiographical novella *A River Runs Through It* delves into the complex connection between water and human existence. The story, which is set against the backdrop of the Montana wilderness, follows Paul and the linguistic narrator, as they work through the challenges of fly fishing, family, and faith. One of the main themes is the river, which represents life itself as it flows unabatedly forward with all of its turns and twists, reflecting the characters' erratic path. The river serves as a vehicle for reflection as the brothers immerse themselves in the sport of fly fishing, providing peaceful, intimate, and transcendent moments. Drawing on theological frameworks such as Christian symbolism and sacred theology, this study examines how water plays a multifaceted role in the story, including themes such as grace, redemption and divine presence. However, the river is not without perils in addition to its tranquil beauty; these are the unavoidable risks of life. Similar to how river currents sculpt the terrain, life's obstacles mould the people, leaving a lasting impression on their spirits. Ultimately, this qualitative research provides insight into the transcendental dimension of narrative and highlights the importance of theological interpretations in literary analysis.

**Keywords:** *Blue Literature, Biography, Life Writing, Resumption, Water*

## **An Exploration on the Efficacy of AI-generated Instructional Materials in Facilitating Spaced Reception for Enhanced Vocabulary Acquisition in Second Language Learning**

**Sumangala, S.**

*Department of English, Advanced Technological Institute, Jaffna.*

**Abstract** - This research aims to evaluate the effectiveness of Artificial Intelligence (AI)-generated instructional materials in implementing Spaced Reception, a well-established technique that leverages the psychological spacing effect to enhance memory retention, thereby facilitating vocabulary acquisition among second-language learners. Utilizing a qualitative approach within a case study design, data was collected via semi-structured interviews. The study targeted information about the diversity of AI-generated instructional materials and their impact on vocabulary development while implementing the Spaced Reception technique. Data was gathered from twelve English as a Second Language (ESL) teachers across six different districts of the Advanced Technological Institute (ATI) in Sri Lanka. The study explored the variety of AI tools used in their classrooms, including applications like Quillbot, Memrise, WordTune, and Chat-GPT. The findings of the research indicate enhanced vocabulary acquisition, which underscores the expected outcome of implementing Spaced Reception in the context of second language learning through AI-generated materials. Furthermore, these teachers unanimously agreed that using the Spaced Receptive technique combined with AI-generated materials positively improves their students' vocabulary as it creates personalized lessons based on individual interests, leading to impressive results in vocabulary learning. The findings of this study imply that integrating AI-generated materials into vocabulary-developing techniques can prove effective benefits in elevating the quality of ESL learning, especially in vocabulary enhancement among students.

**Keywords:** *AI-generated Instructional Materials, ESL teachers, Spaced Reception,*

## **A comparative study on the effectiveness of Task-Based Language teaching in fostering language fluency and acquisition**

**Hoorul Firthouz, Z**

*Department of English Language Teaching, Faculty of Arts & Culture, South Eastern University of Sri Lanka, Sri Lanka*

**Abstract** - In terms of language education, task-based language teaching or TBLT has gained more popularity as a method that emphasizes on real-world tasks to help students learn languages. This particular study tries to examine the efficiency of task-based language teaching (TBLT) in promoting language proficiency and acquisition among intermediate ESL (English as a Second Language) learners from the Faculty of Islamic Studies and Arabic Language of the South Eastern University of Sri Lanka. Using a quasi-experimental methodology, TBLT and conventional grammar-based training are contrasted in this study. The study comprises selecting two groups of students, with one group receiving TBLT instruction and the other receiving traditional grammar-based instruction. Language competency and fluency are measured by pre- and post-test assessments, while learner attitudes are investigated using qualitative data gathered from surveys and interviews. Furthermore, with the aim of gathering some more qualitative insights to the study, classroom observations are conducted in terms of student interaction, engagement and collaboration during the sessions. In comparison to conventional (traditional) approaches, the results show that TBLT considerably improves language acquisition and fluency. Positive learner views regarding TBLT suggest that it has the ability to support efficient language acquisition. This study emphasizes TBLT's role in promoting communicative competence and student engagement while providing empirical evidence in favour of its adoption in language instruction.

**Keywords:** *efficiency, language, learning, Task-Based Language Teaching, traditional teaching*

## An investigation into how sexuality is evoked in the novel

**Kirinde Chandima Thero<sup>1</sup>, Siyabalanduwe Suchiththa Thero<sup>2</sup>**

<sup>1</sup>*Language Department, Rajarata University, Sri Lanka,*

<sup>2</sup>*University of Sri Jayewardenepura*

**Abstract** - The Sinhala novel is a literary form that has been influenced by various foreign elements and has evolved. Among these influences, the depiction of miraculous or rare events has brought new dimensions to the novel. This study investigates the extent to which the Sinhala novel has focused on the theme of sexual miracles. Conducted as library research under a qualitative framework, the study examines several novels. *Gunadasa Amarasekara's* novels, written between 1950 and 1960, prominently feature themes of sexuality. The influence of foreign writers, such as D. H. Lawrence, is evident. In *Amarasekara's* novel "*Karumakarayo*," a character named Soma has sexual relations with both her husband Wilson's brother and father, presenting these as miraculous events. Similarly, novels like "*yali upannemi*" and "*Depa Noladdo*" also depict sexual miracles. In *Mohan Raj Madawala's* new story "*Adaraniya Victoria*," the character Andrius engages in multiple sexual encounters with women from various backgrounds, including the wife of a man named *Samel*, a sixteen-year-old girl named *Lena*, and mothers who care for children. These encounters are described as miraculous sexual events. In "*Magam Soliya*" the character *Sudu Banda*, an abbot, is involved in adulterous behavior. *Sumitra Rahubaddha's* novel "*Kandak Se Ma*" features a character named *Nupa* who is sold as a sex commodity, which is presented as a societal miracle. *Upul Shanta Sannasgala's* novel "*Pirimi Godai Man Vitharai*" discusses the relationships of a woman named *Ridma* with her grandfather, an old priest, and a man named Wilson, highlighting these as miraculous events in Sri Lankan society. *Chintaka Dharmadasa's* novel "*Faculty of Sex*" includes sex-related issues prominently. Considering these examples, the analysis reveals that the inclusion of sexual themes has gradually emerged in Sinhala novels, taking the genre in a new direction. The portrayal of sexuality has contributed to the novel's development in unique ways.

**Keywords:** *Miracle, Novel, Sex, Society, Stories*

## **The effectiveness of Guided Writing Technique in teaching argumentative writing with special reference to Higher National Diploma in English students of ATI, Jaffna**

**Sivasankar, S., Abirame, T.**

*Department of English, Advanced Technological Institute, Jaffna, Sri Lanka*

**Abstract** - The study aimed to determine the effectiveness of Guided Writing Techniques (GWT) in teaching argumentative writing essays. From a population of 50 first-year students enrolled in the Higher National Diploma in English at the Advanced Technological Institute, Jaffna, 25 students were chosen as the experimental group and the remaining 25 students as the control group through random sampling. The study began with pre -test to identify the problems of the students in writing argumentative essays. Then, the Guided Writing Techniques (GWT) were used in teaching argumentative essays in five stages. These techniques included offering a series of stimulations and writing exercise, exposure to many models and demonstration of writing process, using word maps to organize ideas and write texts, revising and editing the writing, providing supporting step towards independent writing. The feedback was collected from the students at different stages of intervention activities. Finally, a post-test was conducted. The results showed that the experimental group scored higher mean marks than the control group. Null hypothesis ( $\mu_C = \mu_E$ ) and alternative hypothesis ( $\mu_C < \mu_E$ ) were formulated. Calculated value (CV) was derived using a formula and table values (TV) was calculated using T distribution that CV (11.5473) is greater than the TV (1.684). Thus, the alternative hypothesis was accepted. Marked improvements were observed in Structure organization and argumentation, enhanced thesis statement, better use of evidence and examples. The findings have the implication that using Guided Writing Techniques is effective for teaching argumentative writing essay.

**Keywords:** *Guided Writing Techniques, Argumentative writing, Higher National Diploma in English*

## **Improving the writing ability of grade 11 students of Kn/Kilinochchi Central College**

**Mahishija, P.**

*Ranathunga, H. G. C. K. Kn/Kilinochchi Central College, Sri Lanka*

**Abstract** - Writing is a technical skill that we use to communicate effectively through the written word. It is one of the productive skills. It's been a challengeable thing for ESL teachers to guide students. This action research was done to improve the writing ability of G.C.E O/L students of Kn/Kilinochchi Central College by using portfolio assessment and mind mapping technique. 30 G.C.E O/L students of Kn/Kilinochchi Central College were randomly selected as sample population for this study. Pre-test, post-test and questionnaire were research instruments. Pre-test was designed to identify the difficulties of students and prior knowledge of them in writing and post-test to check the improvement of students after proceeding the plan. The post questionnaire was prepared to gather students' opinion about using portfolio assessment in writing skill. Findings show that implementation of portfolio assessment and mind mapping technique lead to an improvement of students. According to that it is obvious scores obtained by the participants in post-test is higher than the pretest. When comparing both tests, students' performance was higher than in post-test. Noteworthy improvement of students can be observed in writing skill by using portfolio assessment as well as mind mapping technique. Writing skill can be improved by teaching mind mapping technique for content of particular topic and portfolio assessment for other criteria of writing. Introducing mind mapping technique and portfolio assessment into ESL curriculum in Sri Lanka from the early stage will help students to draft paragraphs or essays in an effective way in their examination.

**Key words:** *English as a second language, Mind mapping, Portfolio assessment, Writing skill.*

## **Exploring determinants for repetitive selection of the same students in English Language and Drama Competitions in Jaffna zone**

**Sivakugan A.**

*Department of English Language Teaching, University of Jaffna, Sri Lanka*

**Abstract** - English language and drama competitions, held annually, provide a crucial platform for showcasing student English proficiency from school to national level. With the goals of improving the knowledge and use of English language among students in all types of schools in Sri Lanka, these competitions are essential. This study investigated why the same students are repeatedly selected for English language and drama competitions in Jaffna zone. Using qualitative method, this research focused on the social, economic, cultural and institutional factors that significantly influenced the selection of students. Critically reflecting upon the narratives of the students, teachers and parents gathered via interviews and focus group discussions conducted at four different types of schools that come under the Jaffna educational zone, and the researcher's own experience as a former teacher of English language, this research argued that economic strength of the family, parental influence, social factors like class and gender, the consequence of civil war, self-motivation, the schools, available opportunities in schools, attitudes of the teachers and their approaches and perspectives, work load of teachers, external pressure from different authorities played significant role in repetitive selection of students. At the same time, this research drew attention on the influence of 'pronunciation' which is being considered as one of the criteria in the competitions. Apart from the reasons found from the insights of participants, this research also made some recommendations as how these competitions could be conducted better and more inclusive competition structures to ensure fairer representation from diverse backgrounds. Meanwhile, this research also prescribed some suggestions to make these competitions friendlier towards students who come from marginalized socio-economic backgrounds.

**Key words:** *Alienation, class, Competitions, criteria, gender, inclusive*

## **Navigating the Global Hospitality Landscape: Advanced Insights into English Language Proficiency and Its Influence on Career Trajectories and Professional Mobility among Future Industry Leaders**

**Ramanayaka, S.K.L.J.**

*Language Unit, Sri Lanka Institute of Tourism & Hotel Management (SLITHM), Sri Lanka*

**Abstract** - In Sri Lankan society, English stands as the language of the elite, a gateway to employment, power, and privilege. Yet, a gap in English communication skills among today's hospitality students has been identified as a key barrier to securing jobs, particularly in star-class and boutique hotels. This paper delves into the perceptions of Craft and Certificate level students at the Koggala Regional Hotel School of the Sri Lanka Institute of Tourism & Hotel Management (SLITHM) regarding the impact of English language proficiency on their career choices and mobility. The study, based on a self-administered questionnaire given to 100 students (50 from each level), revealed compelling insights. Both Craft and Certificate level students exhibited a positive attitude towards learning English. An overwhelming 95% believed that proficiency in English was a stepping stone to upward career mobility and improved prospects, especially in international contexts. The majority emphasized that English proficiency was crucial for excelling in advanced hospitality studies. English is reclaiming its stronghold at the Koggala Hotel School of SLITHM, driven by the shared belief that a high level of proficiency is essential for superior academic performance and securing lucrative global sector jobs. However, the findings of this study also highlighted a significant shortfall in the support students received from their school education to enhance their English proficiency, due to the brief course duration. Over 55% of respondents agreed with the statement, "English creates an unnecessary barrier for rural youth in Hospitality industry," pointing to a sense of discrimination and lack of opportunities for these youth. This underscores the critical need to ensure equitable access to quality English education across all regional schools. Addressing this gap is vital to breaking down barriers and enabling all students, regardless of their background, to navigate the global hospitality landscape effectively and achieve their career aspirations.

**Key words:** *Career, English, Hospitality, Mobility, Proficiency*

## **Fort Design and Techniques of the Batticaloa Dutch Fort**

**Barath, N.**

*Visual & Technological Arts, Swami Vipulananda Institute of Aesthetic Studies (SVIAS), Eastern University, Sri Lanka*

**Abstract** - The Portuguese, the first Europeans who visit Sri Lanka in 1505 AD, built forts at various places in Sri Lanka to maintain their dominance. In that context, they have built the Batticaloa Fort in 1628. The Dutch, who captured the fort from the Portuguese, modified it into a strong defensive fortress in 1682. Later, the British captured the fort from the Dutch, further developing it into a very strong defensive fortress and using it as a concert hall for political affairs. Most people are not aware of the designs and architectural features of the Dutch Fort in Batticaloa. As a result, there is a risk of destruction of Batticaloa Dutch Fort and its history. Therefore, this study focuses on highlighting the importance of the Batticaloa Dutch Fort, its architectural designs and features, and the necessity for its protection. The primary objective of this study is to discover the architectural designs and construction techniques used during Portuguese, Dutch and British era as found in the Batticaloa Fort. The specific objectives of this study include examining the building design techniques of the Batticaloa Dutch Fort. A descriptive quantitative study was found to be appropriate for this work. Therefore, 05 higher officials from Batticaloa concert, 05 officers from Batticaloa concert, 05 archaeologists, 05 cultural officials, 05 research scholars, and 05 common people from Batticaloa were investigated as stakeholders for this study. Data collection was primarily done by collecting feedback and interviewing the 25 stakeholders mentioned above. Additional data were collected from books, journals, magazines, articles, publications, websites etc. By relocating the concert in Batticaloa Dutch Fort to another place and handing over the fort to the Department of Archeology; and by explaining the importance of the architecture, designs, special artworks found at the fort, and the necessity to preserve it, to the visitors, the Batticaloa Dutch Fort and its features can be preserved for many centuries. Additionally, by raising awareness about the excellence of the constructions of the Batticaloa Dutch Fort to the outside world, it can be recognized by UNESCO as a world heritage site of historical importance.

**Keywords** – *Batticaloa Concert, Batticaloa Dutch Fort, Dutch Architectures in Batticaloa, Dutch Fort in Batticaloa*

## **Early childhood teachers' sustainability in the classroom activities of the young learners.**

**Soba, B.**

*Department of Education & Childcare, Eastern University, Sri Lanka*

**Abstract** - The evolving nature of teaching has resulted in a greater emphasis on retaining and actively engaging teachers in the classrooms. The current implementation of educational change emphasises the significance of teachers being supported in their profession. Moreover, the acknowledgment of the importance of early childhood education has brought focus to the ability of early childhood teachers to maintain sustainability in their teaching practice and effectively engage in the learning process of young children. However, most preschool teachers face many challenges in executing the activities of the classroom. This research examined the factors that influence the sustainability of early childhood classroom activities and teachers in their teaching profession. The research utilised a mixed-method approach, collecting both quantitative and qualitative data through a survey conducted with early childhood teachers. The survey considers various aspects such as the demographic profile of the teachers, and their job satisfaction, and identifies the key factors that affect early childhood teachers' commitment and productivity. Furthermore, it identifies the factors that influence the sustainability of classroom activities for young children. The research was conducted in the Eastern province of Sri Lanka, and the survey participants were selected from Manmunai Southwest Education / D. S Division, Batticaloa District. In this research, 20 teachers were selected using the convenient sampling methods. Several challenges have been identified to sustain classroom activities: including inadequate technological materials, no standard curriculum, and a lack of training programs. As a result, this research recommended that adequate resources, including technological aids, be provided for all preschool teachers, along with designing a standard curriculum for all preschools. The study also proposed a National Preschool Teachers Training program for all preschool teachers in the rural and urban areas of the Batticaloa district of Sri Lanka.

**Keywords:** *Early childhood teachers; Sustainability; Technological materials; and Training program.*

## Automatic Facial Makeup Detection

**Ligitha, S.<sup>1</sup>, Tharmini, K.<sup>2</sup>**

<sup>1</sup>*Department of Information Technology, Trincomalee Campus, Eastern University, Sri Lanka*

<sup>2</sup>*Department of Computer Science, Trincomalee Campus, Eastern University, Sri Lanka*

**Abstract** - Face recognition in digital images has become increasingly essential in this century as a result of its wide range of applications in security systems. Face makeup is the most popular method of altering a person's look. To recognize the face, it is necessary to examine the cosmetics on the face. This research focuses on accurately identifying the presence of makeup applied to a person's face in an image. Here we use three challenging and unconstrained datasets (YouTube Makeup database (YMU), Makeup in the Wild database (MIW), Virtual Makeup database (VMU)). The uniqueness of YMU is the only database that has images of women both before and after makeup, and other two databases including images with variations in facial pose, illumination, expression, and image resolution (PIE). In this method first Adaboost face detection in OpenCv is used to automatically detect the face. Thereafter for the given a face image, the feature landmarks within the facial region and Haar-like filters are estimated for locating and characterizing the appearance of each landmark. This is followed by cropping regions of interest (ROI) which are detecting face, the regions around the left eye, the right eye and the mouth by using viola jones algorithm. The Hue Saturation Value (HSV) color space, tessellation, watershed transform, Canny edge detector, and Local Binary Pattern (LBP) histogram are then used to extract a set of shape, color and texture information from the face RoIs, respectively. Here Support Vector Machine classifier uses the feature set to detect the presence or absence of cosmetics in the input face image. The accuracy obtained from our method is about 74.06% for YMU, 75.49% for MIW & 90.76% for VMU. The main highlight of this technique is to specify where makeup has been applied on the face, which can be used to identify the individuals.

**Keywords:** *Face Recognition, Viola Jones Method, HSV, Tessellation, Watershed transform, Canny edge detector, LBP, SVM*

## Augmented Reality and Virtual Reality in Education Sector

**Narangammana, B.P.K**

*Department of Business & Management Studies, Faculty of Communication & Business Studies, Trincomalee Campus, Eastern University, Sri Lanka*

**Abstract** - Virtual reality (VR) and increased reality (AR) advances risen as effective instruments to revolutionize the instruction field. VR is a simulated and immersive experience projected by a device into the user's sight. The impact of VR in education is evident in creating immersive and engaging learning experiences. Explore the use of AR and VR technologies to enhance learning experiences in educational settings such as virtual laboratories, immersive simulations, or interactive storytelling. Students can engage with real-life experiences in the classroom. The result of enhanced student engagement is improved retention of knowledge and the development of practical skills.

The traditional method of education still consists of paper-based techniques. For the visually impaired, that technique is not suitable. AR and VR are dramatically advantageous for the students, as well as the visually impaired students. The students can engage in the lesson directly, and visually impaired people can feel the environment. AR and VR provide a better educational setting for the students.

The research is based on descriptive analysis to identify the relationship between AR and VR in education. According to the results and analysis, VR helps with an immersive learning environment, experimental learning, enhanced engagement, skill development, special needs education, and collaborative learning. AR enhances interactive textbooks, field trips and expenditures, language learning, science simulations, problem solving and critical thinking, and visualizing the data.

The challenges of AR and VR implementation in education include hardware and software development expenses. Durability and customization of hardware are another challenge. As a conclusion, the implementation of virtual reality and augmented reality in the education field is a process that is ongoing. It requires collaboration among educators, technology providers, and policymakers in order to address the challenges posed by the new technology and improve the opportunities for the next generation.

**Keywords:** *Augmented Reality (AR), Education, Virtual Reality (VR), Virtual Experience, Visual Impaired*

## **An approach for predicting atmospheric carbon dioxide concentration: Application of Artificial Neural Network techniques**

**Fernando, J.K.R.**

*Department of Information Technology, Faculty of Indigenous Social Sciences and Management Studies, Gampaha Wickramarachchi University of Indigenous Medicine, Sri Lanka*

**Abstract-** The increase in carbon dioxide (CO<sub>2</sub>) is mainly due to humans burning fossil fuels like coal and oil for energy. The total amount of carbon dioxide in the atmosphere is increasing every year because we are releasing more carbon dioxide into the atmosphere than any natural sink can handle. Therefore, it is important to predict future atmospheric carbon dioxide levels because it provides a basis for assessing the impact of continued fossil fuel use. The main objective of the research is to develop and compare models for predicting future atmospheric carbon dioxide (CO<sub>2</sub>) concentrations, using both classical time series forecasting methods and artificial neural network (ANN) techniques. As the classical time series forecasting method, the study develops an Autoregressive-Integrated Moving Average (ARIMA) model and as the ANN techniques, the study use Feed Forward Neural Network (FFNN) with Levenberg-Marquardt (LM) algorithm and FFNN with Scaled Conjugate Gradient (SCG) algorithm for predicting atmospheric CO<sub>2</sub> concentrations based on historical data collected from January 2000 to December 2022. The source for the dataset used here is National Oceanic and Atmospheric Association (NOAA) Global Monitoring Laboratory. The comparisons of the model performances were made using the Mean Squared Error (MSE) and Coefficient of Correlation (R). The results show that, the fitted ARIMA model ARIMA(0,1,3)(1,1,1)[12] , FFNN with LM algorithm and FFNN with SCG algorithm output MSE of 0.1073, 0.1052, 0.2875 and correlation coefficient of 0.9995, 0.9998, 0.9995 respectively. Therefore, the FFNN with the LM Algorithm exhibited the highest accuracy, with the lowest MSE and the highest correlation coefficient. So, the FFNN model using the LM algorithm outperformed the classical ARIMA model and the FFNN with the SCG algorithm in forecasting atmospheric CO<sub>2</sub> concentration.

**Keywords:** *ARIMA, FFNN, Levenberg-Marquardt Algorithm, Predict CO<sub>2</sub> concentrations, Scaled Conjugate Gradient algorithm*

## Hybrid CNN-SVM model for face mask detector to protect from a seasonal allergy

**Thevaka, S.<sup>1</sup>, Suthesan, K.<sup>2</sup>**

<sup>1</sup>*Department of Management and Entrepreneurship, Faculty of Business Studies, University of Vavuniya,*

<sup>2</sup>*Kelaxa IT Solutions, Vavuniya, Sri Lanka*

**Abstract** - Masks used to avoid the spread of the infection to be used especially in closed and crowded environments, the people should continue wearing face mask which can protect from seasonal allergies. It reduces the symptoms associated with seasonal allergies. A dataset consisting of images of people with masks or without mask is created and used in this study. The images were collected in total 7553 from Kaggle and own since a dataset that relates to faces has many privacy issues attached it. We converted image size into 128 \*128 and transformed into RGB. The study considers an approach that aggregates Convolution Neural Networks (CNN) deep learning techniques and classical ML classifiers. To classify images into masked and unmasked own architecture on CNN was used to extract unique features, then Support Vector Machine (SVM) used to classify the image. Purpose of the hybrid modelling on CNN, it recognizes these advanced features from the sample data, thus reducing the workload of developing a new feature extractor for such problem and when the number of data is small, CNN do not work well. In order to sort out that issue we bring SVM algorithm also here which can be possessing high accuracy even with less data. The problem for our proposed model is to learn the interpretation of various features in images and classify accordingly. By analysing various architectures on CNN, own model created in leveraging the spatial information in images. With this concept, the own architecture designed because some of existing architectures are complex, some pertinent information may be lost there during feature extraction phase and the computation time is considerable. The pervious Custom CNN architecture Model training accuracy reached 94% and Validation accuracy 96%. When the CNN was used as a feature extractor, the SVM classifier was demonstrated to be the best combining counterpart, providing the best synergy effect in terms of accuracy. This indicated that the proposed fusion achieved superior recognition accuracy of 97.35 % compared to the previous approach. We used 1511 data for testing from that 10% used for validation.

**Keywords:** *Convolutional Neural Networks, Face Mask, Feature Extraction, Support Vector Machines, Seasonal Allergies*

## Personalized Book Recommendation System Using Machine Learning Techniques

**Rajapaksha, R.M.D.M, Disne, K., Thadchanamoorthy, S.**

*Department of Computer Science, Faculty of Applied Science, Trincomalee Campus.*

**Abstract** - In today's digital age, consumers face the challenge of information overload, particularly when making choices online. This issue extends to e-books, where the COVID-19 pandemic has significantly increased the number of available e-books. Consequently, finding relevant books tailored to personal preferences has become daunting. This research aims to develop a book recommendation system using machine learning algorithms to address this issue. The system facilitates effective searches by suggesting books based on user ratings, interests, and popularity within the system's dataset. By leveraging user-based ratings and machine learning techniques, it provides personalized book recommendations aligned with individual user preferences. For example, a reader who enjoys mystery novels and historical fiction might receive suggestions such as "The Da Vinci Code" by Dan Brown or "The Historian" by Elizabeth Kostova. Similarly, a student researching climate change could be directed to relevant scientific publications and influential works in environmental science. The proposed system assists readers in choosing appropriate books and aids the purchasing process by considering criteria such as user preferences, author, and other book features. It analyses user data and predicts books that match specific interests, utilizing algorithms designed to discover patterns within the dataset. These algorithms rate items and highlight those likely to be highly rated by the user, simplifying the decision-making process. The book recommendation system benefits various stakeholders, including readers, librarians, students, library users, and booksellers. For instance, librarians can manage library catalogues more efficiently by recommending books based on borrowing patterns and subject interests, thereby optimizing their collections. Despite its advantages, the system sometimes presents an overwhelming number of search results, making it challenging for users to find satisfactory matches. This study addresses the need for a systematic recommendation process based on previous user ratings to enhance user satisfaction. The system employs a user-based collaborative filtering method, grouping users based on lending patterns and the subjects of the books sought. Primary challenges include filtering vast amounts of data, setting priorities, and providing accurate recommendations tailored to individual users. This research aims to develop a desktop-based library book search recommendation system using Python programming and machine learning algorithms to streamline the book search process and improve recommendation accuracy. By implementing this system, libraries with extensive collections can better serve their patrons, ensuring that readers find books matching their interests, while booksellers can enhance their sales and customer satisfaction through targeted recommendations.

**Keywords:** *E-books, Machine Learning, Personalized book recommendation, User Ratings, User-based collaborative filtering method.*

## Comparative Study of Machine Learning Algorithms for Handwritten Digit Recognition

**Muthunayaka, M. A. G. K., Disne, K., Khedika, K.**

*Department of Computer Science, Faculty of Applied Science, Trincomalee Campus, Eastern University, Sri Lanka.*

**Abstract** - Handwritten digit recognition is a crucial task in computer vision with applications in automatic number plate recognition, signature verification, and postal automation. This study evaluates ten different machine learning algorithms on the MNIST dataset to identify the most effective algorithm for recognizing handwritten digits. The objective is to determine the best algorithm by evaluating their performance using the accuracy metric. The algorithms tested include Logistic Regression, Support Vector Machine (SVM), Random Forest, K-Nearest Neighbours (KNN), Naïve Bayes, Decision Tree, Gradient Boosting, Simple Neural Network (using Keras), Multilayer Perceptron (MLP) Neural Network, and Convolutional Neural Network (CNN) (using Keras). The methodology involved pre-processing the MNIST dataset through normalization, reshaping, and label encoding to ensure the data was in a suitable format for training. Each algorithm was trained using appropriate libraries and frameworks, and their performance was evaluated on the test set. The primary metric for evaluation was accuracy. Results indicated that the CNN outperformed other algorithms with an accuracy of 99.06%. The MLP Neural Network followed with an accuracy of 98.04%, and the SVM classifier achieved 97.64% accuracy. Other algorithms showed varied performance: Logistic Regression had 92.08% accuracy, Naïve Bayes had 55.16%, and Decision Tree achieved 85.83%. Gradient Boosting reached 94.54%, while the Simple Neural Network using Keras achieved 96.68%. Random Forest and KNN classifiers recorded accuracies of 96.75% and 97.13%, respectively, comparable to the Simple Neural Network. The superior performance of CNN is expected due to its design for image recognition tasks, making it well-suited for the MNIST dataset containing images of handwritten digits. The MLP Neural Network and SVM classifier also performed well, making them viable alternatives if CNN is unavailable or if there are constraints on computational resources. In conclusion, this comparative analysis of ten machine learning algorithms for handwritten digit recognition on the MNIST dataset found that CNN is the most effective, followed by MLP Neural Network and SVM classifier. These findings are valuable for developing automated systems requiring handwritten digit recognition. This study provides a foundation for further research in the field of handwritten digit recognition.

**Keywords:** *Accuracy metric, comparative analysis, Convolutional Neural Network (CNN), handwritten digit recognition, Machine Learning Algorithms.*

## Predictive modeling for early heart disease detection through machine learning

**Weerakkodi, S.<sup>1</sup>, Linosh, N. E.<sup>2</sup>**

<sup>1</sup> *Department of Software Engineering, Faculty of Computing, Sabaragamuwa University of Sri Lanka,*

<sup>2</sup> *Department of Physical Science, Faculty of Applied Science, University of Vavuniya, Sri Lanka*

**Abstract** - Cardiovascular disease (CVD) remains a leading cause of morbidity and mortality worldwide, underscoring the urgency of its early detection and treatment. According to the latest WHO figures, coronary heart disease accounted for 26,304 deaths in Sri Lanka in 2020, representing 22.66% of all fatalities. Early detection and identification of heart disease are crucial for preventing its progression and improving patient outcomes. This need is particularly acute in developing countries like Sri Lanka, where the high costs of diagnosis and treatment present significant barriers to effective care. In response to this pressing issue, we developed a machine learning-based system to classify the likelihood of heart disease at an early stage using newly collected Sri Lankan data. The dataset includes medical data from heart disease patients and normal subjects, comprising 13 features. Six classification methods were applied to this dataset: decision tree, random forest, support vector machine, K-nearest neighbor, logistic regression, and Gaussian naive Bayes. Additionally, four feature selection techniques were employed: forward feature selection, backward feature elimination, exhaustive feature selection, and recursive feature elimination. The performance of these feature selection approaches and machine learning techniques was assessed using various evaluation measures, including precision, accuracy, F1-score, and recall. Our findings revealed that the logistic regression classifier, combined with the feature subset selected by the recursive feature elimination method, achieved the highest classification accuracy of 96%. This system aims to facilitate the early identification of heart disease, thereby enhancing coronary health and quality of life by enabling timely intervention and management of risk factors.

**Keywords:** *Classification approach, Feature selection technique, heart disease prediction, Logistic regression*

## Comparison of wound healing activity of 5% and 10% *Soodan* (Camphor) ointments in Wistar albino rats

**Vijayarajah Thanushiyan, Bamini Mithurendran**

<sup>1</sup>*Faculty of Siddha Medicine, Trincomalee Campus, Eastern University, Sri Lanka*

**Abstract** - Wound healing involves hemostasis, inflammation, proliferation, and remodelling. *Soodan* powder and ointment show potential wound healing activity due to anti-inflammatory and antimicrobial properties. Though FDA-approved for external use at 3%-11% concentrations, the standardization of ointment concentration remains unclear. This study aimed to formulate *Soodan* ointments at 5% and 10%, evaluating their quality and wound healing efficacy to address this gap. Healthy albino rats weighing between 150 and 200 grams were used. Six rats each were placed in Ointment base group, Neosporin H ointment group, 5% w/w purified *soodan* ointment group and 10% w/w purified *soodan* ointment group. The dorsolateral portion of thorax was lacerated using a 120 mm<sup>2</sup> wound created with a surgical scalpel. Data were collected every two days by measuring wound areas with transparent paper outlines, which were then calculated using graph sheets. Wounds were dressed after each measurement. Ointments were topically applied in 2 mm thick layers once every two days, until 14 days. The percentage change in the initial wound size over several days was used to compute wound contraction. Significant difference in wound circumference between emulsifying ointment base group and 10% w/w Neosporin ointment group ( $p=0.000$ ), emulsifying ointment base group and 10% w/w purified *soodan* ointment group ( $p=0.049$ ), emulsifying ointment base group and 5% w/w purified *soodan* ointment group ( $p=0.208$ ), with the mean values of  $5.167 \pm 0.654$ ,  $4.883 \pm 0.654$  and  $1.333 \pm 0.654$  respectively. Significant difference in unit healing time between 5% w/w purified *soodan* ointment group and 10% w/w purified *soodan* ointment group ( $p=0.001$ ) with the mean values of  $0.100 \pm 0.08$  and  $0.0749 \pm 0.04$  respectively. It is concluded that 10% w/w purified *soodan* ointment has a highly substantial wound healing impact in excised wounds rather than 5% w/w purified *soodan* ointment, And very safe concentration (< 11%) for external application.

**Key words:** *Soodan Ointment, Unit Healing Time, Wistar albino rats, Wound Contraction Rate, Wound healing*

## Health benefits of types of water according to ancient *Ayurveda* texts

**De Silva, C.S., Wimalasiri, Y.S.G., Ishara, M.D.P.**

*Faculty of Indigenous Medicine, University of Colombo, Rajagiriya*

**Abstract** - World Health Organization alludes, approximately 3.4 million people, mostly children die from water related diseases, like typhoid, cholera and hepatitis through contaminated water. The objective of this study was to evaluate the types of water mentioned in the ancient ayurveda texts and their health benefits to the human body. The information was gathered from translations and interpretations of the authentic ayurveda texts including *Susruta*, *Bhavaprakasha* and *Sharangadhara Samhita*, while information on modern concept of water and quality studies were collected from published journals across the databases PubMed, Science Direct and Google Scholar. Ayurveda classifies water as *Divya jala* (water from sky) and *Bhauma jala* (terrestrial water). *Divya jala* is classified as *Dhara jala* (rainwater), *Karakaa jala* (hail water), *Toushara jala* (water from fog) and *Haima jala* (snow water). *Dhara jala* is collected during rain, filtered through a thick cloth and stored in vessels of gold, silver, copper or mud. Water stored in metal vessels possess an antimicrobial action due to the oligodynamic effect: the toxic effect of metal ions on microorganisms adds a scientific dimension to the traditional practices. *Dhara jala* pacifies the *tridosha* while the others aggravate and pacify the respective *dosha* according to their properties. *Dhara jala* possess health benefits including strengthening the body and brain function, while, *Toushara jala* is indicated for throat, eye and urinary tract disorders. However, further research on the qualities of the aforementioned water types is yet to be conducted. *Bhauma jala* classified as 12 types, also possess health benefits, however due to their terrestrial origin and contaminants, needs to be purified extensively with advanced purification methods prior to utilization. Therefore, it is clear that, optimum health benefits are easier to be obtained through consumption of *Divya jala*, at low cost as compared to the *Bhauma jala* due to the dissimilarities in origin.

**Keywords:** *Ayurveda, Fog water, Hail-water, Health benefits, Rainwater*

## **Microbial fibrinolytic enzymes in traditional Sri Lankan buffalo curd: A novel approach to thrombosis management**

**Daranagama, D.A.N.D., Devagiri, D.H.N.**

*Department of Technology, Faculty of Indigenous Health Science and Technology, Gampaha Wickramarachchi University of Indigenous Medicine*

**Abstract** - Cardiovascular diseases and thrombosis remain the leading causes of global mortality, often necessitating treatments with synthetic anti-platelet drugs and anticoagulants that carry significant side effects, such as hemorrhage. This research investigates microbial fibrinolytic enzymes derived from fermented foods as safer, economical alternatives. To identify effective microorganisms, buffalo curd was diluted by two-fold dilution method and cultured in skimmed milk agar. Screening for microorganisms utilized skim milk agar media to detect proteolytic activity, indicated by clear zones around colonies due to casein hydrolysis. Bacteria exhibiting proteolytic capabilities were cultured on nutrient agar and further assessed for fibrinolytic activity using the well diffusion method, with incubation at room temperature for 24 hours. The well diffusion method was employed to assess the fibrinolytic activity of the isolated bacteria. Quantitative analysis showed significant fibrinolytic activity in *Bacillus spp.* isolated from Meekiri, with clear zone diameters measuring up to 20 mm. The isolated colonies were identified as *Bacillus spp.* by gram staining and other biochemical tests. Comparatively, these microbial enzymes demonstrate promising efficiency and safety over traditional synthetic drugs. Beyond thrombolytic therapies, microbial fibrinolytic enzymes from fermented foods may have broader medical applications, including in anti-inflammatory and anti-cancer treatments. This study highlights the potential of indigenous microbial sources from fermented foods for therapeutic uses, emphasizing the development of novel, locally sourced, biologically based thrombolytic agents that enhance health outcomes and utilize local biodiversity for medical advancements. Additionally, using these natural enzymes in clinical practice could lead to new treatments that are more affordable and ease the financial strain on healthcare systems in developing countries.

**Key words:** *Bacillus spp.*, cardiovascular diseases, fermented foods, fibrinolytic enzymes, thrombosis`

## Comparison of body composition between long-term yoga exercisers and non-exercisers in Colombo District

Yogeswaran, S.<sup>1</sup>, De Silva Welliange S.<sup>2</sup>, Arambepola C.<sup>3</sup>

<sup>1</sup>Faculty of Medicine, University of Colombo

<sup>2,3</sup>Department of Community Medicine, Faculty of Medicine, University of Colombo

**Abstract** - Maintaining a healthy body composition is crucial to reduce the morbidity and mortality of non-communicable diseases. This is highly challenging for working adults due to their sedentary lifestyle. Yoga is a widely chosen exercise adopted in lifestyle modifications. Aim of this study is to compare the effects of yoga on body composition between long-term yoga exercisers and non-exercisers. A cross-sectional comparative study was conducted among 65 adults on regular yoga exercises for more than one year (exposure group) and 65 adults not involved in any form of exercise (non-exposure group). All were residing in urban areas of Colombo and recruited systematically from yoga training centres and workplaces. Body composition was measured using TANITA SC240 analyzer; height using SECA 213 stadiometer; and waist and hip circumferences using a standard measuring tape. Results were compared between the groups using independent t-test. The sample aged 25-55 years comprised yoga exercisers (22 males; 43 females) and non-exercisers (21 males; 44 females). Compared to non-yoga exercisers, the yoga exercisers demonstrated lower body mass index (mean=23.15; SD=2.88 versus mean=24.64; SD=4.59); body fat mass (mean=17.85; SD=4.73 versus mean=20.06; SD=7.94); body fat percentage (mean=29.26; SD=6.26 versus mean=30.84; SD=7.86); waist (mean=86.18; SD=8.35 versus mean=88.79; SD=11.61) and hip circumferences cm (mean=95.27; SD=5.71 versus mean=98.5; SD=8.86); and waist/hip ratio (mean=0.89; SD=0.12 versus mean=0.90; SD=0.07). All these associations were statistically significant ( $p < 0.05$ ) except body fat percentage ( $p = 0.132$ ) and waist/hip ratio ( $p = 0.637$ ). Long-term practice of yoga exercises helps in maintaining a healthy body composition to a great extent, thus is recommended for working Sri Lankan adults.

**Key words:** *Body composition, non-communicable diseases, Sedentary, Lifestyle, Yoga.*

## **Influence of yoga exercises on psychosocial well-being between yoga practitioners and non-yoga practitioners in Colombo District**

**Yogeswaran, S.<sup>1</sup>, De Silva Weliange, S.<sup>2</sup>, Arambepola, C.<sup>3</sup>**

<sup>1</sup>*Research and Higher Degrees Committee, Faculty of Medicine, University of Colombo*

<sup>2,3</sup>*Department of Community Medicine, Faculty of Medicine, University of Colombo*

**Abstract** - Psycho-social wellbeing is crucial for a healthy life. Yoga exercise, which is a widely chosen recreational activity in Asia is believed to integrate physical and mental health components. However, its effect on the psycho-social wellbeing has not been studied compared to non-yoga practice in Sri Lanka. Aim of this study is to compare the psycho-social wellbeing of long-term practitioners and non-yoga practitioners. A cross-sectional comparative study was conducted among 83 adults who were regular yoga practitioners for more than one year (exposure group) and 83 adults not involved in any routine recreational activity (non-exposure group). All were working adults residing in the same catchment area in Colombo and recruited systematically from yoga training centres and workplaces. Psycho-social wellbeing was evaluated using Psychosocial Wellbeing Questionnaire (PWQ) validated for Sri Lanka (lower scores indicating satisfactory/better wellbeing) and compared between the two groups using independent t-test. The sample aged 25-55 years comprised yoga practitioners (mean age=42.2 (SD=9.1); 31 males; 52 females) and non-practitioners (mean age =34.4 (SD=8.6); 29 males; 54 females). Age was not significantly different between the groups (p=0.36). Mean T-scores obtained for the PWQ; yoga practitioners 49.2 (SD=7.7) and non-practitioners 52.4 (SD=10.7). A significant difference in relation to having 'normal' psycho-social wellbeing was noted between yoga (n=77, 92.8%) and non-yoga (n=64, 77.1%) practitioners (p=0.005; odds ratio: 3.81; 95% CI: 1.43-10.11). Out of all domains of psycho-social wellbeing, only social acceptance & coherence domain scored less in yoga than non-yoga practitioners (p<0.05). Long-term yoga practice improves the psycho-social wellbeing in routine practitioners, compared to non-practitioners, thus recommended for working adults.

**Keywords:** *Healthy life, Mental health, Psychosocial well-being, Yoga*

## **Knowledge, Attitudes, and Practices Regarding Dengue Fever among Residents of Konesapuri in the Kuchchaveli MOH Area: A Descriptive Study**

**Vithiyasini, P., Akeel, M. R. M., Sumaiya, M. S. F., Piyarathne S. H. M. C. B., Krishnaruby, R., Mithurendhran, B.**

*Faculty of Siddha Medicine, Trincomalee Campus, Eastern University Sri Lanka*

**Abstract** - In recent years, dengue fever has gained prominence as a major health issue in Sri Lanka due to mosquito transmission. Although it can lead to fatalities, prevention remains achievable. Our collective awareness, attitudes, and actions significantly influence the outcome. This study aimed to assess and understand the Knowledge, attitude, and practice related to dengue fever among residents of Konesapuri. Socio-demographic variables such as age, gender, education level, occupation, and sources of information were selected, and data was collected through a self-administered questionnaire from all respondents. The questionnaire covered various aspects related to dengue fever, including knowledge, attitudes, and practices (KAP). Participants were randomly selected from the target population. Among the 102 samples, only 70 agreed to participate and answer the questionnaire while others not. Descriptive statistics have been used to summarize the data. Informed consent was taken from the participants. The result reveals that preventive practice is 44.28% in leading, attitude is 27.14% at the second level, and knowledge is 25.71% at the poor level. In conclusion the population in Konesapuri demonstrates better awareness of dengue prevention compared to their understanding of dengue mortality and management. Further, enhancing health promotion through campaigns and community mobilization are crucial for increasing public awareness about dengue fever. This leads to positive attitudes and promote better preventive practices by providing proper knowledge among the public to eliminate dengue.

**Keywords:** *Attitude, Dengue fever, Knowledge, Konesapuri, Practice.*

## **Explore the selected risk factors of myopia among the Children (age 6–13years) in Konesapuri Trincomalee-Cross-sectional study**

**Muralithasan, S., Loganathan, P., Doole, Z. S., Sampath, G. H. W. P., Gimhani, S. A. A. S., Mithurendran, B.**

*Faculty of Siddha Medicine, Trincomalee Campus, Eastern University Sri Lanka*

**Abstract** - Myopia commonly known as near-sightedness, is a refractive error when closer objects look clear but distant objects appear blurry. Children aged 6 – 13 years are mostly prone to myopia. The study was designed to evaluate the association between myopia and selected risk factors such as age, sex, screen time, genetics and past history related to the eye. A cross-sectional study was conducted at *Konesapuri* area of *Trincomalee* district among 54 schooling children between the ages of 6 to 13 years of both sexes in duration from November 2023 to February 2024. The data were analyzed based on a questionnaire, visual acuity test and accommodation test. The questionnaire was filled and the visual acuity was assessed individually by using the Snellen chart. An accommodation test was performed individually. As a result in this study involving 54 schooling children, 57.41% children were affected by myopia in which 9.67% , 16.12%, 29.03% and 45.16% according to the age in between 6–7, 8-9, 10-11 and 12-13 years respectively. Based on the disparity in sex, 55% of male children and 45% of female children were affected. 77% Out of the affected myopic children who were associated with screen time of more than 3 hours per day, 61.2% of children were influenced by their family history and 51.61% by their past history related to the eye. In conclusion, research findings from the study found that children aged 12-13 years, male children, children exposed to screen time more than 3 hours, children with a family history and past history related to the eye are found to be associated with myopia.

**Keywords:** *Myopia, Near-sightedness, Schooling children*

## **Assessing the Efficacy of Media Literacy Education Programs in Schools and Communities: Special Reference to Kuchchaweli Division under the Trincomalee District**

**Divaincy Fernando, M.<sup>1</sup>, Sobika Danial, T.J.<sup>2</sup>**

<sup>1</sup>*Trincomalee campus, Eastern University, Sri Lanka*

<sup>2</sup>*University of Jaffna, Sri Lanka*

**Abstract** - Media literacy education (MLE) has emerged as a critical issue of present-day training structures, aiming to equip individuals with the necessary competencies to significantly analyse and navigate the complex media panorama. This research endeavors to assess the efficacy of media literacy schooling packages implemented in faculties and groups, specializing in their effect, effectiveness, and demanding situations. Utilizing a combined-methods approach, this looks at employs each quantitative surveys and qualitative interviews to acquire comprehensive records from students, educators, and network participants concerned in media literacy applications. Data will be collected through a combination of semi-structured interviews, focus group discussions, and participant observation. The studies evaluate the extent to which these applications decorate members' critical wondering abilities, digital literacy competencies, and media intake conduct. The findings of this studies make a contribution valuable insight into the strengths and limitations of current media literacy schooling projects, shedding mild on fine practices and regions for improvement. Moreover, by exploring the views of diverse stakeholders, along with students, educators, and community leaders, this takes a look at offers a holistic knowledge of the role of media literacy in fostering knowledgeable citizenship and promoting media literacy as an important competency for the twenty first century.

**Key words:** *Assessment, Communities, Efficacy, Media Literacy, Schools*

## **Effects of visual storytelling techniques on audience engagement in digital media: A study based on Batticaloa**

**Ahallya, D., Divaincy, M.**

*Department of Languages and Communication Studies, Trincomalee Campus, Eastern University, Sri Lanka.*

**Abstract** - In the digital era, visual storytelling has emerged as a powerful tool for capturing audience attention and driving engagement. This study examines the effects of specific visual storytelling techniques such as photography, video content, and animations on audience engagement within targeted online communities. The research focuses on Batticaloa district, narrowing the scope to understand how these visual narratives influence audience attitudes, emotions, and behaviours in these virtual settings. Cognitive theory of multimedia learning and Use and gratification theory are used in this study; and employs a mixed-method approach. By using Stratified sampling method, a sample of 100 participants was surveyed to quantitatively assess preferences and behaviours related to visual storytelling. Additionally, 10 in-depth interviews were conducted to qualitatively explore community members' perceptions and emotional responses. Content analysis of 10 digital platforms was performed to identify prevalent trends and effective storytelling principles. The data were analysed using content analysis and statistical analysis, revealing key findings. The research shows that culturally tailored visual storytelling boosts engagement, strengthens emotional connections, influences behaviours, reveals content preferences, highlights platform trends, and advises creators to adapt content to local contexts. Overall, this research contributes to a deeper understanding of how culturally relevant and strategically designed visual storytelling can enhance audience engagement within digital media environments. The findings underscore the need for a focused approach to visual storytelling, ensuring that content resonates deeply with the intended audience and fosters meaningful connections.

**Keywords:** *Audience Engagement, Digital Media, Effects, Storytelling Techniques, Visual*

## **Exploring media literacy strategies for empowering marginalised communities in Trincomalee, Sri Lanka: Promoting life furtherance**

**Ahallya, D., Divaincy, M.**

*Department of Languages and Communication Studies, Faculty of Business and Communication Studies, Trincomalee Campus, Eastern University, Sri Lanka.*

**Abstract** - This study investigates media literacy strategies designed to empower marginalized communities in Trincomalee, Sri Lanka, including low-income families, rural and remote populations, displaced persons, women, and those facing educational disparities. The research focuses on Uppuveli, Trincomalee town, Kinniya, Muttur, Langapattuna, and Verugal, employing a mixed-methods approach that integrates qualitative and quantitative data. Qualitative data are collected through in-depth interviews, focus group discussions, and content analysis of media materials, which provide insights into the perceptions, experiences, and challenges related to media literacy among these communities. Quantitative data are gathered through surveys collected by purposive sampling with 100 participants, highlighting specific needs and measuring media literacy levels. The study examines barriers to information access and participation due to limited media literacy and evaluates the effectiveness of targeted media literacy interventions. Findings reveal that culturally relevant media literacy programs significantly enhance community engagement and empowerment. Collaboration with community stakeholders, NGOs, and media organizations proves crucial in developing and implementing effective strategies. Ethical considerations, including informed consent, confidentiality, and cultural sensitivity, are rigorously maintained throughout the research process. The results underscore the importance of media literacy in addressing social exclusion and improving the quality of life for marginalized groups. The study provides practical recommendations for fostering social inclusion and effective community engagement.

**Keywords:** *community empowerment, marginalized communities, media literacy, participatory research, social inclusion*

## **Evolving portrayals: Unveiling the shifting trends in advertising**

**Poongulaly, S., Anutharsi, G.**

*Department of Media Studies, Faculty of Arts, University of Jaffna, Sri Lanka*

**Abstract** - Mass media is the primary means of communication for reaching the masses. Different studies have made it clear that objectification through mass media has had a tremendous impact on the world. *Advertising* is “the non-personal communication of information usually paid for being persuasive about products, services or ideas by identified sponsors through the various media”. Advertising has long been a mirror reflecting societal norms and expectations, including those regarding gender roles. However, as society progresses and perspectives evolve, so does the portrayal of men and women in advertising. This study examines the evolution of gender portrayals in Indian Tamil advertisements, analysing how they reflect and shape societal attitudes, by employing a content analysis framework, the research aims to understand the extent to which contemporary advertisements challenge or reinforce traditional gender stereotypes, while also exploring emerging representations of gender diversity and inclusivity. In this way, the study aims to find out the changing trends of gender portrayal in Indian Tamil advertisements through some representative ads based on these research questions. RQ1: How have portrayals of gender roles in Indian Tamil advertisements evolved over time? RQ2: To what extent do contemporary Indian Tamil advertisements challenge or reinforce traditional gender stereotypes? RQ3: How do contemporary Indian Tamil advertisements represent diverse gender identities and sexual orientations? The researcher observed the ten product advertisements, old and new versa. Content analysis has been conducted to find out the transformation. As the conclusion of this study, the role of gender in advertising is undergoing a profound transformation, driven by evolving societal attitudes and consumer expectations. Advertisers can shape narratives that reflect and inspire positive social change by challenging stereotypes, championing diversity, and promoting inclusivity. Further, Brands are investing in storytelling, user-generated content, and influencer collaborations to forge authentic connections with their audience.

**Keywords:** *breaking stereotypes, gender, Indian advertisements, portrayal*

## **A Study on the use of creative communication in comics in Sri Lankan children's newspaper**

**H.M.P. Kumari**

*Department of Humanities, Faculty of Social Sciences and Humanities, Rajarata University, Sri Lanka*

**Abstract** - The use of imagination or original ideas to create something, inventiveness. Creative Communication brings out wonderful things. A Children's newspaper has a whimsical feel by highlighting unusual objects. A creative communicator always uses aesthetic approaches in creative communication. Various types of creative communication exist; in this context, the art form includes painting. Comics can have a strong impact on the content of a newspaper, enriching the reading experience by combining visual and textual storytelling. The research question is whether Creative Communication is effectively used in comics in children's newspapers. The main objective of the research is to study how creative communication has been effectively used in comics in children's newspapers. Comics have a prominent place in newspaper features, including types such as Topical Features, Instant Features, Human Interest Features, and Personality/Biographical. Their meanings vary according to the means used for this purpose. A mixed research method is followed under the research methodology. Division of chapters is done to include the information discussed in the research. Primary data such as observation, questionnaires and secondary data sources such as academic papers and books are used in data collection. Interpretative Data Analysis is used as data analysis method. This method not only entertain but also educate by stimulating cognitive and emotional development. It is expected to use fifty child readers who use Vijaya, Mihira and Vidusara newspapers as the sample of the research. The findings of this research underscore the importance of employing creative communication techniques in the presentation of comics in children's newspapers. Effective communication in comics not only engages children but also aids in their cognitive development by stimulating their creativity and imagination. Thus, integrating well-crafted graphics and thoughtful narratives in comics can significantly enhance children's newspapers' overall appeal and educational value.

**Keywords:** *Children's newspapers, Comics, Creative communication, Features*

## **The impact of User-Generated Content (UGC) on Brand Perception across different product categories**

**Jayawickrama, H.N., Piyumali, W.M.**

*Department of Mass Communication, University of Kelaniya, Sri Lanka*

**Abstract** - This study examines the impact of user-generated content on various products to understand its effects. The study's problem focused on how user-generated content varies in effectiveness across products and how it affects customer engagement, brand perception, and marketing. The primary objective is to determine which product categories benefit most from user-generated content and to identify category-specific strategies. In this study, both qualitative and quantitative methods were used. Utilizing a purposive sample with information gathered between January and April 2024. With an emphasis on the topics and categories of user-generated content, ten products' worth of Facebook and Instagram user material was analysed using the qualitative technique. Monitoring engagement metrics like likes, shares, comments, and total user involvement with user-generated content was part of the quantitative approach. To engage consumers, brands promoted customers to contribute images or videos to their sites with specific hashtags. They also used commenting techniques. The results indicate that the most engaging categories were those related to food and drink, where people shared images and videos of using the products. Lower levels of user-generated content engagement were seen in the household goods category, indicating that new approaches may be needed for these products to encourage user interaction. The conclusion emphasizes that, although user-generated content is a potent instrument for boosting authenticity and brand engagement, its efficacy differs depending on the type of product. While brands in lower-engagement categories may need to rethink their user-generated content strategies- perhaps by emphasizing storytelling or offering incentives for participation to make their products more approachable, companies in high-engagement categories should keep employing interactive hashtags and graphic user-generated content. This study emphasizes how crucial it is to customize user-generated content tactics to particular product categories to optimize marketing impact.

**Keywords:** *Brand Perception, Consumer Engagement, Products, User-Generated Content (UGC), Marketing Strategies*

## **Semiotic analysis of trauma and loss representation in *Purahanda Kaluwara (Death on a Full Moon Day, 1997)* by Prasanna Vithanage**

**Boyagoda, E.W.M.S., Siriwardhana, H.M.P.G.**

*Department of Languages & Communication Studies, Trincomalee Campus*

**Abstract** - A film is a complex social, psychological and aesthetic phenomenon, formed by a series of moving images filled with sound, then put together into a story. *Purahanda Kaluwara (Death on a Full Moon Day, 1997)* depicts the trauma and loss experienced by individuals due to the ethnic conflict in Sri Lanka. Through a semiotic analysis of the film, this study examines the visual and auditory narrative elements focusing on specific signs, symbols, and codes that convey the profound emotional and psychological impact of war. Psychoanalytic Film Theory is used as the theoretical framework of the study. The research concluded that the film director has captured the story of *Wannihami*, the blind old man and his children and blindness of *Wannihami* represented physical and metaphorical blindness his refusal or inability to see the reality of his son's death and a broader comment on the public's ignorance or denial about the true costs of war. It is found that the director focused the trauma and loss caused by ethnic conflict and used varieties of semiotic techniques such as visual metaphors, iconic, indexical and symbolic signs and cultural codes. The director used the sound effects of the natural environment and music enormously to represent the psychological impact of war on individuals and communities. The findings highlighted the director used signs and symbols and codes cinematographically to evoke empathy and provide a critical commentary on the socio-political realities of ethnic conflict in Sri Lanka. Therefore, it is established that film's visual and auditory elements have a narrative power to reflect and shape cultural discourses on trauma and conflict.

**Keywords:** *Prasanna Vithanage, Purahanda Kaluwara, Death on a Full Moon Day, Representation, Semiotic Analysis, Trauma and loss*

## **Digital Networking for Career Success; Exploring the Benefits and Barriers of LinkedIn Utilization among Undergraduate Students**

**Boyagoda, E.W.M.S., Samarawickrama, K.A.R.K., Upananda, M.G.C.L.**  
*Department of Languages & Communication Studies, Trincomalee Campus, EUSL*

**Abstract** - LinkedIn which was launched in 2003 serves as a professional networking platform specifically tailored to professional and career-oriented interactions. This study explored the patterns, motivations, and outcomes of LinkedIn utilization by undergraduate students of Trincomalee Campus, Eastern University, Sri Lanka, focusing on how they leverage the platform to enhance their career prospects and professional growth. The primary data collection method was the survey method and the total sample was sixty undergraduate students of the Faculty of Communication and Business Studies and the Faculty of Applied Science, Trincomalee Campus. The Technology Acceptance Model (TAM) provided the theoretical background for the study. Findings revealed that most undergraduates perceive LinkedIn as a critical tool for finding an internship and entering the job market. They use LinkedIn to connect with industry professionals, and companies join groups relevant to their career interests. Additionally, the study highlighted the role of LinkedIn in facilitating internships and entry-level positions, with many students reporting successful job placements through the platform. The research also revealed the challenges students face, such as difficulty of creating a professional profile and maintaining consistent engagement. The implications of these findings suggested that universities should integrate LinkedIn training into their career services to better prepare students for the competitive job market. Enhancing digital literacy and providing guidance on effective LinkedIn strategies could significantly boost students' employability and professional development.

**Keywords:** *LinkedIn, Benefits of LinkedIn Utilization, Barriers of LinkedIn Utilization, Undergraduate Students*

## **Representation of Transgender Community in Sri Lankan Cinema with Special Reference to Film "Maya" - A Content Analysis**

**Kuruppu, I.A., Nasootha, I.**

*Department of Languages and Communication Studies, Faculty of Communication and Business Studies, Trincomalee Campus, Eastern University, Sri Lanka*

**Abstract** - This study examines the representation of the transgender community in Sri Lankan Sinhala cinema with special focus on the 2016 film "Maya" directed by Donald Jayantha. It represents a rare and vital portrayal of transgender people in the socio-cultural context of Sri Lanka. Maya; a remake of the Indian film "Kanchana". It adapts into the Sri Lankan context, potentially highlighting issues relevant to the local LGBTQ+ community. Through the cultural adoption like using Sri Lankan settings, customs, and societal norms that reflect the specific challenges faced by LGBTQ+ individuals in Sri Lanka and family dynamics. The film explores how local LGBTQ+'s navigates their identities within the family, highlighting conflicts and eventual resolutions that resonate with Sri Lankan viewers. The use of public reaction and dialogues also highlight issues relevant to the Sri Lankan LGBTQ+ community. This content analysis focuses on the film's narrative structure, character development, and thematic elements to understand how transgender identities are portrayed. This qualitative research based on thematic analysis, analyses key scenes, dialogues, sound effects and character interactions to identify underlying messages about gender identity and social acceptance. The main objective is to analyse the portrayal of transgender characters in the film 'Maya', focusing on their characterization, narrative significance, and the cultural context within which they are presented. The findings reveal that "Maya" attempts to humanize transgender characters by offering a nuanced perspective that challenges traditional stigma. The film reflects the inherent biases and cultural stereotypes within Sri Lankan society. By juxtaposing moments of empathy with moments of marginalization, "Maya" serves as a mirror of Sri Lanka's complex and often contradictory attitudes toward transgender people. This study contributes to a broader discourse on LGBTQ+ representation in Sri Lankan cinema, highlighting the potential of films such as "Maya" to influence and reshape social narratives. The analysis underscores the need for more inclusive and authentic representations that move beyond symbolism to create a deeper comprehension and acceptance of transgender communities. The research concludes by advocating for increased visibility and positive representation in the media as a catalyst for social change and equality.

**Keywords:** *cinema, Maya, representation, transgender*

## **Identifying the Creative Communication Strategies in Epic Movies in Sri Lanka – Special Reference to “Yashodara” Movie – A Content Analysis**

**Dananjana K.K.G.C.M**

*Department of Languages and Communication Studies, Trincomalee Campus, Eastern University, Sri Lanka*

**Abstract** - This study examines the identification of creative communication strategies in epic films of Sri Lankan Sinhala cinema, focusing on the 2018 film "Bimbadevi Hewath Yashodhara" directed by Professor Sunil Ariyaratne. Produced by H.D.Premasiri, the movie “Yashodhara” portrays the life of Yashodhara Devi, the wife of Prince Siddhartha. This content analysis shows how an epic film has presented various creative communication strategies through its theme, story characters, narrative and cinematographic techniques. The research uses qualitative methodology by analysing key scenes, dialogues, sound effects, symbols, story and camera angles. The researcher uses content analysis to collect data and thematic analysis to analyse the data. The objective of the researchers is to identify the historicity and creativity through the use of creative communication strategies. Attitudes are reflected in audience reactions, reviews and discourse surrounding the film. Findings from the film "Yashodhara" reveal that the film's historicity and creativity have been successful through creative communication strategies. The findings revealed that the characters in this film are based on a historical background. It was recognized that the filmmaker has portrayed the historicity more through their costumes, makeups etc. It was found that the main character of the film, Yashodhara, has better portrayed the historicity through jewellerys, costumes and make-up. Historical language was seen in the dialogues of the film, and musical instruments, music, etc. were all created closer to the past. Through all this it was possible to conclude that the creative communication strategies are best depicted in the movie "Yashodhara" by Professor Sunil Ariyaratne. However, the film has been recreated using creative techniques based on a unique plot based on the Sri Lankan religious environment. The research concludes to highlight the historicity and creativity effectively used the creative communication strategies in “yashodara” movie.

**Keywords:** *epic, Yashodara, creative strategies, communication*

## **Impact of Agricultural Risks on Farmers' Climate Change Adaptation in Riverbed and Rainfed Areas of India**

**Sadasivam, K.**

*Department of Environmental Economics, School of Economics, Madurai Kamaraj University, India*

**Abstract** - This study examines how farming risks and climate change adaptation strategies interact in the Riverbed and Rainfed areas of Madurai, India. Despite being a major food producer, India faces declining agricultural GDP and a growing population dependent on farming. The objective is to highlight the strategies farmers use to adapt to climate change and the challenges they face in ensuring food security and livelihood sustainability. The research adopts a qualitative approach, using structured interviews with 200 farming households—100 each from Usilampatti taluk (riverbed) and Thirumangalam taluk (rainfed). Data analysis through linear regression and independent sample t-tests reveals significant differences between the regions. Riverbed farmers often rely on strategies like changing harvest times and agroforestry, while Rainfed farmers frequently use pesticides and crop rotation. Income sources and farming costs also differ, with Rainfed farmers facing more production and market risks. The regression model shows a significant relationship between increased farming risks and the adoption of climate change strategies. Levene's test and t-tests confirm notable disparities in crop cultivation, crop selection rationale, income sources, and farming expenses between the regions. The findings reveal a significant and meaningful connection between the challenges faced by farmers in the agricultural sector and their proactive measures in adopting mitigation strategies to combat the adverse impacts of climate change.

**Keywords:** *Agriculture Resilience, Climate change, Mitigation strategies, regional disparities*

## **Navigating environmental justice in renewable energy development: challenges and opportunities**

**Selvakumar, S.**

*Department of Philosophy, Faculty of Arts, University of Peradeniya, Sri Lanka*

**Abstract** - The pursuit of renewable energy sources stands as a beacon of hope in the fight against climate change, promising cleaner air, reduced greenhouse gas emissions, and greater energy security. However, the path towards a sustainable energy future is fraught with complexities, particularly concerning the principles of environmental justice. In the context of renewable energy development, these raises crucial questions about the distribution of costs and benefits, community engagement, and the protection of vulnerable populations. One of the central challenges in navigating environmental justice concerns is the potential for renewable energy projects to inadvertently perpetuate or exacerbate existing social inequalities. Marginalized communities, often located in close proximity to industrial facilities or resource-rich areas, may bear the brunt of environmental impacts such as noise pollution, habitat destruction, or displacement. Moreover, decision-making processes surrounding renewable energy projects are not always inclusive, with communities lacking meaningful opportunities to participate in planning and decision-making processes. However, amidst these challenges lie opportunities for transformative change. Renewable energy development presents an opportunity to address historical environmental injustices by prioritizing the needs and voices of marginalized communities. The objectives are Ensure that the economic, environmental, and health benefits of renewable energy projects are distributed fairly among all communities, while avoiding the disproportionate placement of burdens on marginalized communities, Engage all stakeholders, especially marginalized communities, in the planning and decision-making processes for renewable energy projects to ensure their concerns and preferences are incorporated, Guarantee that renewable energy projects increase access to clean and affordable energy for all communities, including those historically underserved by traditional energy infrastructure. In conclusion, the pursuit of environmental justice in renewable energy development requires a holistic approach that addresses the intersecting social, economic, and environmental dimensions of sustainability. The fairness, equity, and inclusivity, stakeholders can harness the transformative potential of renewable energy to advance environmental justice and build more resilient and equitable communities for future generations.

**Keywords:** *Justice, Development, climate, greenhouse*

## **Assessment of sustainable approach for Waste management in Jaffna Town-Case study**

**Recopayam, J., Raveendran, S.**

*Department of Geography, University of Jaffna, Sri Lanka*

**Abstract** - This research assesses sustainable waste management approaches in Jaffna town. Urban society rejects and generates waste materials regularly due to increasing consumption. Improper waste disposals pollute all vital components of the urban environment. This research aims to formulate measures to enhance the sustainability of Jaffna Town by assessing its solid, liquid and gaseous waste flows. This study is based on the urban metabolic concept. Primary data on daily household waste disposal were collected through questionnaires from 100 samples using stratified random sampling. Collected data on output was analysed using SPSS packages. Further, key informant interviews with officers of the Jaffna municipal council, field observation of the study area, and discussion with each sample household were conducted. Data on waste generation and management of the Municipal Council were also analysed. This study showed that 86 % of food, 69.9 % of water, 29 % of cloth discarded where 28.7% of solid waste are directly disposed in the environment including whole gaseous waste with no recovery. Around 11.8 % of solid waste managed by the Jaffna municipal council, is openly dumped at Kallundai due to unsegregated waste. All demolished building material is recycled. Besides, the total output of food, water and energy is 60 tons. Approximately 48 tons result in waste streams causing environmental consequences and 12 tons are recycled and reused as input to the environmental system. Once consumed building materials, clothes and furniture remain in the loop as a stock after their initial consumption. Appropriate strategies to promote this linear waste flow such as optimum use of resources, application of the 5Rs system, circular economy, zero waste initiatives, green building, green procurement, regulatory and policy measures, urban mining, polluter-pays principle, strengthening public participation, extended producer responsibility and smart waste management systems are recommended.

**Keywords:** *sustainable approach, urban sustainability, waste management, waste flow*

## **Solochrome Black T removal from aqueous solution using raw rice husk and rice husk biochar as a cost-effective adsorbent**

**Venujah, P., Sabrina, S. T. F., Arasaretnam, S.**

*Department of Chemistry, Faculty of Science, Eastern University, Sri Lanka*

**Abstract** - Dye bearing effluents are now a significant environmental concern, and the removal of these synthetic dyes from water bodies is of particular importance due to their different detrimental and non-biodegradable nature. The current study aimed to evaluate the potential of raw rice husk and rice husk biochar as an affordable, sustainable adsorbent for the removal of Solochrome Black T from aqueous solutions. The raw rice husk was characterized using the FT-IR. The performance of raw clay for dye adsorption was tested in this work based on initial concentration, adsorbent dosage and temperature. The effect of Initial concentration of Solochrome Black T (50-250 mg/L) has been investigated. The results indicated that maximum adsorption of Solochrome Black T on raw rice husk is much dependent on the concentration of dye solution and occurred at 100 mg/L. Rice husk was pyrolyzed at various temperatures ranging from 500°C to 900°C in order to assess the impact of the process on the removal of Solochrome Black T. It was clear that the color removal efficacy of biochar was higher than raw rice husk. The rice husk biochar sample that was pyrolyzed at 800 °C removed up to 91% of the color from the solution. The finding might be attributed to the increase of surface area with temperature and the activation of silicon base functional groups. The Langmuir and Freundlich models were used to analyze the removal of Solochrome Black T dye by pyrolyzed rice husk.

**Keywords:** *Adsorbent, Biochar, Dye, Rice husk, Solochrome Black T*

## **Exploring the potential of adoption of indigenous plants for promoting Agri-tourism in Sri Lanka**

**Jayasinghe, J. K. V. M.<sup>1</sup>, Nanayakkara, N. A. P. S. R.<sup>2</sup>, Perera, P. K. U.<sup>3</sup>, Mahaliyanaarachchi, R. P.<sup>4</sup>.**

<sup>1</sup>*Department of Indigenous Health Sciences, Gampaha Wickramarachchi University of Indigenous Medicine, Sri Lanka,*

<sup>3</sup>*Department of Tourism Studies, Uva Wellassa University of Sri Lanka,*

<sup>4</sup>*Department of Agri-Business Management, Sabaragamuwa University of Sri Lanka*

**Abstract** - Agri-tourism has always been a specialized area in Sri Lankan tourism sector which is designed to provide tourists with an authentic and valuable experience of Sri Lanka's rural life and agricultural landscape. Despite its importance towards the country, the integration of several practices for promoting this area still remains unexplored. This paper explored the potential for integrating indigenous plants as a catalyst for promoting agri tourism in Sri Lanka whereas indigenous plants on an agritourism farm refer to plant species that are native to the region where the farm is located and have been evolved and adapted to the local climate, soil, and ecosystem specific to their environment. Through a qualitative approach, semi structured interviews were conducted using the purposive sampling technique which included a diverse range of respondents including tourists, farmers, local community members and government officials in order to gather data. The data was analyzed using the thematic analysis. The findings of the research revealed safeguarding Sri Lanka's rich cultural legacy, highlighting the necessity of sustaining traditional farming methods, offering a unique cultural experience for the tourists through activities such as farm-to-table dining experiences, guided tours within the farms, hands on experience on planting, harvesting, and tending to indigenous plants, herbal workshops and demonstrations conducted by the farms regarding indigenous plants, cooking classes where they can learn how to prepare traditional dishes using indigenous plant ingredients, cultural festivals which enables them to engage with the natural environment, local heritage and traditions and creating a potential market niche for indigenous plants due to the rising global interest for organic and native products as the potential benefits of adopting indigenous plants in promoting the agri-tourism in Sri Lanka. Lack of awareness among tourists and local community regarding the value of indigenous plants, limited infrastructure including access to markets and transportation facilities for selling indigenous products and lack of government support were identified as the barriers. By investigating these factors in integrating indigenous plants in promoting agri-tourism in Sri Lanka, this study aims to provide insights and recommendations for stakeholders involved in the development of agri-tourism in Sri Lanka.

**Keywords:** *Agri-tourism, Culture, Indigenous plants, Rural development, Sri Lanka*

## **Performance and Prospects of Crop Production in India: Critical account of Selected Crops over Seven Decades of Indian Experience**

**Kannan A.**

*Department of Environmental Economics, School of Economics, Madurai Kamaraj University, Madurai, Tamil Nadu, India*

**Abstract** - This article attempts to analyse the performance and prospects of selected crops in Indian agriculture over the past seven decades since independence. Based on macro level data on area production, quantity production, and yield on food grains, in general and for selected crops such as rice, wheat, nutrient cereals, and pulses in particular in India, the study reveals considerable variations in overall growth rates on area cultivation, production, and yield from 1950–51 to 2020–2021. The data shows fluctuations in production growth rates over time for each crop, influenced by various factors such as weather conditions, government policies, technological advancements, and market demand. Some crops exhibit more consistent growth patterns over the years, while others show greater variability. This is particularly true between the pre-green revolution and post green revolution and the pre-reform and post reform periods in India. However, the entire analysis is positive for the performance and prospects of the above crops in India during the assessment periods. Based on the outcomes of the annual growth rates and regression analysis, the production levels of food grains, rice, wheat, maize, and pulses generally appear to be stronger before the implementation of the LPG policy (1960–1990) compared to after its implementation (1991–2020) in Indian agriculture. The post-green revolution in India has significantly increased the production and productivity of all food crops, particularly wheat, due to improved agricultural strategies compared to pre-green revolution periods. The study shows increased in cultivation area, output volume, and yield of rice, wheat, and pulses, but a decline in nutrient cereal production between 1950–51 and 2020–21. The study suggests that increasing food crop production is crucial for improving food security and nutritional security, especially in India, and achieve the sustainable development goal of zero hunger.

**Keywords:** *Liberalization, Performance, Production, Productivity, Sustainable Development*

## **Infestation of different spices by Cigarette beetle *Lasioderma serricorne* (F.) (Coleoptera: Anobiidae)**

**Senevirathne, W. M. S. S., Premathilaka, P. A. P. I., Egodawatta, W. C. P., Wijayaratne, L.K.W.**

*Department of Plant Sciences, Faculty of Agriculture, Rajarata University of Sri Lanka, Anuradhapura, Sri Lanka.*

**Abstract** - The culinary and therapeutic properties of spices make them rather important. Despite numerous studies on *Lasioderma serricorne*, the cigarette beetle, information on its progeny production in certain spices still remains unexplored. The objective of this research was to study the progeny production of *L. serricorne* in several locally-available spices. Newly-emerged *L. serricorne* adults were introduced to selected spices. Samples were maintained at 30°C and 65% relative humidity. Following two weeks of introduction, the adults were removed, and progeny emergence was obtained at 1-month intervals for three consecutive months. The data in three different months were separately analyzed using ANOVA procedures of SAS. Mean separation was done by Turkey's test at  $P \leq 0.05$ . The highest number of progeny (larvae, pupae and adults) emerged in fenugreek followed by curry leaves, local turmeric, and Indian turmeric. The lowest progeny (larvae, pupae and adults) emerged in cinnamon, clove, chilli, and pepper. One month following the infestation, only larvae and pupae were available but no adults developed. In the second month, all the life stages (larvae, pupae, and adults) emerged in spices. In the third month, larvae and adults emerged, but pupae were not found in the samples. This study concludes that *L. serricorne* damages and reproduces in a broad range of spices. The findings provide important information on the infestation of spices by insects during storage which will be useful for the protection of these commodities. Further, the spices having high progeny emergence could be used in mass rearing of this insect species for experimental purposes.

**Keywords:** *Adults, Cigarette beetle, Progeny production, Spices, Storage*

## Development of Set Yoghurt in Combination with Gelatin and Glasswort (*Salicornia europaea*) Agar as Texturizers

Jasira, J. F<sup>1</sup>, Nimalan Jeyagowri<sup>2</sup>, Lakmini, G.W.A. S<sup>3</sup>

<sup>1,3</sup>Department of Agricultural Technology, Faculty of Technology, University of Colombo, Homagama, Sri Lanka,

<sup>2</sup>Department of Bio Science, Faculty of Applied Science, University of Vavuniya, Sri Lanka.

**Abstract** - This study was focused on developing a set yoghurt in combination with Gelatin and Glasswort Agar (*Salicornia Europaea*) that was prepared as an alternative to gelatin in the yoghurt manufacturing industry. Glasswort samples were collected from the Kalpitiya area and underwent preparation, agar extraction, chemical pretreatment, filtration, gelation and drying procedures. Different formulas were prepared according to the different concentrations of liquid Glasswort Agar (GA) and Gelatin as Stabilizers. Both stabilizers were added to the conventional recipe of yoghurt in respective concentrations of (T1 = 1.2% GA), (T2 = 1% GA: 0.2% Gelatin), (T3 = 0.8% GA: 0.4% Gelatin), (T4 = 0.6% GA: 0.6% Gelatin), (T5= 0.4% GA: 0.8% Gelatin), (T=6 Control 1.2% Gelatin). After the development of yoghurts, Sensory attributes, and overall acceptability were measured using thirty (30) semi-trained panelists with five (5) points hedonic scale and selected the best formula with higher consumer acceptance. The selected formula and the control sample were analyzed for physio-chemical and chemical properties. Percentages of Moisture (M%), Crude Ash (CA%), Crude Fat (CF%), Crude Protein (CP%), Crude fiber (CF%), and Carbohydrates (C%) were analyzed as Chemical Properties. All the analysis was carried out according to the AOAC procedures. The pH and Titratable Acidity (TA) were analyzed as the physicochemical properties at the date of production and during the 21-day storage period. Total Yeast & Mold count and E. coli counts were enumerated at the date of production. All the parametric and non-parametric data were analyzed using MINITAB – 14 versions at 0.05 significant levels. Set yoghurt in combination with T4 acquired the highest sensory acceptance. Proximate results revealed that 79.5% ±0.10 of M%, 0.73% ± 0.12 of CA%, 3.5% ±0.02 of CF%, 5.5% ±0.01 of CP%, 1.81±0.01 of CF% and 10.77% ±0.02 of C% in T4 sample. There were no significant differences in the proximate values with the control sample. The T4 sample had higher CF% and Low C% compared to the control sample. Physicochemical results revealed a pH of 4.8 ± 0.05 and a titratable acidity of 0.84% ± 0.01. Both were within the acceptable limits and did not show significant differences compared to the control sample. The pH and TA% varied between from 4.8 to 4.38 and 0.84 to 1.18 respectively during the 21 days of storage period. The Yeast and mold counts were within the acceptable limit for both samples. E. coli was not detected in both samples. It can be concluded that Set yogurt in combination with Gelatin and Glasswort Agar (T4 = 0.6% GA: 0.6%) formulation maintained the best sensory attributes, and chemical and physicochemical parameters at the production. Microbial counts were within acceptable limits at the date of production and the pH and TA% were within the acceptable limits during the 21 days of storage period without adding any chemical preservative.

**Keywords:** *Glasswort Agar, Gelatin, Proximate, Microbial, Set Yoghurt*

## **A study of Sri Lanka's potential in optimizing the economy to being a blue economic hub in the South Asian region**

**Sampath, T.M.I.**

*Department of Economics, University of Colombo, Sri Lanka*

**Abstract** - Sri Lanka can be identified as a strategic geographical location for transportation hub in the world. Country's location can be identified as a crucial place on the ancient Silk Road, its strategic positioning generates natural centre for trade and logistics in the south Asian region. Sri Lanka's maritime area includes approximately 1,640 km of the country's coastline and it covers 24% of the total land area across the country. It is identified that provide direct beneficiaries to 32% of the population. The economy is rich with 4 commercial ports and 22 fisheries harbours. According to the data the economic contribution for the industrial output is 65%, 80% of tourism-related infrastructure, and 80% of fish production.

This paper will discuss the potential in optimizing the economy being a blue economic hub in the south Asian region. This study was conducted with the objective of identifying potential in optimizing the economy being a transportation hub in South Asian region. Research methodology used for the study was mixed method of quantitative and qualitative using available secondary data collection. This study has identified that the economy has the potential on developing the economy as a global blue economic hub with economic and policy changes. Reducing regulations on trade and logistics, investing on blue value chains, developing the capacity on innovation & technology, attracting global talent can be identified as the major changes can be done in the economy.

This study recommends to having sustainable and in-depth research and implement related policies considering the potential changes. Consider trade regulations and sustainable plans to develop the facilities and space before implement policies. It will generate positive results to be a global blue economic hub in South Asian region.

**Keywords:** *Blue Economy, Blue value chains, Economic Development, Gross Domestic Product, International Trade*

## **The Spectrum of Blue in Sri Lankan Literary Canon: with Special Reference to Nayomi Munaweera's *Island of a Thousand Mirrors***

**Gunasinghe, G.L.S., Supun, M.K., Savarimuttu, J.S.R.**

*Department of Languages and Communication Studies, Trincomalee Campus, Eastern University, Sri Lanka*

**Abstract** - In *The Truest Poetry* literary critic Laurence Lerner identifies nonliteral language of the novel as cognitive interferer within the expressiveness —the dramatization with lyrics and humanness with the fullness of aesthetic perfection. This study takes the position on Sri Lankan literary canon searching for blue writing fragments with special reference to Nayomi Munaweera's acclaimed novel *Island of a Thousand Mirrors*. This qualitative study employs colonialism and socio-cultural implications as a critical tool or methodology to read towards the depiction of blue literature in Sri Lankan literary canon. Against the backdrop of colonialism and the civil war in Sri Lanka, this analysis explores how the spectrum of blue symbolizes multifaceted themes, emotions, and historical trajectories. This narrative related to the ocean and shades of blue serve as potent metaphors reflecting the complex experiences of the Sri Lankan society. Furthermore, the tremendous impact of the thirty-year civil war emerges through the motif of blue that indirectly represents the sea, manifesting itself as both a symbol of mourning and resilience. The azure waters surrounding the island nation become a pathetic backdrop to the stories of loss, displacement, and longing experienced by its inhabitants amidst the tumult of conflict. Yet, amidst the turmoil, shades of cerulean and turquoise offer glimpses of resilience, solidarity, and the enduring spirit of survival. By elucidating its symbolic significance within the context of colonialism and civil strife, this research contributes to a deeper understanding of Sri Lanka's cultural identity and collective memory.

**Keywords:** *Blue Literature, Civil War, Colonialism, Island of A Thousand Mirrors, Ocean*

## **The traumatic experience of 21st century maritime tragedy: an archetypal reading of Sonali Deraniyagala's *Wave***

**Fernando, D.T.N<sup>1</sup>, Savarimuttu, J.S.R.<sup>2</sup>**

<sup>1</sup>*Department of English, University of Mysore, Karnataka, India,*

<sup>2</sup>*Head of the Department of IT, Trincomalee Campus, Sri Lanka*

**Abstract** - *Wave: A memoir of life after the Tsunami* is a heart-breaking yet enticing first-hand experience of a Sri Lankan writer Sonali Deraniyagala who unsympathetically lost the whole family to the unnamed disaster in 2004 which was coined as Tsunami aftermath that destructed the coasts of northern Sumatra and the Nicobar Island remaining the pathos of humanity. This study cynosures to encounter the meanings of several archetypal images such as the mother, the sea or the ocean, blue, water and chest that can be scrutinized throughout the respective story while diving into the immeasurable grief of the writer to touch upon the psychological behaviours of the entire humankind during such kind of horrible incident. Chronologically penning down the traumatic tragic experience that the writer had to unfathomably undergo as a way of sear from her trauma, she depicts the human nature in front of the unexpected disasters. Further, this blue literary piece emphasizes the presentation of an archetypal image of the sea and water concurrent with death, rebirth and unconsciousness while using a blue colour which symbolizes trust and faithfulness that grants an opposite adventurous sentiment to the writer's entire life. To conduct this study the researchers, use textual analysis as the method with the aid of archetypal criticism to move through the hidden psychological aspects of the individuals. Finally, this qualitative research marks the connection of collective unconsciousness of archetypal images with psychoanalytic theory including the unconscious motivations, desire to life, trauma and mourning and the farthest of defence mechanism.

**Keywords:** *archetypal, blue literature, psychoanalysis, trauma, unconscious*

## **Inclusiveness and Furtherance: A Blue Cultural Perception in Yann Martel's *Life of Pi* and Amitav Ghosh's *The Hungry Tide***

**Isaac, Jasmine M.**

*The Research Department of English, The American College, Madurai, India*

**Abstract** - Over the time Postcolonialism and Capitalism have deviated and suppressed Blue studies. The twenty-first century academia hinges on water centric thinking. The fresh perspective views Ocean as a subject in themselves than seeing it simply as a crossing body. This modern discourse aims to study man's ecological associations with nature especially the sea, water bodies and lives in it. Literature especially is an agency to sensitize mind towards nature and abounds to vast interpretations. The interdisciplinary perception focuses on inclusiveness and preservation of water and its life forms in tandem with man's existence in the ecosystem. The narratives also aim to discuss about man's vulnerable part in endangering the biosphere. The two phenomenal works *Life of Pi* and *The Hungry Tide* call for attention towards aquatic lives and man's crucial role in it. The ironical twist at the end of *Life of Pi* speaks volume of animal characters replacing man emphasizes the importance of such narratives in literature. Considering *The Hungry Tide*, the behavior and the survival of Irrawaddy Dolphins, Gangetic Dolphins and Tigers are surveyed by a researcher to alert its extinction and encroachment of their habitats. These works prove Literature can serve the purpose of furthering marine cultural study in a serious and penetrating way in young minds.

**Keywords:** *Blue Literature, Cultural Fantasy, Ecologism, Marine Alterity, New Thalassology, Symbolology*

## **India's Blue Economy: Tracing its past, evaluating the present, and envisioning the future**

**Indra, T.**

*Department of Mathematical Economics, School of Economics, Madurai Kamaraj University, Madurai, India*

**Abstract** - The blue economy represents a vital aspect of sustainable development, harnessing ocean resources to drive economic growth while preserving marine ecosystems. This study aims to provide a comprehensive analysis of the blue economy in India, focusing on its historical context, current dynamics, and future prospects. The research adopts an econometric approach to analyse data from various sectors contributing to the blue economy, including fisheries, shipping, coastal tourism, and renewable energy. It employs a range of econometric tools, including time series analysis, and panel data analysis, to assess the impact of investment levels, regulatory frameworks, technological advancements, and climate change indicators on GDP contribution, employment generation, and marine ecosystem health. By reviewing historical data, it highlights critical milestones in the development of marine industries, addressing the socio-economic impacts on coastal communities. In the evaluation phase, the study analyses the present state of India's blue economy, focusing on its contribution to GDP, employment, and the overall health of marine ecosystems. The analysis reveals disparities in resource allocation and the need for inclusive policies that empower marginalized communities dependent on marine resources. The impact of climate change on coastal ecosystems and livelihoods is also scrutinized, emphasizing the urgent need for adaptive strategies to mitigate risks and enhance resilience. Looking towards the future, the study envisions pathways for enhancing the blue economy's potential while ensuring environmental sustainability. The findings of this study have significant implications for policymakers, industry stakeholders, and academic researchers. By providing empirical evidence on the interrelationships between various factors influencing the blue economy, the research contributes to the ongoing discourse on sustainable development in India. It advocates for a multi-faceted approach that combines economic growth with environmental stewardship, ensuring that the benefits of the blue economy are equitably distributed among all stakeholders.

**Keywords:** *blue economy, economic growth, sustainable development*

## **Trend Analysis of Production, Consumption and Trade of Fish in India**

**Suthacini, V.**

*Department of Agricultural Economics, School of Economics, Madurai Kamaraj University, Madurai, India*

**Abstract** - Fisheries emerged as an important source of food, protein, nutrition, livelihood and employment for majority of the rural population. Aquaculture production can be classified into production from inland and marine sectors. The fisheries sector has registered a sustainable and a stounding growth rate over the last decade. The sector offers an attractive and promising future for employment, livelihood and food security (Syam. S. Salim, 2016). In India, fish contributes extensively towards domestic food security and it has registered a per capita consumption of more than 6 kg per annum. In addition to the nutritional security provided it also helps in bringing more livelihoods to the rural households. Aquaculture has been regarded as the fastest growing sector. Fish is considered to be an affordable as well as one of the rich sources of animal protein and the healthiest choice to weaken the problems of hunger and nutrient deficiency. As the world's population increases rapidly, especially in Asia Fisheries and aquaculture provide the essential source of livelihood and high-quality proteins which is easily accessible to the poor. It provides nutritious food with high-quality proteins with essential fats like long-chain omega-3 fatty acids, essential proteins with amino acids, minerals like iodine, iron, calcium, zinc etc. The study aims to analyse the trend and relationship between Production and Consumption of Fish in India and also aims to study the trade pattern of Fish in India. The present study is based on the available secondary data from various sources like Handbook on Fisheries Statistics 2022 by Government of India and other reports. In this analysis tools like Correlation, Compound Growth Rate and Linear Regression Analysis are used. The study found that the overall production of fish in the nation has shown a tremendous increase and had a non-excludable role in the country's fish production. It was also found that per capita fish consumption and its demand is increasing day by day.

**Keywords:** *Aquaculture, Food security, non-excludable*

## **Legitimization of inequality under the Legitimacy Act of Sri Lanka**

**Ahamed, M.M.A., Purathani M.**

*Department of Law, University of Jaffna*

**Abstract** - A child is known as an extra-marital child if the biological parents of the child did not marry each other at the time of the birth of the child. In Sri Lanka, the marital status of the parents plays an important role in conferring legal rights to a child. For example, the inheritance laws in Sri Lanka are more favourable to the legitimate children in succeeding intestate property. However, the Legitimacy Act No. 03 of 1970 (the Act) was enacted to legitimize the children born to parents who were not married to each other either before or after the date of commencement of the Act, by contracting a subsequent valid marriage by their parents, and to confer them the rights of legitimate children. The Act has recognised the inheritance rights of the children whose parents contracted a valid marriage under the Marriage Registration Ordinance (General) subsequent to their birth. It has neither recognised their equal right of inheritance nor removed the concept of illegitimacy. In this context, this study intends to explore how and why the Act discriminates the children on the grounds of birth and marriage. This research employs a socio-legal research method in the purview of qualitative paradigm to examine the effect of the Legitimacy Act. The finding of the study reveals that the Act excludes, restricts, deprives, distinct and denies the inheritance rights of children on the grounds of birth and marriage as the legislature intended to promote monogamous marriages in Sri Lanka and thereby penalized the children who are pro-created out of the marriages. Hence, this study emphasizes that extra-marital children are individuals capable of asserting legal rights without any discrimination. It further recommends the possible means of recognizing their equal right of inheritance in the pluralistic legal system of Sri Lanka.

**Keywords:** *Equality, extra-marital children, inheritance, Legitimacy Act*

## **The Community Participation in Furtherance of The Right to Self Determination in International Law; An Analysis of The Chagos Archipelago Dispute**

**Ishara Kumudumalee Munasinghe**

*Faculty of Law, General Sir John Kotelawala Defence University, Sri Lanka*

**Abstract** - The right to self-determination (hereinafter referred to as RSD) in international law has been a dynamic and controversial theme in the contemporary global context. It is evident that the popularity of interventionists or amicus curiae participation in the RSD proceedings of the International Court of Justice (hereinafter referred to as ICJ) has increased, sustaining the plausibility of the right. The Legal Consequences of the Separation of the Chagos Archipelago from Mauritius in 1965, was the latest RSD matter referred to the ICJ by the United Nations to obtain an advisory opinion, which concluded in 2019. According to the case, Mauritius has consistently maintained its claim over the Chagos Archipelago, arguing that the United Kingdom's assertion violates United Nations Resolutions that forbid the separation of colonial territories before they achieve independence. Mauritius has consistently asserted its ownership of the Chagos Archipelago, contending that the United Kingdom's claim represents a breach of United Nations resolutions which prohibit the separation of colonial territories prior to their attainment of independence. In this manner, the study attempts to find the answer to the research problem of which part of the world have mostly utilized the community participation as a norm in furthering of the RSD as a plausible right in international law with reference to the Chagos Archipelago case. Having answered the above problem, the study achieves the objectives of identifying the status of community participation at the continental level, in the way of submissions of amicus testamentary, in furthering the RSD in terms of the referred case law. The literal approach and international and comparative methodologies were adopted to analyze the primary and secondary qualitative data related to the case study. In this regard, 29 amicus submissions were considered where 03 submissions were excluded from the analysis as those briefs were forwarded to the ICJ by a union of states and two states which directly involved in the dispute, Mauritius and United Kingdom. Finally, the study explored and concluded that the highest community participation at the continental level in this case, in the way of submissions of amicus briefs, has been found from the European Union with the amicus intervention of eight states.

**Keywords:** *Amicus Briefs, Amicus Curie, Chagos Archipelago, Plausibility, Right to self-determination*

## **Unveiling LGBTIQ Community' Activism; Insights from the Gotagogama Protest for Advancing Social Justice and Rights**

**Pathirana, N.C., Gunarathna, I.U.**

*Department of Sociology, Faculty of Arts, University of Peradeniya, Sri Lanka*

**Abstract** - This study delves into the transformative dynamics of LGBTIQ community activism during the Gotagogama Protest in Sri Lanka, with the objective of showing how the LGBTIQ community strives to build a space in the country. Through qualitative methods, including thematic analysis of interviews and content analysis of YouTube videos, the research investigates the multifaceted experiences, contributions, and challenges faced by individuals within the LGBTIQ spectrum. Key findings reveal the activism's substantial impact on Sri Lanka's socio-political landscape, highlighting policy shifts, attitudinal changes, and modifications in public discourse, all analysed through the lens of Social Movement theory. The study uncovers both the accomplishments and the limitations of the LGBTIQ community's involvement in the protest, shedding light on the difficulties and discrimination encountered. This study enriches the understanding of the Gotagogama Protest's contextual significance, underlining the critical role of inclusivity and diversity in the pursuit of social justice and equal rights. The findings provide valuable insights into how LGBTIQ activism catalysed changes in legal frameworks, societal norms, and public debates, ultimately offering recommendations for strengthening LGBTIQ advocacy to promote a more inclusive society.

**Keywords:** *Gotagogama Protest, LGBTIQ Activism, Political Engagement, Social Justice, Socio-political Impact*

## **An analysis of the effectiveness of the preventive measures of indirect biodiversity loss in the Sri Lanka laws**

**Wickramaarachchi, R. J. F.**

*Department of Legal Studies, Faculty of Humanities & Social Sciences, The Open University of Sri Lanka, Sri Lanka*

**Abstract** - This research aims to analyze the effectiveness of the preventive measures of indirect biodiversity loss in the Sri Lankan laws. As a developing country, Sri Lanka has been experiencing a massive biodiversity loss over the past decades. Sri Lanka has introduced and implemented a legal framework including the Fauna and Flora Protection Ordinance No 2 of 1937, National Environmental Act No. 47 of 1980, Fisheries & Aquatic Resources Act No. 02 of 1996, National Heritage Wilderness Areas Act No. 03 of 1988 and many more to prevent biodiversity loss through direct or intentional ways such as deforestation, bio piracy and land reclamation. However, even while these laws are in force it can be observed that there are numerous new ways by which considerable contributions to the biodiversity loss both direct and indirect ways can be caused. Some of those new methods include activities in peak wilderness areas such as over-exploitation of land and other environmental resources for the construction of buildings for religious purposes and hospitality industry, reforestation without feasibility studies, unknown effects of industries, non-removal of land mines in the some non-international armed conflict - affected areas and improper landscaping. In this research, how the inattentive causes contributed to biodiversity loss was investigated using the qualitative methodology. Accordingly, for this purpose, a number of primary and secondary sources were perused such as environmental publications, environmental legal framework, new technological publications, environmental conventions, and environmental laws of countries with least biodiversity. It is revealed that the existing legal framework is insufficient to address the issues relating to biodiversity loss and especially the issues relating to developmental activities. Also, it is revealed that there are number of other factors that contribute to biodiversity loss by inattentive ways such as the absence of up-to-date environmental laws, inability to bring new legislations or amendments to the existing laws, lack of up-to-date proper legal assessment of biodiversity loss while implementing environmental laws. It is recommended to improve the Sri Lankan legal framework with incorporating more updated knowledge in this area to prevent further biodiversity loss in Sri Lanka

**Keywords:** *Biodiversity loss, Legal framework, environment, Sri Lanka*

## **The impact of technology on privacy rights: legal policy and reform perspectives**

**Selvakumar, S.**

*Department of PHealth benefits of types of water according to ancient Ayurveda texts philosophy, Faculty of Arts, University of Peradeniya*

**Abstract** - In the era of rapid technological advancement, the landscape of privacy rights is undergoing profound transformations, presenting complex challenges for legal policymakers and scholars. This abstract delves into the multifaceted impact of technology on privacy rights, examining it through the lens of legal policy and reform perspectives. Technological innovations, such as artificial intelligence, biometrics, and big data analytics, have enabled unprecedented levels of surveillance and data collection, blurring the boundaries between public and private domains. This pervasive data collection raises significant concerns about privacy infringement, surveillance capitalism, and the erosion of individual autonomy. Existing legal frameworks, including the General Data Protection Regulation (GDPR) and the California Consumer Privacy Act (CCPA), have sought to address these concerns by enhancing individuals' control over their personal data. However, these regulations often struggle to keep pace with the rapid evolution of technology, leaving gaps in protection and enforcement. In response, legal scholars and advocacy groups advocate for comprehensive reform measures to address the evolving nature of privacy risks. Proposed reforms may include updates to existing legislation, the development of new regulatory frameworks tailored to emerging technologies, and strengthened enforcement mechanisms to hold tech companies accountable for privacy violations. Interdisciplinary collaboration between legal experts, technologists, policymakers, and civil society organizations is essential for devising effective solutions to these complex challenges. The objects are to propose legal reforms and policy recommendations for enhancing privacy protection, to analyse the current legal frameworks governing privacy rights in the context of technological advancements. The methodology is qualitative analysis. In conclusion, the impact of technology on privacy rights necessitates a proactive approach to legal policy and reform. By adapting existing frameworks and implementing innovative solutions, policymakers can ensure that individuals retain autonomy and control over their personal information in an increasingly digitized world.

**Keywords:** *Law, Reforms, Privacy, Rights*

## **Redefining the Roles and Services of Local Government Institutions in Sri Lanka with Special Reference to Ratnapura District**

**Hasitha Jeewanthi, H.D.<sup>1</sup>, Chandradas, D.M.<sup>2</sup>**

<sup>1</sup>*Department of Political Science, University of Kelaniya,*

<sup>2</sup>*Department of Political Science and Public Policy, University of Colombo*

**Abstract** - The regional governments established under the local government bodies with the intention of ensuring and filling the citizens' needs at the regional level differ from country to country. In Sri Lanka, local government institutions which are well attached to the citizens and derive to render a prompt and efficient service, play a vital role in fulfilling citizens' needs. Even though there's an attempt to democratize these local government institutions, the attempt doesn't succeed and ends up with a dilemma. The dilemma comes up under the said background as the main objective of this research is to study on the nature, duties and roles of local government institutions and the tendency of its roles. Three Local Government Institutions in Ratnapura district have been selected as the research field to study the said objectives. To study the foregoing objectives, the study adopted a mixed methods approach which included both qualitative and quantitative methodologies for the data collection as well as reference to secondary sources. A questionnaire was used as the quantitative method. To collect the qualitative data, focus group discussions and semi-structured interviews were conducted. 120 respondents were chosen from each local government institution using a random sampling method based on gender, ethnicity, and age. The research allows us to identify the invisible citizens such as marginalized groups and those with limited access to e-democracy, personalized goods & services, social media's impact and relevance of political communication and identified services such as are typically identified by respondents. Further, it was notified that institutional-centered democracy has headed up against the citizen-centered democracy which citizens would look for. Moreover, it was identified that the citizens are not much aware of the services rendered by the local government institutions. Through this study, it's implied that the democratizing of the local government institutions can be paved to a new direction by redefining their roles and services.

**Keywords:** *Citizens, Democracy, Local Governance, Local Government Institutions*

## **The Value of a Culture towards the Mental Therapeutic Techniques: An Approach from the Buddhist Perspective**

**Nethmi Vithakshi, M.G.**

*Department of Pāli and Buddhist Studies, Faculty of Humanities and Social Sciences, University of Ruhuna.*

Abstract - The individual who is free from the mental disorders is a person who creates healthy relationships in and around the family and within the whole world. The worldly beings according to the Buddhist perspective, when entangle with craving, see everything that consists in this world with a permanent entity and beginning to attach with pleasures which finally sentence individuals to suffer with various mental disorders due to the untimely loss of the attachments. Always the Lord Buddha throughout His forty-five years of journey, got endeavours to make worldly being aware about the changing and decaying nature of the world and He always considered the culture as a major fact that should be greatly concerned when preaching the dhamma as well as when getting instances to treat people who suffered with various types of mental abnormalities. The main objective of this study is to inquire about the Buddhist attitude on the importance of the cultural values which bring great benefits in mental therapeutic measures for the worldly beings who face difficulties with the bad mental complications due to the stress and other psychological issues. The Araṇavibhangasutta, Mahāparinibbānasutta and the Secondary Sources are used for this qualitative study to investigate Buddhist teachings which can be used to create a civilized society which is free with the deluded tenets which sentences for the supramundane attainments. There can be seen many controversial opinions which have appeared on the role of a culture and some of them are psychological or religious. When referring the Buddhist perspective, it clearly explains both of these streams psychological and religious. It can be clearly seen how the Buddhist teachings have been used cultural components in curing the mental disorders.

**Keywords:** *Buddhist, Culture, Mental Disorders, Therapeutic, Values*

## **Harmonizing Bhikkuni Ordination Practices: Exploring Paths to Unity and Inclusivity in Theravada and Mahayana Buddhism**

**Hewawasam, S.S.**

*Department of Philosophy, Faculty of Arts, University of Peradeniya, Sri Lanka*

**Abstract** - The ordination of Bhikkunis, female monastics, has been a subject of divergence between Theravada and Mahayana traditions due to variations in Vinaya rules. This paper aims to explore possibilities for harmonizing Bhikkuni ordination practices between Theravada and Mahayana traditions to foster unity and inclusivity within the broader Buddhist community. This study employs a qualitative approach to explore commonalities, differences, and areas of potential reconciliation to lay the groundwork for harmonization efforts. The methodology is structured around an in-depth comparative study of the Vinaya texts, historical precedents, and interpretations within Theravada and Mahayana traditions regarding Bhikkuni ordination. The study begins with an extensive review of the primary works of both Theravada and Mahayana traditions. By revisiting interpretations of Vinaya rules, examining historical precedents, and consulting with senior monastics and scholars, the issue can be addressed. As initiatives, we can establish a platform for open dialogue and exchange perspectives between Theravada and Mahayana scholars, monastics, and practitioners. It will facilitate mutual understanding of the historical, cultural, and doctrinal factors influencing Bhikkuni ordination practices in each tradition. By initiating small-scale collaborative projects between Theravada and Mahayana monastic communities to conduct Bhikkuni ordination ceremonies that adhere to the respective Vinaya guidelines, it will serve as experimental grounds for assessing feasibility and addressing practical challenges. This study seeks to pave the way to address ethical concerns and social implications associated with Bhikkuni ordination harmonization, including issues of gender equality, cultural sensitivity, and community acceptance. It ensures that the process is guided by compassion, respect, and inclusivity, reflecting the core values of Buddhist teachings. Through collective effort and dedication, we can work towards a more unified and inclusive Buddhist community that honors the aspirations of all practitioners, regardless of tradition or gender.

**Keywords:** *Bhikkuni Ordination, Harmonization, Mahayana, Theravada*

## **Promoting spirituality and peace studies through guided meditation and visual arts**

**Seneheweera, L.**

*Department of Fine Arts, Faculty of Arts, University of Peradeniya, Sri Lanka*

**Abstract** - The objective of the study is to analyse the techniques and methods of guided meditation and visual arts for youth of undergraduates within the university system. The guided imagery is highlighted as a method to relax the mind by visualizing positive images, peaceful scenes, events or the objects which helps in releasing negative emotions and fostering spirituality. This artistic and spiritual approach aims to create a peaceful and safe environment within the university setting. The identified research problem revolved around understanding the needs and applicability of guided meditation and visual arts techniques for undergraduates. To address this, qualitative research methods were employed, focusing on participatory observation and feedback from participants, neutral observers, and peers. The study sample consisted of seventeen students, including two male and fifteen female third-year students from the Fine Arts stream. The assessment utilized pre- and post-observation of individual clients, as well as group observations during practical sessions. These sessions occurred weekly for one and a half hours over fifteen weeks.

Results from the study highlighted several suitable as well as simple techniques and methods, including drawing, painting, and sculpting using various materials such as pen, pencil, crayon, watercolour, poster colour, collared pencil, pastel, clay, white paper and Bristol board. The study demonstrated the benefits of linking guided meditation and visual arts for promoting spirituality among university youth. Additionally, it supported the integration of a therapeutic approach within the classroom and university environment to promote positive thinking among undergraduates. The study contributed to understanding how guided meditation and visual arts can be effectively used to foster a peaceful and supportive university environment, enhancing students' spiritual and emotional well-being.

**Keywords:** *Spirituality, therapeutic approach and visual imagery*

## **Women's freedom and discrimination in Religious Teachings in South Asian Society: A Historical Exploration**

**Ekanayaka, H.M.N.M**

*College of Historic Cultures and Nationalities, Graduate School of Southwest University, Chongqing, China*

**Abstract** - Religious teachings have enshrined women's rights and freedom. The purpose of this research is to identify the form of women's freedom and rights revealed by these religions. The research problem here is whether women's religious rights have been limited by considering femininity as a result of bad karma in the current social culture, although freedom and rights have been reserved for women in these religions. Here information was obtained through primary and secondary sourced qualitative data. Buddha created the social background for women to act respectfully by directing the status of women in Brahmin society in a different direction. "mata pita disa pubba" indicates that the parents should be considered as Purva Disa. Thus, by praising the value of mothers, Buddhism caused the rejection of the negative concepts rooted in Indian society by breaking the Bamunu tradition and creating a respectable status for women in society. Freedom and equality are also expressed in Christianity. At the time of the birth of Islam, the woman was no more than an animal, often brought up in the home to satisfy man's needs. In today's society, it is possible to identify a way in which women's rights are limited based on the negative attitudes built about women. Sri Maha Bodhi to certain temples for women in Sri Lankan society due to the fact that those opportunities are considered as a barrier based on certain biological reasons. There is no opportunity to enter Dalada Patthirippu perform Salat in Islamic society and participate in Hajj. In these cases, it is confirmed that a cultural norm has been established that considering the impurity of women, it is not allowed to enter holy places. It is not a religious norm. Although religions teachings have granted freedom and rights to women, it is clear that the religious rights of women are limited in the current society.

**Keywords:** *Femininity, Religions, Society, Women's Freedom, Women's Rights*